



ISUF  
NICOSIA  
2019

# XXVI

## INTERNATIONAL SEMINAR ON URBAN FORM

### CITIES AS ASSEMBLAGES

July 2nd - July 6th  
Nicosia, Cyprus

Book of Abstracts

## Cities as Assemblages

The *Cyprus Network of Urban Morphology* hosts the ISUF2019 conference in Nicosia, Cyprus. The conference aims to address the embedding of different theories and approaches within methodologies analysing the urban form.

Relational theories have wide implications for the study of the urban form, not just in terms of how we conceptualise cities and describe the processes of their emergence and transformation, but also for the design of methodologies that more than ever need to consider a variety of city components – not just physical elements, but also human groups and the connections between them. Furthermore, such theories highlight the relevance of the urban form to the construction and negotiation of the social as well as the power of connections between social entities at different scales in shaping our cities. Both these reflection are particularly relevant to the focus themes related to the location of the conference: group formations and negotiations within cities influencing ethnoreligious tensions, political movements, social segregation and urban conflicts more widely, as well as the particular status of port cities often in the past more linked to other port cities than their hinterland and, still to the present day, the first point of arrival of migrant groups and the city-location of choice for tourism.

Although the relevance of relational theory for the fields of geography and urban studies has been touched upon by a number of research articles, the theories have not been reflected upon with great depth and no conferences on the impact and the potentialities of relational theories for urban studies have so far taken place. Discussion on the implications of such theories specifically for the study of urban morphology has been even scarcer, may these be in relation to Conzenian, typological or space syntax approaches.

Relational theories open up new avenues for the study of urban morphology and for the development of multidisciplinary methodologies. They can provide a framework for the analysis of the physical and social processes that are involved in the shaping of the urban form, which also addresses aspects such as historical processes or the distributions of variations across a population in order to fully explain the emergence of cities and the processes of persistence and change.

Although relational theories are suggestive of themes for research on urban development and links to various methodological techniques could be drawn, they tend to be indeterminate due to the complexity of the theorisation of cities as assemblages, where the components and processes could be innumerate and hence emergence can hardly follow any specific rules. The concept of assemblage and the functioning of assemblages as presented by De Landa is relatively clear but remains an analytically-unspecific concept which does not provide a strategy for analysing social assemblages and explain the properties of the whole (since there is a high level of contingency in the interaction between the parts and potentially infinite scales at which social processes can occur).

The ISUF 2019 conference theme addresses the embedding of different theories and approaches within methodologies analysing the urban form: all such potentialities afforded by relational theories to urban morphology are explored throughout the conference sub-themes:

**Theory 1: emergence, relational theories, the social sciences and urban morphology.** This is really the key theme of the conference and the most relevant concept (emergence) to urban morphology. Papers presented under this theme are about how cities come into being and transform. Subthemes include all elements of relational theories that relate to urban morphology: scales, historical processes, material and human components, capabilities and connections between components, territorialisation and deterritorialisation.

**Theory 2: the scope and limits of urban theories.** We are using the concept of cities as assemblages in order to encourage discussion about the latest, as well as the older, trends in urban theory. This theme is about the critique of application of relational theories to urban studies, fragmentation of methods, the attention to the particular and the need to bring specific research findings back to more general theories. Subthemes include the main theorisations of the city: cities as organisms, cities as artefacts, cities as machines, cities as systems of flows and networks, and how to take steps forward to build a more mature theory of the city.

**Methods 1: embedding different approaches into the study of urban morphology.** This theme is about the need to further develop multidisciplinary within urban morphology, layering different perspectives applied to fringe belt analysis: spatial, social, economic and planning, and filling in the gap when practically applying methodologies (e.g. what to do if data is not available).

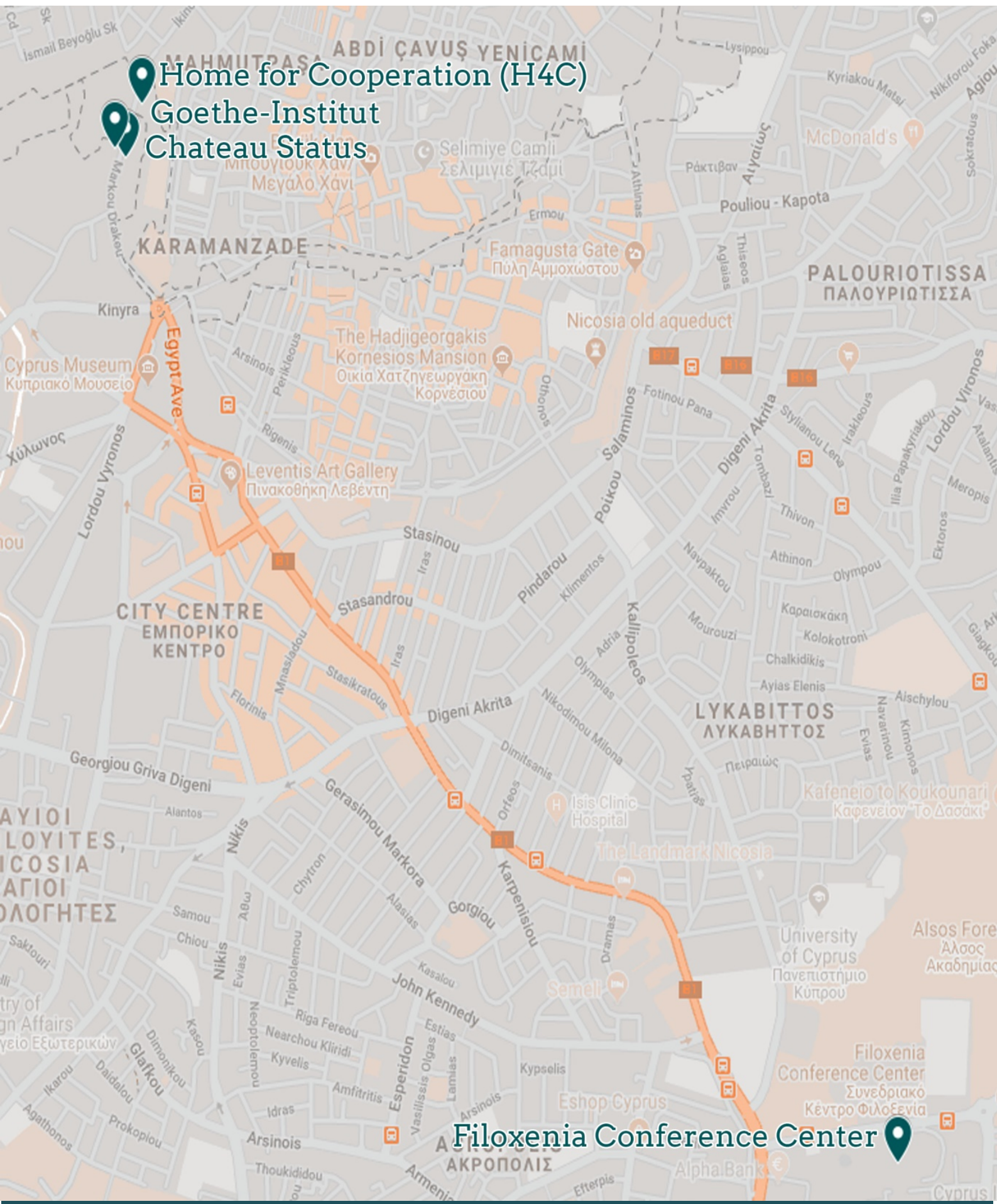
**Methods 2: combining Conzenian, typological and space syntax approaches.** This theme is key to understanding the development of urban morphology and take it forward. Work on this has been initiated, for example at the 2014 ISUF conference and through the morphologies meeting at the Bartlett School of Architecture. The initiation of a research project applying all approaches to the same case study is something that was suggested at the 2014 ISUF conference. Paper presented under this theme, describe the latest research done in combining different approaches and suggest how further developments can be made.

**Focus 1: urban conflict and divided cities and Focus 2: Mediterranean port cities in a global context.** Both focus themes are strongly related to the location of the conference and both are extremely topical and relevant to context of increasing migrations flows within the Mediterranean. Subthemes of Focus 1 include issues of segregation and cohabitation, issues of public space use, comparative analysis of divided cities and a special subtheme dedicated to design and architecture on regeneration projects. Focus 2 is broadly about the Mediterranean as a sea of unity and division and could function in the context of a regional pan-Mediterranean

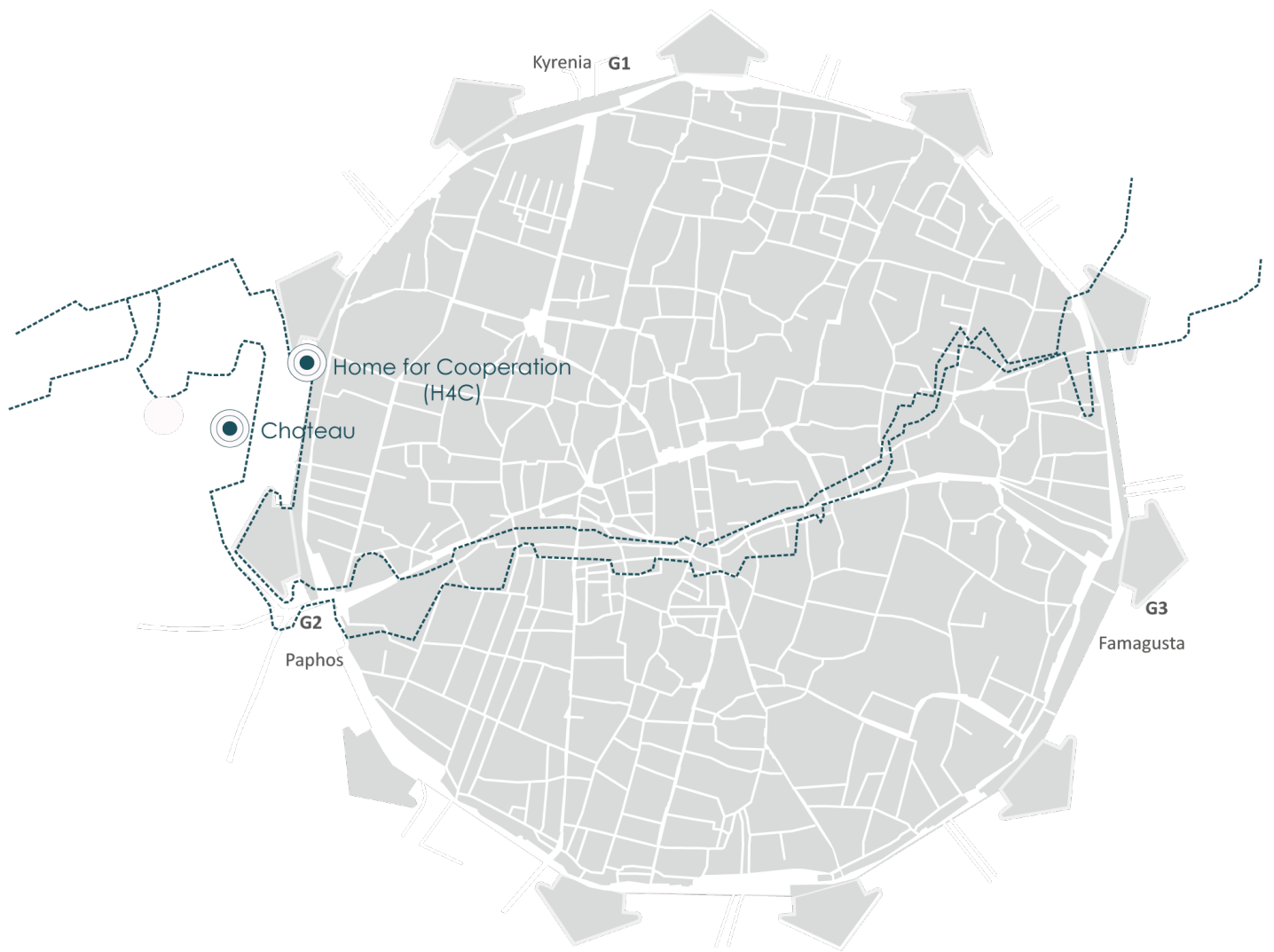
network. Subthemes of Focus 2 include comparative analyses of Mediterranean cities and comparative analysis of port cities and a further special subtheme dedicated to design and architecture on waterfront developments.



# Venues



# Nicosia Buffer zone

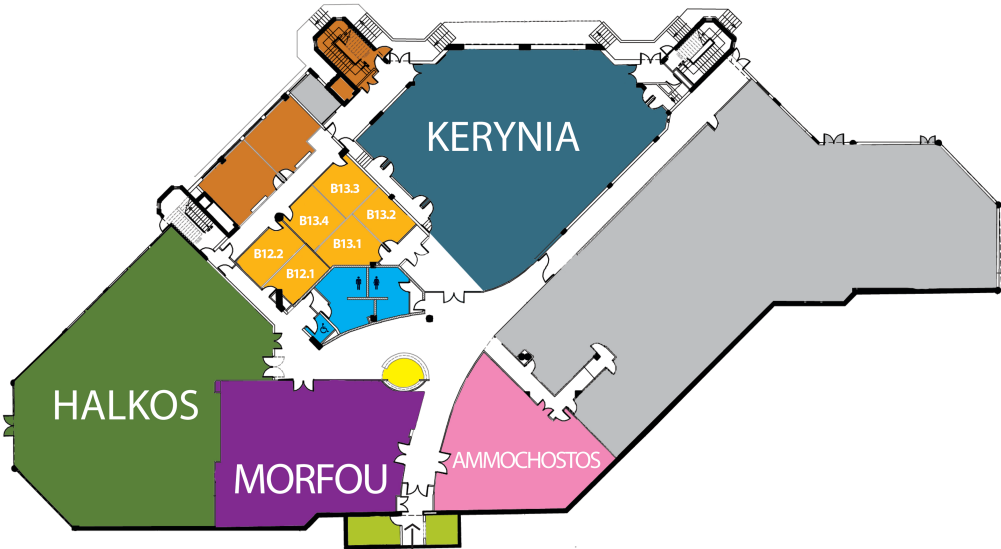


# Filoxenia Conference Center Floor Maps

Ground Floor



Basement



From Ground Floor

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- **Giorgio Verdiani**, Università degli Studi di Firenze, Italy
- **Nevter Zafer Comert**, Eastern Mediterranean University, Cyprus

# Programme

## Wednesday, 03 July

08:00 – 08:45 Registrations (Filoxenia)

08:45 – 09:15 Opening Address (Zenon Kitieus)

09:15 – 10:00 **Keynote I – Alan Penn** (Zenon Kitieus)

### Parallel Sessions (Filoxenia)

10:00 - 11:30 Methods 1 : embedding different approaches into the study of urban morphology.

Methods 2 : combining Conzenian, typological and space syntax approaches.

Theory 1 : emergence, relational theories, the social sciences and urban morphology.

Urban Design : urban morphology, building typology and design A

Urban Design : urban morphology, building typology and design B

Urban Design : urban morphology, building typology and design C

11:30 - 12:00 Coffee Break

12:00 - 13:30 Methods 1 : embedding different approaches into the study of urban morphology.

Methods 1 : embedding different approaches into the study of urban morphology.

Theory 1 : emergence, relational theories, the social sciences and urban morphology.

Theory 2 : the scope and limits of urban theories.

Urban Design : urban morphology, building typology and design A

Urban Design : urban morphology, building typology and design B

13:30 - 14:30 Lunch Break

**14:30 - 15:30 Transport to Buffer Zone (BZ)**

15:30 - 16:30 **Nicosia Urban Form** (Chateau, BZ)

**EPUM Round Table** (Chateau, BZ)

16:30 - 17:00 Coffee Break (Chateau, BZ)

17:00 - 18:45 Focus 1a : urban conflict and divided cities.

Focus 1b : urban conflict and divided cities.

Focus 1c : urban conflict and divided cities.

Focus 1d : urban conflict and divided cities.

19:00-21:00 Welcome Reception (Chateau, BZ)

## **Poster Presentations** (Filoxenia)

12:00 - 13:30 Poster Presentations

## Thursday, 04 July

08:30 – 09:00 Registrations (Filoxenia)

09:00 – 10:00 **Keynote II – Ann Vernez Moudon** (Zenon Kitieus)

### Parallel Sessions (Filoxenia)

10:00 - 11:30 Methods 1 : embedding different approaches into the study of urban morphology.

Methods 2 : combining Conzenian, typological and space syntax approaches.

Theory 1 : emergence, relational theories, the social sciences and urban morphology.

Theory 2 : the scope and limits of urban theories.

Urban Design : urban morphology, building typology and design A

Urban Design : urban morphology, building typology and design B

11:30 - 12:00 Coffee Break

12:00 - 13:30 Methods 1 : embedding different approaches into the study of urban morphology.

Urban Design : urban morphology, building typology and design A

Theory 2 : the scope and limits of urban theories.

Theory 2 : the scope and limits of urban theories.

Urban Design : urban morphology, building typology and design B

Urban Design : urban morphology, building typology and design C

13:30 - 14:45 Lunch Break

14:45 - 16:15 Methods 1 : embedding different approaches into the study of urban morphology.

Urban Design : urban morphology, building typology and design A

Urban Design : urban morphology, building typology and design B

Urban Design : urban morphology, building typology and design C



Urban Design : urban morphology, building typology and design D

## **Poster Presentations** (Filoxenia)

12:00 - 13:30 Poster Presentations

## Friday, 05 July

08:30 – 09:00 Registrations (Filoxenia)

09:00 – 10:00 **Keynote III – Wendy McClure** (Zenon Kitieus)

### Parallel Sessions (Filoxenia)

10:00 - 11:30 Methods 1 : embedding different approaches into the study of urban morphology.

Methods 1 : embedding different approaches into the study of urban morphology.

Methods 1 : embedding different approaches into the study of urban morphology.

Theory 1 : emergence, relational theories, the social sciences and urban morphology.

Urban Design : urban morphology, building typology and design A

Urban Design : urban morphology, building typology and design B

11:30 - 12:00 Coffee Break

12:00 - 13:30 Methods 1 : embedding different approaches into the study of urban morphology.

Theory 1 : emergence, relational theories, the social sciences and urban morphology.

Focus 2 : Mediterranean port cities in a global context.

Urban Design : urban morphology, building typology and design A

Urban Design : urban morphology, building typology and design B

13:30 - 14:30 Lunch Break

14:30 - 15:30 Book Launch – Jeremy Whitehand (Zenon Kitieus)

15:30 - 16:15 Keynote IV – Giuseppe Strappa (Zenon Kitieus)

16:15 - 16:45 Coffee Break

16:45 - 18:45 General Assembly and Closing (Zenon Kitieus)

20:30 – 22:30 Farewell Dinner (Chateau Status – Buffer Zone)

## **Poster Presentations**(Filoxenia)

12:00 - 13:30 Poster Presentations

# **Methods 1 : embedding different approaches into the study of urban morphology.**

Wednesday, 03 Jul

10:00 - 11:30

Room: Elia

**Chair: Irina Kukina**



10:00 - 10:15

## **Access structure: an innovative articulation of the inner structure of urban blocks**

S. Yacheng<sup>1</sup>, Z. Ye<sup>2</sup>

<sup>1</sup>Southeast University, School of Architecture, 2 Sipailou, Nanjing, China

<sup>2</sup>National University of Singapore, Department of Architecture, 4 Architecture Drive, Singapore, Singapore

Quantitative representation and mathematical articulation of the structure of urban fabric is a useful means to addressing the discontinuities between morphological approaches of different disciplines (Marshall 2014). While the configurational structure of street network (e.g. Hillier 1984, Porta 2010, and Marshall 2016) and the compositional structure of urban land, plots and building footprints (e.g. Marshall 2015) have been extensively investigated, efforts that focus on the connections between street network and plots and the relations between plots are rare. Clear articulations of both can help to understand more accurately the organizing logic and inner structure of urban blocks and then better inform urban planning practice.

To bridge this gap, this study develops an innovative articulation of the relationship between streets, plots and buildings using nodes and links, and proposes the access structure. Three indicators, namely degree of embeddedness and degree of interlocking and co-inflection (see Kropf 2014, for the latter two), are coined to measure the connections between streets and plots and between plots. The three indicators are then plotted onto a ternary graph, where characteristics of the inner structure of an urban block can be mathematically presented and those of different urban blocks can be accurately compared. The new access structure is tested and evaluated using the case study of the Gao Lou Men district, an urban quarter with a mix of old urban fabric and new developments in Nanjing, China. How it may inform urban planning practice is also discussed at the end.

10:15 - 10:30

## **Territories and frontiers in inconclusive concepts within the schools of Urban Morphology**

S.d.A. Pereira Costa<sup>1</sup>, M.C.V. Teixeira<sup>2</sup>, M.M. Gimmler Netto<sup>3</sup>

<sup>1</sup>UFMG, Departamento Urbanismo Escola de Arquitetura, Rua Paraíba 697 Sala 404c. Escola de Arquitetura. Departamento de Urbanismo Bairro dos Funcionários. Belo Horizonte / MG CEP 30 130140, Brazil

<sup>2</sup>Escola de Arquitetura. Universidade Federal de Minas Gerais- EAUFMG, Departamento de Projetos, Rua Paraíba 697 Sala 404b. Escola de Arquitetura. Departamento de Projetos Bairro dos Funcionários. Belo Horizonte / MG CEP 30 130140, Brazil

<sup>3</sup>Escola de Arquitetura, Urbanismo e Design / UFMG, Programa de Pós-Graduação em Ambiente Construído e Patrimônio Sustentável, Rua Paraíba 697 Sala 202 Escola de Arquitetura. Programa de Pós-Graduação em Ambiente Construído e Patrimônio Sustentável. Bairro dos Funcionários. Belo Horizonte / MG CEP 30130140, Brazil

Entitled Territories and frontiers in inconclusive concepts within the schools of Urban Morphology, this paper is the result of ongoing research that has sought to develop, hitherto, neglected aspects in the field. As such, the approaches of the English School, with regards to morphogenetic regions and their scales of action, will come under particular examination. In addition, concepts generated by the Italian School such as type, urban fabric and the territorial type, and specifically, their different interpretations found within Brazilian studies also form part of this research. Moreover, the contemporary concept of landscape units, disseminated in the field of ecology, has often been used on different scales, one of them being the territorial. The central aim is, therefore, to understand the cause and the fragility of these lacunae in the concepts so that they may be consolidated and better-employed. This will, in turn, allow comparison and contrast between (1) morphogenetic regions and (2) types. A complementary comparison of the similarity or incongruity of the above, together with landscape units (3), aims to establish a basic concept which could be productively applied to all items. The justification for this research lies in the fact that the areas examined here have remained unexplored in the Landscape Laboratory and, more generally, in Urban Morphology courses offered by Brazilian institutions. Finally, an investigation, based on the Brazilian reality, offers the opportunity to decode and transmit the findings which may be applied to research developed by interdisciplinary teams participating on Master's and Doctoral programmes.

10:30 - 10:45

## **Applicability of morphological tessellation and its topological derivatives in the quantitative analysis of urban form**

M. Fleischmann<sup>1</sup>, O. Romice<sup>1</sup>, S. Porta<sup>1</sup>

<sup>1</sup>University of Strathclyde, Architecture, 75 Montrose Street, Glasgow G1 1XJ, United Kingdom

Urban morphology is experiencing growth in quantitative analysis but faces a twofold problem concerning data used to represent urban form - their availability in the first place, and reliability in the second. Both problems concern several urban features, but are especially true in regard to the plot, whose GIS representation capturing a precise morphological meaning is scarcely available. This problem has challenged the authors of this paper to develop a different approach to spatial division. Using the morphological tessellation method, which entails partitioning of space starting from building footprints, utilizing the principles of Voronoi tessellation, we explore the possibilities of such method in the definition of analytical units and test their reliability on the case study of Prague, Czechia.

Morphological tessellation and spatial units derived from this analysis are consistent in capturing built-up space uniformly, with no discontinuity. This allows us to follow the topology of morphological structure and determine analytical units based on their contiguity, capturing topological neighbors of variable distance. One of the side benefits of this approach is that block-like units, defined using morphological tessellation are also less dependent on the quality of street network data, whilst at the same time retain the information of variable street width. Empirical tests are presented to assess the reliability of the approach in identifying recurring patterns within urban form. Morphological tessellation partially substitutes the need to derive intricate plot forms from a combination of sources; the research shows furthermore a new approach to capturing spatial structure with reduced data demands.

10:45 - 11:00

## **Morpho: the physical form of Portuguese cities**

V. Oliveira<sup>1</sup>, V. Medeiros<sup>2</sup>, J. Corgo<sup>1</sup>

<sup>1</sup>Universidade do Porto, Faculdade de Engenharia, Rua Roberto Frias s/n, 4200-465 Porto, Portugal

<sup>2</sup>Universidade de Brasília, Brazil

This paper offers a development of the Morpho methodology (Oliveira, 2013; Oliveira and Medeiros, 2016), by focusing exclusively on the arrangement of the main elements of urban form on the ground plan (Conzen, 2018), namely: the special accessibility of the street system, the size of street-blocks, the dimension of plots (paying particular attention to plot frontages) and the relationship between building frontage and plot frontage. Morpho is applied on the analysis of the 20 main cities of Portugal (in administrative terms), considering not only mainland but also the islands of Azores and Madeira. The paper demonstrates the potential of these four criteria in describing and explaining the physical forms of Portuguese cities. It also allows for a reading of the evolution of the patterns of combination of urban form elements over history. It is argued that the patterns of combination that emerged after the twentieth century, particularly after the second half of the twentieth century, hold a number of physical weaknesses that have a negative impact on a set of aspects of our live in cities, in social, economic and environmental terms. Consolidation of these results will require the application of the methodology to a wider sample of cities considering a more diversified geographical basis.



11:00 - 11:15

## **Intensity mapping: a non-essentialist approach to methods in urban morphology**

M. Muminovic<sup>1</sup>

<sup>1</sup>University of Canberra, Faculty of Arts and Architecture, 2601, Canberra, Australia

In assemblage theory, all entities have extensive and intensive properties and intensity is one of the core concepts that explains the processes of morphogenesis. Extensive qualities are related to the material world and define their boundaries, whereas intensive properties are linked with becoming and dynamic processes that are forming the identity of an entity. Both aspects are interdependent. In urban morphology, the analysis has often focused on the extensive properties and their permanence. There is a limited exploration of the dynamic aspects of the extensive qualities or change of built environment. Thus, this paper asks, how can we apply the intensive and extensive properties in studies of the built environment? How can the concept of intensity be explored in the analysis of urban morphology?

The paper begins with defining the concept of intensity in assemblage theory based on the difference and uses a case study approach to apply and test various intensity mappings. The aim is to discuss the potential contribution to the analysis focusing on dynamics and changes instead of permanence and essences. The intensive maps are capturing the differences in the built environment over two aspects, one focusing on the differences in space and the other on the differences in time. Intensive maps are visualising dynamic phenomena and the paper is comparing intensive with extensive results. The maps are using ArcGIS and standard deviation to generate intensity data and compare the spatial characteristics of various intensities. The results contrast a range of interpretations of the intensity and visualisation.

## **Methods 2 : combining Conzenian, typological and space syntax approaches.**

Wednesday, 03 Jul

10:00 - 11:30

Room: Morphou

**Chair: Alan Penn**

10:00 - 10:15

## **Attracting Amida-Diyarbakir: a methodological comparison between Muratorian and Conzenian urban morphology and Space syntax**

A. Camiz<sup>1</sup>

<sup>1</sup>Özyeğin University, Department of Architecture, Nisantepe Mah. Orman Sok. No:34-36, 34794, Alemdag-Çekmeköy / Istanbul, Turkey

The comparative application of different methods of analysis to the same urban realm remains today (Whitehand, 2018), as it was 20 years ago (Whitehand, 1997) and (Marzot, 1998) the most interesting experimental field within the discipline of Urban Morphology. Our object of study should be the city and we should apply the tools deriving from different theories to verify if they match with the case studies, and eventually to further improve those theories. The case study of Amida-Diyarbakir, hence its particular formation process, was selected to overlap different urban analysis, belonging to the Muratorian and Conzenian Urban Morphology schools and to the space Syntax methods: namely, the axial analysis, the orientation analysis, the attraction analysis and the nodal analysis. The reconstruction of the formation process of Diyarbakir's urban organism started from Garden's (1867) description and Gabriel's (1940) interpretations, using the available contemporary cadastral sources to shed some light on the Roman and Byzantine phases of the urban settlement. The research relied also on the scarce but meaningful Latin and Greek literary sources, together with a large scale morphological analysis. The principal urban polarities, the subsequent fringe belts and the nodal intersections of paths and city walls, together with the evolution of urban types and tissues, all contribute to analyse in depth the attraction phenomenon in this city. The urban organism can be understood properly considering all the concurrent scales of the urban morphology discipline, i.e. the territorial scale, the urban scale, the urban tissue scale and the building scale.

10:15 - 10:30

## **The Athens Form: Exploring the spatial signature of functional and configurational typologies of Athens Urban Area**

Y. Paraskevopoulos<sup>1</sup>, Y. Photis<sup>1</sup>

<sup>1</sup>National Technical University of Athens, Department of Geography and Regional Planning, Iroon Politechniou 9, Zographos, Greece

Since the theories of “natural movement” and “movement economy” were introduced by Hillier, the relation between spatial configuration and land-use intensity has been at the forefront of configuration research. There are numerous studies that investigate this link but far less focus on large geographical regions. In this paper we explore the spatial signature of functional and configurational typologies of ‘Athens Urban Area’, an extensive and densely built-up area spanning over 412 sq.km.

This paper has a threefold focus. Firstly, to explore the form of ‘Athens Urban Area’ by identifying its functional (activity) and morphological (syntactical) centres, secondly to examine the geography of these centres and thirdly to investigate the role of spatial configuration, as quantified by space syntax analyses of angular choice and integration, in shaping the existing land-use pattern. The methodology for identifying activity and syntactical centres is based on Kernel Density Estimation method, and spatial analysis and geostatistics are employed for exploring the spatial and configurational signature of typologies. Space syntax analysis is performed at radii that correspond with local-, city- and metropolitan-scale structures in order to unveil the different patterns that emerge in various city scales. The outcome of this paper is a comprehensive analysis of the functional and morphological form of Athens, derived by fine-scale land-use data, available at block-level, provided by official sources (Hellenic Statistical Authority). A study, in a region with such extent and characteristics, is missing from the configurational research and could shed light on how historic Mediterranean cities are assembled.



10:30 - 10:45

## **Comparative studies in urban morphology**

V. Oliveira<sup>1</sup>, A.R. Amato<sup>2</sup>, G. Strappa<sup>3</sup>

<sup>1</sup>Universidade do Porto, Faculdade de Engenharia, Rua Roberto Frias s/n, 4200-465 Porto, Portugal

<sup>2</sup>Sapienza Università di Roma, DiAP, Dipartimento di Architettura e Progetto, Rome, Italy

<sup>3</sup>Sapienza University, DiAP, Dipartimento di Architettura e Progetto, Rome, Italy

What are the most effective theories, concepts and methods to describe, explain and design the physical form of our cities? Are there advantages in integrating and combining different approaches? What are the limits of this bridging process? Can combination be achieved through teaching? These are the main questions of the 'Emerging Perspectives on Urban Morphology' / EPUM Project. This presentation focuses on the EPUM Project, particularly in two of its central elements – a collection of Open Access Resources and an Intensive Workshop. The former offers a set of fundamental resources (with an open access nature) on the dominant approaches within the International Seminar on Urban Form / ISUF, the historico-geographical and the process-typological approaches. The latter is a two-weeks workshop, that took place in Porto in September 2018, where tutors and students used different morphological approaches, first in isolation and then in combination, to analyse the historical kernel of that Portuguese city and the main challenges that is facing due to a strong touristic pressure. The main results of the workshop, both in terms of process and content, are highlighted.

10:45 - 11:00

## **Tracking Research on Morphological Evolution of the Zhishanmen Area in Beijing: Combining Conzenian Approach with Urban Conservation Planning Methods**

D. Peng<sup>1</sup>, F. Song<sup>1</sup>, X. Xiong<sup>2</sup>

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<sup>2</sup>Roland Berger Strategy Consultants, Consultant, 23/F, Jing An Kerry Centre Tower 1, 1515 Nanjing West Road, Shanghai, China

The urban morphology approach can provide significant references for the morphological evolution and boundary division of historical regions, and it is becoming more and more important to historical districts conservation planning in China which is lack of morphogenesis and historico-geographical methods. In 2006, J.W.R. Whitehand and Kai Gu adopted the Conzenian approach to analyze the morphological evolution of the Zhishanmen historical area in Beijing from three perspectives of plot patterns, building types and land utilization. It compares the plan-units and boundaries divided by the Conzenian approach and that delimited by BMCPC (Beijing Municipal City Planning Commission) in its conservation and redevelopment plan, aiming to promote the application of plan-units in planning practice. Our study is a tracking research mainly based on J.W.R. Whitehand's research on Zhishanmen area in 2006. The research is carried out on two different spatial scales. On the one hand, analysis on plan-units will start from The Complete Map of the Capital in the Qianlong Period to the conservation plans made by BMCPC. On the other hand, microscopic morphological evolution analysis on the repletion process in Siheyuans and its socio-economic mechanism are accomplished. On the basis of the above two-scale analysis, profound considerations on the practical application of morphology in combination with the existing units and boundaries in the conservation planning are made. It helps to promote the integration of Conzen's morphological analysis approach and the urban conservation planning and management methods in China, also provide reference for the application of urban morphology in urban conservation planning.

11:00 - 11:15

## **Emerging Perspectives on Urban Morphology: Nicosia's urban form through multiple practices**

N. Charalambous<sup>1</sup>

<sup>1</sup>University of Cyprus, Architecture, P.O. Box 20537, 1678 Nicosia, CYPRUS, Cyprus

The 'Emerging Perspectives on Urban Morphology' / EPUM research project brings together five partners from different countries in South and Central Europe that have been promoting different morphological approaches aiming at comparing the theoretical, conceptual and methodological basis of the different approaches, identifying their main strengths and weaknesses, and exploring the possibilities to combine some of these different ways of describing, explaining and prescribing the physical form of cities.

Within the theoretical framework of EPUM, this paper aims to develop the line of research launched by Kropf and further explored by Oliveira and Monteiro. A critical analysis of the concepts underpinning three dominant approaches is undertaken, outlining a combined view in which the different approaches can support each other to provide a better understanding of urban segregation in one case study, the city of Nicosia (Kropf 2009). A key concept in three of these approaches (historico-geographical, process typological and spatial configurational) is chosen and then applied. The main points of contact between the different approaches are identified and a methodological approach is proposed. The benefits of relevant methodological tools are reviewed and, based on the requirements of the theoretical framework they are selected and combined.

The attempt to find a common ground proves to be a challenging task; but the knowledge of the strengths and the weaknesses of each approach may enable us to select the most appropriate options given the specific nature of the object under study, fostering a more holistic and integrated approach to urban segregation studies.

# **Theory 1 : emergence, relational theories, the social sciences and urban morphology.**

Wednesday, 03 Jul

10:00 - 11:30

Room: Ammochostos

**Chair: Kim Dovey**

10:00 - 10:15

## **Spontaneous city, the base of a critical way of conceiving the city**

G. Strappa<sup>1</sup>, A.R.D. Amato<sup>1</sup>, M. Crognale<sup>1</sup>

<sup>1</sup>Sapienza University, DiAP, Dipartimento di Architettura e Progetto, Italy

The proposed paper deals with the topic of the relationship between lots, pertinent areas and paths in Roman fabrics, analyzing the difference between “spontaneous” structures formed on the ancient urban substratum in a processual way and modern planned fabrics. For this purpose, new original ground floor plans have been produced concerning the fabric on Via del Corso and on some of the EUR axes. The study has been developed within a more general research including a parallel analysis between the cities of Rome and Nanjing funded by the ISUF grant and carried on by University of Sapienza and University of Nanjing. From this point of view we can read a link between the historical city and the modern planned urban space, consisting in the consolidation of the way of transforming urban structure, partially translating their main characters in the planned and critically conceived new designs.

We are testing this hypothesis, already proved in the formation of several architectonic types and fabrics, through the comparison of two study cases based on original reconstructions of the building maps: the fabric formed on the ancient substratum of Via Lata/Via del Corso and the fabric built in the planned modern quarter of EUR on the axes of Viale della Civiltà del Lavoro and Viale Europa. The main concept is related to the formation of urban poles, routes and fabrics: most of the modern planned urban fabrics use the same logic of the historical city, structuring the urban tissue according to the position of the poles, through their connection and following a similar method in the formation of the urban block and fabric.



10:15 - 10:30

## **The City as an Organism Made by Lines**

S. Fernandes<sup>1</sup>

<sup>1</sup>University of Lisbon, Lisbon School of Architecture, CIAUD, FormaUrbis LAB, Rua Sá Nogueira, 1349-063 Lisboa, Portugal, Portugal

This paper focuses on the morphological interpretation of the Portuguese urban-layout and addresses the city-making process as an assemblage of lines made by walking. The aim is to decode the rules of urban-form according two main ideas:(1)The urban-form as a result of its physical context -where human settlements emerge from the ground following the modelling effect of the territory, highlighted by the matrix-routes of ridges and valleys, but also by the catalyst effect of creativity to overcome obstacles through walking.(2)The urban-form as a result of the dynamic process of formation -where the gradual and cumulative addition of urban elements from which urban shape progressively emerges based on elementary systems of flows/lines/networks, evolves with a multitude of possible derivations that tend to transform itself into a linear urban structure of public spaces.

Methodologically, the use of drawing as an analytical tool was generalized to analyse the dynamic process of urban formation. Stratification and elementalism were the procedures of decomposition that supported the theoretical exercises of abstraction and of consequent reduction of complexity of the urban-shape, with the purpose of understanding the whole and of the structural relations between the parts and their interaction with time.

In morphological terms, the decomposition of the strata allowed for the identification of a non-regular genetic-system,matrix structures and evolutionary processes as well as theoretical models of composition and principles of adjustment and adaptation. Thus, when comparing complex layouts of sedimented cities with elementary layouts of proto-urban settlements, analogous morphological matrices were uncovered, albeit at very different evolutionary stages.

10:30 - 10:45

## **The city as relations: mapping relationality's inter/ intra-disciplinarity**

A. Stamatopoulou<sup>1</sup>

<sup>1</sup>National Technical University of Athens, School of Architecture, Stournari & Patision 42 35, Athens 106 82, Greece

The paper focuses on the 'relationally composed object' through the case of the city. The focus is based on a combinatory examination of theories, methods and practices broadly affiliated to relational thinking in order to highlight the perspective of its inter-disciplinarity's capacities and their potential application into urban analysis and design. Let us analyse the hypothesis: exploring different theories and practices (i.e. approaches giving emphasis on: parametricism, system-thinking and ecological thinking, networks, collective intelligence, assemblage theory, relational aesthetics) - in disciplines such as philosophy, human sciences, design, architecture and art -, one can detect different aspects but also different logics, that contribute to the understanding of the city as composed of dynamic relations defined by heterogeneous parameters. The paper is part of a PhD research dealing with questions on how one can describe, analyse and design (in) the city in regard to its relationality and multiplicity. One way to respond to these questions and challenges, as attempted here, is by tracking ways, ideas and capacities from the examined theoretical-methodological-practical field. However, this field is not only multidisciplinary. The different aspects extracted from the diverse theories and practices are sometimes connected or even overlap, but they might appear in conflicting relations, depending on the logics. Therefore, this inter-disciplinarily or even intra-disciplinarity implies relations; relations that in potential synergies might become generative. Object of the paper is to map these relations, this inter/ intra- disciplinarity in order to reveal a field of capacities under the criterion of their potential applicability to analysis-and-design.

10:45 - 11:00

## **A relational research approach to urban morphology**

I. Geddes<sup>1</sup>, C. Chatzichristou<sup>1</sup>, N. Charalambous<sup>1</sup>

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This paper presents a relational research approach to the study of urban form by using assemblage theory as a broad theoretical framework for urban morphology and the social processes that are involved in the shaping of the urban form. The argument is made that the physical and human aspects of a city are inextricably linked and should therefore be analyzed together as they jointly define the identity of a city. It is also made clear that an analysis that is devoid of historical processes or of the distribution of variations across a population cannot fully explain the emergence of cities and the processes of persistence and change.

The fact that assemblage theory is a generic, non-specific approach, should be viewed as a strength rather than a weakness. This genericity has been shown to be extremely valuable in making inferences about the causal pathways that lead to the physical and social form of cities (Charalambous and Geddes, 2015); it is also a characteristic which is advocated as beneficial when making analytical choices and providing normative guidelines (Batty, 2013; Bettencourt, 2013).

The proposed theoretical framework and its analytical requirements are matched by the main morphological approaches. Such a framework was tested for a diachronic analysis of Limassol; the effectiveness of the framework in this research and the choice of specific methods and tools depending on the context is discussed with reference to the interdisciplinary potential of combining approaches under such a relational framework.

11:00 - 11:15

## **Assemblages of Anthropocene landscapes**

D.K. Wieck<sup>1</sup>, P.U. Giseke<sup>1</sup>

<sup>1</sup>Technische Universität Berlin, Department of Landscape Architecture and Open Space Planning, EB12, Straße des 17. Juni 145, 10623 Berlin, Germany

The Anthropocene reveals in urban landscapes. The multidimensional effects of global change - rapid urbanization processes, heavy rain events, droughts, resource scarcity, environmental decline, acceleration of social injustice - confront the urban and natural systems and their inhabitants with raising challenges. They are forced to re-think the circumstances and components that lead to these transformations and to deeper reflect about the 'sharing responsibility' between humans and non-humans (Latour, 2016). As a consequence of the strong interconnectivity between the urban and natural phenomena new kind of approaches to Anthropocene landscapes require a thinking in dynamic categories, relationships and interactions between nature and culture, human and non-human actors as 'vibrant matters' (Bennett, 2010), and to focus at the same time on their spatialization. Landscape architecture has the competence to link different disciplinary and social knowledge, creative design practice and spatial transformation and thus to materialize knowledge of robust urban landscapes. Research connecting relational theories to the practice of landscape architecture has further developed the translation and reflection of knowledge spatialization for Anthropocene landscapes. This paper argues for an integrative approach linking assemblage and posthuman theories with system thinking, landscape design and interactive methods to foster innovation in changing landscape architecture theory and practice. It promotes an understanding of urban transformation as a process of materialized knowledge reflection, adaptation and innovation. Furthermore, it shows conceptual approaches for deciphering assemblages of Anthropocene landscapes, for stimulating their agencies and competences to interact and to attain more acting ability in dealing with the Anthropocene challenges.

# **Urban Design : urban morphology, building typology and design A**

Wednesday, 03 Jul

10:00 - 11:30

Room: Halkos

**Chair: Kai Gu**

10:00 - 10:15

## **Spatial-temporal characteristics of shopping activities of migrant workers in Nanjing**

Q. Ji<sup>1</sup>, Y. Yang<sup>2</sup>

<sup>1</sup>Southeast University, city planning, sipailou 2#, Xuanwu district, China

<sup>2</sup>Nanjing Forestry University, College of Landscape architecture, 210037, China

In the process of rapid urbanization in China, population mobility has become a typical economic phenomenon, which has a great influence on socio-economic development and social progress. Shopping, as the core of consumption behavior of migrant workers, combines the whole picture of their lives together with their housing and employment. Based on the first-hand data of the questionnaire survey on shopping activities of migrant workers in Nanjing City in 2018, this paper summarizes the time characteristics of shopping activities such as frequency, time and duration, as well as the spatial characteristics of travel distance, the activity circle and hierarchical structure. The results show that the shopping activities of migrant workers are characterized by satisfying basic living needs, high homogeneity, low-frequency, weekend-shopping mode, close-travel distance and non-motorized and public transport modes. The spatial and temporal levels of shopping trips are obvious, but they are characterized by decentralization and flattening. In addition, this paper analyses the correlation between the temporal and spatial characteristics of shopping activities of migrant workers and their social attributes, and it is indicated that income and occupational types have a greater impact on their shopping activities, while the impact of urban commercial material environment and spatial distribution on their shopping activities is relatively small. The purpose of this study is to better meet the consumption needs of migrant workers, and to provide some references for the formulation of relevant industrial policies, as well as the planning of the commercial space in china.



10:15 - 10:30

## **Displacements before 6:30 AM and the urban morphology. Why do individuals in some areas move earlier than others?**

B.d.A. Lais Caroline<sup>1</sup>, T.d.S. Renato<sup>1</sup>

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The natural movement theory explains, by spatial configuration, that movements occur naturally through shorter paths that are integrated to the urban system. At the same time, soil uses are determined by spatial configuration. In more integrated areas, the occurrences by commerce and service are bigger in relation to less integrated ones. In this way social spatial distribution presents some patterns. Studies claim that localization (accessibility) can determine the place of housing of population with higher or lower incomes and target public investments. These occurrences indicate possible patterns in urban mobility, such as: displacement time, cause, schedules, transportation means, etc. To do so, this research approaches a detailed study of the displacements before 6:30 AM through spatial syntax theory and statistical analyzes in areas with bigger proportion in displacements during this period and, in parallel, in adjacent areas with lower displacements at the same period, the study is located in the Area Conurbada of Florianópolis, state of Santa Catarina, Brazil. Why, in neighboring areas with a low income and socioeconomic index, are the proportions of displacements different? Where are they going and for what motivation? Of course, larger displacements present work to the most integrated municipality of the system. However, in this survey approach, the areas with bigger travel proportions present 75% less integrated to the system, and displacements to more distant destinations, even with low income and socioeconomic index similar to adjacent areas, that may suggest that spatial configuration may present relation with these differences in the travel proportions.

10:30 - 10:45

## **Does neighborhood connectivity influence neighborhood safety? Evidence from Salt Lake City, USA**

P. Tagore<sup>1</sup>

<sup>1</sup>University of Utah, Department of City & Metropolitan Planning, United States

Choosing a safe neighborhood to live is a major concern for city residents. Most people want to stay in communities where they are comfortable raising a family. The built environment has a strong contribution in the feeling of safety, and in physical safety. Neighborhood design elements such as sidewalks, street lights, tree canopy, and so on, have been persistently found to affect crime in a neighborhood. Space Syntax – an important connectivity measuring tool consistently correlates to crime levels within neighborhoods. However, crime is not the only measure of physical safety in residential neighborhoods. This study will measure safety by combining traffic crashes and crime incidents, which is a more comprehensive way of measuring objective or physical safety. This research will also measure connectivity in two ways – first by using Space Syntax software, and the second by using intersection density in neighborhoods. Results of this research will be useful to understand if connectivity and neighborhood safety relationships exist; and whether those relationships are different for different ways of measuring connectivity. Results of this research will be useful for academicians and practitioners for community planning and identifying the best method to measure connectivity in neighborhoods.

10:45 - 11:00

## **Applicability of 2D/3D isovists and visibility graph analysis for evaluating urban vulnerability to crime: the case of Boa Viagem, Recife**

S. Melo Junior<sup>1</sup>, R. Canuto<sup>1</sup>

<sup>1</sup>UNICAP, CCT, R. do Príncipe, 526 - Boa Vista, Recife - PE, 50050-900, Brazil

Although research on space and crime has significantly increased, the role of visibility in crime occurrence has been little examined. Hence, this work aims to investigate the applicability of 2D and 3D isovists, as well as Visibility Graph Analysis (VGA), for evaluating urban vulnerability to crime. Isovist is 'the field visible from a certain point in space, considering the barriers that limit it' (BENEDIKT, 1979). VGA is a concept developed by Turner et al. (2001) which consider the intervisibility of all points contained in space. These concepts and tools can help us to understand how criminals see urban space and take advantage of it to commit crime. The methodology is based on statistical correlations between number of crime occurrences and measurements of 2D/3D isovists, and mean values of VGA. 2D isovists were produced through DeCoding Spaces Toolbox for Grasshopper and 3D were generated by using algorithms within Rhinoceros and Grasshopper. VGA maps were elaborated within DepthmapX. For this study, were selected nine street segments of Boa Viagem, a neighbourhood known for high rates of robberies, located in Recife, Brazil. Statistically, it is demonstrated that in spaces where there were far fewer crimes, occlusivity is greater, there is fewer cavities and VGA is higher. The results suggest that criminals prefer visually integrated spaces with low occlusivity and fewer spatial cavities. In order to commit crime, criminals clearly choose integrated spaces because there are more commuters and select less occlusive spaces so that they can have greater visual control of their victims.

11:00 - 11:15

## **Chaining Design within Beirut's Human Ecologies**

A. Panayiotou<sup>1</sup>

<sup>1</sup>University of Cyprus, Lead Supervising Professor: Andreas Savvides, Cyprus

The urban morphology is now at a node, aiming to transform itself while fitting into the emerging needs of the new era. Under the thematic of chaining the ever-changing dynamic relationships of human ecologies and their footprint on space are examined. The proposal tries to examine how space can trigger a chaining effect, the domino changes of human behavior and interaction with and within space. To achieve that a new architectural synergetic model – running through disciplines such as anthropology, sociology, (environmental) psychology, politics and policy making, economy (free-market economics) – is recruited. On this synergetic model, time works as a mechanism of bridging the change, as the project implies radical increment, trojan horse, mighty unfoldings and malleable ecology strategies, opening a series of – uncertain but more sustainable – possibilities for the future of the city. In those terms the project becomes the “turning point” on the unpredictable chaos model of the city and its possible future. Policy making and social norming, alongside with time become the tool on creating the needed protocols to prepare the essential conditions and space with possibilities; for the underlying, existing and proposed human ecologies to take over. The space provided by those newly established-or-cultivated policies and norms accompanied with the human cognition, encourages emerging comradeship spaces and cultural diversity, whereas discourages any urban conflicts. This happens through the productive land-cityscape as the medium. The landscape of the area becomes the transformative factor and the “ground” on which all the processes, (cultural, financial and spatial regeneration) hold place. All things considered, the proposal strives to alternatively use the very complex relationships and uncertain behavioral reactions as a tool along with time on creating a vast number of possibilities and scenarios that could happen on an urban and architectural level.

# **Urban Design : urban morphology, building typology and design B**

Wednesday, 03 Jul

10:00 - 11:30

Room: Meeting Room 1

**Chair: Andreas Papallas**

10:00 - 10:15

## **Urban Design Alternatives in the Compact City - A Focus on Daylight and View**

B. Sundborg<sup>1,2</sup>, B. Szybinska Matusiak<sup>3</sup>

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The compact city is one of the visions for future sustainable cities. The densification of cities often decreases the good daylight distribution and blocks long sightlines. The dark urban spaces with reduced privacy occur especially in the dense central urban districts. Research has confirmed that urban design strategies can improve the access to daylight and sightlines for apartments in high density areas. An urban typology adapted to the density problems should contain design solutions of many different types for the urban street grid. Residential complexes as the perimeter blocks, the tower blocks and the skyscrapers, vary in size and proportions. This paper explores urban design alternatives to conventional perimeter blocks and analyses geometric options such as chamfered corners, strategic varied building heights and different positioned openings in a broken perimeter block. Advanced computer-based daylighting simulations and calculations of view parameters are performed for different designs of building alternatives of equal density, FAR (Floor Area Ratio). The choice of evaluation criteria is based on scientific discussions on daylighting and on practical experiences in urban planning. As in the new EU standard, the view is included. The daylight values focus on the measurements from the windows in the apartments. The urban design alternatives tested, have considerable advantages compared to more conventional blocks. Local conditions as well as technical requirements influence the real projects. However, the geometrical improved blocks can still produce tangible consequences thanks to considerations of daylight and view. This is important for urban designers and planning professionals.

10:15 - 10:30

## **Increasing cities' capacity to manage noise and air quality using urban morphology**

M. Berghauser Pont<sup>1</sup>, J. Forssén<sup>2</sup>, M. Haeger Eugensson<sup>3,4</sup>, A. Gustafson<sup>2</sup>

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According to the World Health Organization [WHO, 2011], the top two in disease burden are air pollution and environmental noise [WHO, 2013; Naturvårdsverket, 2015]. In cities, road traffic is the largest contributor to both noise and air pollution and the corresponding Swedish Environmental objectives are to date estimated to not be reached by 2020 [Borrego et al., 2006]. Future reductions concerning both air quality and noise are considered insufficient whereby additional measures are needed.

Air quality is linked to urban form such that compact cities were shown to result in increasing concentrations of air pollution [Martins, H., 2012; Haeger-Eugensson, M. and Holmer, B., 1999]. Further, urban form influences the meteorology due to changed surface roughness on the larger scale (urban scale), and even more in a local- and microscale at ground level in street canyons. This will affect wind patterns influencing the dispersion possibility of air pollutants as well as noise propagation.

For investigating local effects of urban morphology on noise and air distribution simultaneously, the Spacematrix method has been shown to be useful, as described in [Berghauser Pont, M. and Haupt, P., 2010]. Building types can be composed of specific combinations of specified density variables enabling to quantify a type and manipulate each variable separately. The aim of this paper is to identify critical spatial parameters influencing noise and air pollution and translate them into measures of spatial form including size of the urban block, and distribution, positioning and height of the buildings within that block.



10:30 - 10:45

## **Inclusion of soundscape in parametric urban design model: A case study**

T. Leung<sup>1</sup>, A. Lipovka<sup>2</sup>, I. Kukina<sup>2</sup>

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<sup>2</sup>Siberian Federal University, School of Architecture and Design, 82 Svobodny pr., 660041 Krasnoyarsk, Russia, Russia

Acoustic environment in open spaces is one of the issues that must be considered when designing cities. Besides the properties of sound sources, previous studies have suggested both urban morphology and building typology would affect soundscape in urban spaces. Sizes and shapes of urban spaces could have effects on the sound levels inside the spaces. On the other hand, acoustic environment in urban spaces was found to be related to height and façade design of buildings. Consequently, it is important to craft urban spaces with care in terms of the acoustic environment. On the other hand, there has been a recent trend to perform urban design tasks with the use of parametric urban design models. It has been demonstrated that parametric urban design can be applied to design tasks in different urban scales. There have also been studies which combined the notion of environmental performances with parametric urban design. However, few attempts have been made to include soundscape in parametric urban design models. As a result, the primary objective of the current study was to explore how soundscape could be included in a parametric urban design model. The feasibility of including soundscape as a parameter input in the model would be investigated. A case study for open space design would be utilized to demonstrate the procedures to develop such a parametric urban design model.

10:45 - 11:00

## **Numerical Simulation of Street Morphology Based on Outdoor Thermal Comfort under Street Canyon: A Case Study of Guangzhou Xiajiu Pedestrian Street**

S. Liu<sup>1</sup>

<sup>1</sup>The University of Hong Kong, Department of Architecture, Hong Kong

Urban outdoor pedestrian streets with commerce play a significant role in providing citizens a comfortable environment for leisure activities. This study attempts to analyze and discuss effects of the street morphology on the thermal environment in Xiajiu Commercial Street in subtropical Guangzhou, China. A comparison of thermal environment of the original and two proposed urban planning schemes of Xiajiu Commercial Street in a typical hot summer day is conducted. Microclimate parameters of built environment including Mean Radiant Temperature and air temperature are simulated in ENVI-met. Changes of greening, street morphology and different albedo pavement materials among three cases are evaluated to investigate their efficacy on thermal comfort improvements.

Key findings shows streets oriented from W-E are much more thermally uncomfortable in daytime than that of nearby N-S canyons. Moreover, height to width ratio (H/W) is more influential on thermal environment of N-S canyons than that of W-E canyons. An increase of surface albedo at ground levels can greatly reduce the thermal comfort during the daytime. The adding of tree-shaded and grass cover along the middle of the street improve thermal comfort at hottest 3:00pm. The effect of existing building arcades appear to be the most effective and long-lasting strategy for outdoor thermal comfort improvement. The proposed and evaluated design strategies such as increasing H/W ratio, avoiding eastern to western orientation, adding greening area and changing pavement material can be adopted as reference for urban pedestrian streets design in terms of thermal comfort improvement in subtropical regions by urban designers or architects.

11:00 - 11:15

## **Urban Morphology and Environmental Performance: integrating natural light performance into Spacemate**

J. Ramos Carrara<sup>1</sup>, G. Kruger Dalcin<sup>2</sup>, B. Turkienicz<sup>3</sup>

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Berghauer Pont & Haupt (2010) proposed the Spacemate graph as a mean to relate variable densities to urban morphology. The graphic representation is used to associate density parameters to building typologies, but do not correlate these typologies to environmental performances. This article proposes to link the Spacemate's built form/density parameters to natural light performance. The proposed method was tested in Cityzoom software and applied to a set of blocks in the city of Porto Alegre, Brazil. Different scenarios identified as similar design solutions by Spacemate featured different natural light performances showing that beyond some identified urban form similarities there exists significant differences in natural light performance.

# **Urban Design : urban morphology, building typology and design C**

Wednesday, 03 Jul

10:00 - 11:30

Room: Meeting Room 7

**Chair: Andreas Savvides**

10:00 - 10:15

## **Use and appropriation of open urban environments: a Brazilian case study**

V. Casarin<sup>1</sup>, P. Polli<sup>1</sup>

<sup>1</sup>Universidade Federal de Santa Catarina, Pós-graduação em Arquitetura e Urbanismo, Campus Universitário João David Ferreira Lima, Florianópolis, Brazil

In the field of relational theories, social sciences and urban morphology, the post-occupancy evaluation multi-method analysis take place to understand how people use urban environments and which are the requirements of a urban environment to the use and appropriation of it. So the central aim of this research was to discover and discuss the motivations that make people best use urban open spaces and what are the requirements of urban design that contribute to these motivations of use. The research with qualitative approach which involved documental survey and analysis, non-systematic observations and the appliance of in deep interviews with open ended questions to fifty subjects were conducted to answer the questions proposed to understand the issue. The research took place in a neighborhood of a medium-sized Brazilian city where a federal university campus (with urban park character) is located. The neighborhood also present eight squares very well distributed within this portion of the urban space. Results shown that the physical qualities of an urban environment, such as the presence of urban facilities and equipment, are more important to the use of the open spaces than the provision of urban open spaces alone in a urban environment. Without adequate facilities which contribute to the use of open space environments, the city became a mere space of urban displacements. Less mentioned answers by the interviewed that contribute to use and appropriation of urban environments but not less important were safety, accessibility and also the concentration of people, respectively.

10:15 - 10:30

## **Lisbon's port and riverfront: tracing urban structure and public space concepts through its changing spaces**

J.R. Santos<sup>1</sup>

<sup>1</sup>Universidade de Lisboa, Faculdade de Arquitetura, CIAUD, URBinLAB, Rua Sá Nogueira, 1349-063 Lisboa, Portugal

Lisbon is an outstanding example of a port city in which urban and metropolitan development have had an intrinsic relationship with the water. Being at the confluence of Portugal's main river with the major ocean trade routes, Lisbon's waterfront is a complex construction in response to the multiple driving forces of nature, economy and culture. The paper establishes a morphological overview of the city's waterfront transformation stages, from the mid-19th century to today's configuration. In these stages, it is possible to trace two aspects: 1) the lines of continuity (water edges, main streets, major infrastructures, main buildings) that provide integration and coherence of diverse parts along the riverside, from Baixa (downtown) to Algés (at the city's western border); and 2) the elements of both persistence and change as time passes, in three evolution frames. Mapping and archive photographic materials are used to outline the changing riverside configurations.

Tracing Lisbon's waterfront urban form historical process is also used to highlight key concepts of urban structure and urban design. One of the clearest examples is the changing role of public space, from a multi-infrastructural ground aimed at supporting the industrialization and modernization processes of 19th and 20th century development, to an urban landscape system in which leisure, heritage, cultural, transport, port and institutional uses co-exist in a dynamic process and in a more fluid spatial realm. Conclusions point to the acknowledgment of the waterfront as a pedagogical laboratory to understand multi-scalar and time-based urban change processes.

10:30 - 10:45

## **Public Space as an Artefact of Culture Permanence and meaning. Case study of two sites in Lodz, Poland**

M. Hanzl<sup>1</sup>

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Studies of public space remain at the centre of urban morphology studies. Whereas a lot has been written on culture-related forces shaping forms of public and social space, still this relationship requires a more in-depth understanding. On the one hand, the theoretical apparatus provided by researchers such as Eco, Hall, Rapoport or Law facilitate understanding of the ways how culture related meanings are embedded in physical structures. On the other hand, the studies of urban forms themselves and their permanence as an element contributing to the actual appearance of urban settings remain relatively scarce. As Rossi asserts, the explanations of urban structures limited to the functional perspective only narrows the interpretations and this way hinders real understanding. The complexities of real-life social networks manifest themselves in urban forms through embedded values, meanings and uses. The forms and places serve as a means to safeguard these immaterial components and communicate them to future users. An urban site, a locus of collective memory (Rossi 1984) read as a resource of context contributes to the forms of new edifices, regardless the transforming cultures which replace former ones.

The current paper attempts at the analyse of the above phenomena looking at the two sites in Lodz, Poland, once known as a hub of textile industry and emerging as a city hosting four cultures, and now going through extensive rehabilitation processes. Both sites once played essential roles for the local Jewish community, now under utterly different circumstances remain significant as nodes of collective perception.



10:45 - 11:00

## **Form, In-between, City : Analysis of the urban street corner of the Poché- public space of the building interface: three case studies**

W. Anqi<sup>1</sup>

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Abstract: Architectural corner is not only related to the city, but also based on the single building. The differences between Chinese and Western cultures have led to the opening of street corners to varying degrees. This paper summarizes the characteristics of traditional street corners and individual corners in China and the West. With the re-recognition of urban value, corner is regarded as an important factor of urban continuity environment. The impression of a city often begins in the street, and the impression of the street begins in the corner. Therefore, it is more necessary for corner buildings to consider how to continue the urban context. By takes the way of using negative form of city as the research perspective. Research on the contemporary translation through historical research for the relationship between pattern and type. Focus on "in-between" space generating method optimization. Choose three cases are used to illustrate three kinds of internal and external contradictions. That contradictions correspond to 3 patterns of spatial operations of internal and external differences: nested space, transparency, continuity and uniformity. The construction of a new form of the new mechanism, from the operational value and the creation of modern architecture to provide multiple mind.

11:00 - 11:15

## **Mechanisms for vitality in public spaces**

J. Arrais<sup>1,2</sup>, R. Ribeiro<sup>3</sup>, V. Medeiros<sup>4</sup>

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The literature has vastly discussed the way central public spaces are configured, with their barriers and access, and how they interfere in people's flow (Hillier and Hanson, 1984; Holanda, 2002; Torres, 2017; Rocha, 2017). However, even if an specific configuration favors this flow (like a grid), proper mechanisms are needed that encourage and maintain its frequency and diversity, generating vitality. As argued by Holanda (2013), the vitality of public spaces can only be maintained if there is a continuous movement of people, in space and time. In this sense, some urban planners and specialists in urban issues suggest strategies that enables this appropriation. Based on these premises, the article explores the perspective and illustrates the mechanisms of vitality through an analysis performed in loco in Copenhagen, Paris, New York, London and Brasília, cities traditionally discussed by scholars on the subject. Results allow us to conclude that aspects existing in public places such as a) buildings regarding pedestrian scale; b) promotion of inviting spaces; c) clear buildings visibility; d) rearrangement and integration of the types of traffic on the roads, as well as the accessibility that allows the movement of pedestrians and cyclists without impediment; and e) the presence of mixed use integrating and distributing urban functions and activities are essential to ensure the continuous people's flow in urban space along the day and, therefore, are basic strategies when vitality is intended.

# **Methods 1 : embedding different approaches into the study of urban morphology.**

Wednesday, 03 Jul

12:00 - 13:30

Room: Elia

**Chair: Karina Cazar**

12:00 - 12:15

## **Study on Urban Morphological Characteristics and Evolution of Guangxiao and Liurong Temple Historical District in Guangzhou, China**

P. Zhao<sup>1</sup>

<sup>1</sup>Tongji University, College of Architecture and Urban Planning, No.1239,Siping Road,Yangpu Distrct,Shanghai, China

Liurong Temple and Guangxiao Temple, located in the same block, are the two most important temples in Guangzhou City. With the rapid urbanization process, the historic preservation of its surrounding neighborhoods is facing enormous challenges. Today, this district presents a highly complex picture both in terms of urban morphology and programme. Based on the site investigation and morphological analysis, this paper describes the following morphological features of the block: fragmentation and collage of the street network, border barriers brought about by closed territories such as monasteries, diversified architectural types, and interrupted public space system. According to historical research and comparison of urban fabric in different periods, the author find out that the overlapping of following great changes in different historical stages constitutes today's urban form: the evolution of Guangzhou city wall, the construction and disappearance of the six-channel drainage brought about changes in traffic modes, the occupation of monasteries by the army, factory expansion in the period of planned economy, development of real estate in commodity economy era.

The author attempts to reveal the establishment, disintegration, and reorganization of boundaries on urban form at different scales, which is more influenced by social force and the migration and settlement of different populations. This research will inspire the formulation and improvement of policies in the preservation and regeneration of Guangxiao and Liurong Temple district.

12:15 - 12:30

## **The analysis on the evolution of the Old-type Lilong housings in Tianjin**

M. Zhou<sup>1</sup>, Y. Zheng<sup>1,2</sup>

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Lilong housings was the new modern housing emerged under the urbanization in China from 1840s, which was thought to be the combination of Chinese traditional Courtyard-type housing with European terrace house. As to Tianjin Lilong housing, the most typical one in north China, can be classified by the two sources into Old-type and New-type Lilong housing. But the evolution process was still unclear. This paper focuses on the Old-type Lilong housing, aims to interpret the process from traditional Courtyard-type housing to the Old-type Lilong housing by the methodology of Italian typological process. After dividing Old-type Lilong housing into courtyard-layout and row-layout according to the buildings arrangement, the relationship between habitants' level and buildings layout became clear. Then the process can be resolved into two separated evolution routes. One is from the traditional quadrangle to the Old-type Lilong housing with courtyard layout, the other is from the non-quadruple traditional house to the non-courtyard Lilong housing with row layout. The further analysis is based on these two routes, by using the concept and definition of "group" from typological process analysis, through two aspects, continuation and change, this paper concentrated on the entirety formed by the building and the courtyard, and finally proved the sources and evolution process of the Old-type Lilong housing in Tianjin.

12:30 - 12:45

## **Housing Estates and Ordinary Peripheries. Mapping Adaptability of Urban Forms**

I. Ezquerro<sup>1</sup>, C. Díez-Medina<sup>2</sup>, J. Monclús<sup>2</sup>

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Using adequate and updated representation tools is essential to analyze certain aspects of urban morphology, focused on the ability to adapt urban forms to the new conditions of contemporary cities. This paper presents a comparative and operational analysis of the two residential urban forms—housing estates and ordinary peripheries—that characterize the period of greatest urban growth in Spanish cities during the 20th century (1955-1975).

Two housing estates in the city of Saragossa are analyzed in parallel with the peripheries that grew gradually around them. In contrast to the studies that address this issue by questioning the urban quality of these two forms of growth in the peripheries—nowadays already consolidated and generally endowed with greater centrality—and to those that question the quality of the traditional compact city, it is appropriate to perform a different type of analysis that tries to systematize the values and characteristics of housing estates as in comparison to those ordinary peripheries instead of comparing them with the traditional city. Two paradigmatic examples are chosen for this analysis; due to their construction date, scale, typological diversity and urban morphology, they show sufficient contrast to enrich the comparison and extract more solid conclusions.

The objective is to explore, using various intentional representation techniques, the transformation processes that both forms of extension of the city have undergone. This methodology will help to assess their urban quality and to detect the opportunities or difficulties they show for updating and renewal fifty years after their construction and consolidation.

12:45 - 13:00

## **A Comparative Perspective of Open Spaces in Spanish Mass Housing Estates: Five Case Studies**

S. García-Pérez<sup>1</sup>, J. Monclús<sup>1</sup>, C. Díez Medina<sup>1</sup>

<sup>1</sup>Universidad de Zaragoza, U.P. Arquitectura, C/ María de Luna 3, 50018, Zaragoza, Spain

Although most mass housing estates built during the post-war period share similar problems due to the application of modern functionalist urbanism, the design and the physical dimension of each particular case have direct influence on their urban quality. Open spaces are one of the aspects most commonly criticised. However, recent research has revealed the importance of a diagnosis that allows the identification of weaknesses and strengths in every specific case.

In this regard, one of the main objectives of the UR-Hesp research project has been the development of an analysis method that allows the specific diagnosis of the quality of open spaces. This method, stemming from a morphological approach, is multiescalar and diachronic. For each mass housing estate, it allows the analysis of the level of integration, permeability, internal spatial structure, use pattern, type of in-between space, plot structure, density, building diversity and eye-level design; the time span ranges from the origin to the present.

The aim of this paper is to present the results obtained after applying this methodology to five Spanish case studies. This allows, first, to discover obsolescence and resilience processes; secondly, to discuss the role of design on the quality of open spaces; and, finally, to identify the specific characteristics of open spaces in order to facilitate decision making during urban regeneration processes.

13:00 - 13:15

## **The transformation of Haikou urban form and the dual ownership of shophouse**

H. Zhang<sup>1</sup>, W. Wang<sup>2</sup>

<sup>1</sup>University of Hong Kong, architecture Department, hku, Hong Kong

<sup>2</sup>the university of Hong Kong, Architecture Department, HKU, Hong Kong

Opened port in the late 19th century and with the urban renewal in the early 20th century, Haikou has transformed from a military fort into an important modern port city linking Southeast China with Southeast Asia.

The municipal construction in early 20th century in Haikou referred to the experience of the municipal road planning in the western cities. However, the implementation of its urban plan didn't rely on the financial operations as in the western cities, but the fundraising from the tenants of shophouse. The fundraising triggered a dual ownership dispute between the landowner and the tenant at the beginning of the 20th century, which greatly affected the development of urban form during this period.

Based on the first-hand historical archives of Haikou during the Republican period, this paper explores the dual ownership dispute emerged when Haikou transitioned from a traditional city to a modern one, which reflected the conflict and compromise between the tenants and landowners. This paper reveals that the dual ownership of stores was the key and also the hidden danger for the implementation of the urban plan in Haikou during this period, and it had an important influence on the urban form transformation in Haikou. Haikou formed a modern urban form during this turbulent period, which paved the way for its transformation from a traditional city to a modern city. This paper further explores the far-reaching effects of the modern municipal construction and public participation in urban form, clarifying the urgency and significance of the research.



# **Methods 1 : embedding different approaches into the study of urban morphology.**

Wednesday, 03 Jul

12:00 - 13:30

Room: Morphou

**Chair: Eleonore Zippelius**

12:00 - 12:15

## **Redefining urban potential through a morphological perspective**

I. Geddes<sup>1</sup>

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This paper presents the first research output of the project Urban Potential in the Evolution of Nicosia's Public Realm. This consists of a set of criteria, their relative importance and related measures, which identify the potential of the public realm to perform as a sustainable local center. The set of criteria will be used in subsequent work to assess data requirements for a GIS-based model of Nicosia that will be analyzed to identify local areas which have the greatest urban potential.

The problem addressed by the research is presented to explain the reasoning behind the need for a framework to identify urban potential. It is suggested that a new definition of urban potential, which goes beyond the limited scope of capacity to accommodate population growth and infrastructure, is needed to effectively assess the capability of the public realm to sustain a thriving urban life. Morphological characteristics of the public realm were identified as key elements of potential for sustainable development.

The research aims at developing an effective methodology to identify areas of the public realm which have the potential to develop into sustainable local centers. In Nicosia, local neighborhoods have struggled not just to thrive but to even develop any structure due to poor planning regulation, ineffective assessment methods and the nature of the real estate market (EUKN n.d.; Ioannou 2016). The new definition and selected criteria can aid planning authorities devising a framework to support a hierarchy of sustainable local centers within the Nicosia metropolitan area.

12:15 - 12:30

## **Micro-urbanism - the interaction between architecture and urban structure. A new approach in urban morphology**

É. Lovra<sup>1,2</sup>, É. Lovra<sup>2,3</sup>

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Micro-urbanism is a complex area in the field of architecture and urbanism as a new discipline and approach in the urban morphology. The concept of micro-urbanism, as it is, does not exist as the phenomena of the interaction between architecture and urban structure (more precisely the urban tissue types), thus the definition of the term and elements itself is part of the research process described in the current paper. The study is going to define the micro-urbanism as the new approach in urban morphology and describe its urban and architectural elements + correlations and the methodology of understanding (combination of methods and taxonomy). The research itself has an interdisciplinary nature, via macro and micro scales of the selected case studies deals not only with the structure, but also with an architectural context: how the building relates to the structure and vice versa; how this is changing the city landscape and what are their interactions - history and social context of the build area. Such reciprocity is considered a phenomenon of micro-urbanism. The selected case study areas are going to present the methodological steps and the typology.

12:30 - 12:45

## Virtual Mapping of Machinic Urban Assemblages

P. Roupas<sup>1</sup>, Y. Passia<sup>2</sup>

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While space is generally perceived as a changing field of dense interactions that occur in a range of spatial and temporal scales, we are unable to perceive it or describe it in these terms. The research aims at the construction of a virtual map -as a methodology and a visual thinking tool- that pushes the limits of our minds' cognitive capacities to better perceive and visualize space's intricate complexity as it unfolds at different spaces, speeds and rhythms. (Jameson 1991: section I)

The project theorizes the city as a multiplicity, a structure of spaces of possibilities while at the same time trying to establish a liaison between the city's properties, tendencies and capacities. While properties are actual and can be observed, tendencies and capacities lie in the virtual level, they are only actual when exercised. (DeLanda 2013: 66) In this framework, Hecate is the city's apparatus; an urban "mining" system able to decipher, map, connect, or navigate itself through the superimposed layers informing the city's layout.

Hecate is digitally and physically realized as an interactive connectionist city scape, a complementary organization to the actual city. It is visualized as a network of richly interconnected nodes of varying intensities, each representing information flows between the system and the city. Hecate has the performance capacity of an elastic urban fabric that associates and disassociates, controls, determines and consumes both existing and emerging urban structures. Hecate is itself a new map of the territory, in constant flux (Passia and Roupas, 2018).

12:45 - 13:00

## **Reading an Urban Morphology with Fractal Geometry: The Case of Walled city of Nicosia**

S. Nezhadmasoum<sup>1</sup>, B. Oktay Vehbi<sup>2</sup>

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Contemporary cities are shaped by multidimensional characteristics – morphing according to the geographic situation and the spatial needs of human activity across time. Understanding the influences of historic urban form and their complexity can help researchers anticipate future changes to the city structure. Despite, the hidden orders in spontaneous and organic pattern of historic urban areas can manifest similar to patterns found in fractal systems.

Fractal analysis reveals basic features of urban areas can be distinguished and measured quantitatively. Pairing urban morphology with fractal analysis facilitates awareness of the fractal dimensions of city forms. Furthermore, the measurement and reading of historic urban areas in light of fractal geometries may create the potential to predict how a city may behave and how its urban pattern may change in the future.

After a brief review of fractal theory and relevant studies, this research isolates and reports quantifiable fractal characteristics in one of the historic urban quarters of North Cyprus: the Walled City of Nicosia. Historic Nicosia is expected to be a good testing ground for applying fractal geometry as a tool of urban morphology because of its long history of occupation by a series of cultures which influenced the spatial structure and created an organic urban pattern. The primary research question is how does the application of fractal geometries improve analysis and interpretation of the urban morphology of historic places? The study utilizes this case to identify common, replicable qualities of fractal geometry that may be applicable to future historic settlement morphology.

13:00 - 13:15

## **Fractal Features of Urban Fabrics and Cityscapes in Algiers, Tokyo and New York**

L. Kacha<sup>1</sup>, M.A. Abdessemed<sup>1</sup>

<sup>1</sup>University of Batna 1, Institute of architecture and urbanism, Route de Biskra Batna, 05000, Algeria

This paper undertakes a fractal analysis of three neighborhoods within three cities: Babeloued (Algiers), Chiyoda-ku (Japan) and low Manhattan (New York). Each urban fabric was analyzed in three different periods: (A) Before 19th century, (B) between 19th~20th and (C) After 20th century. This research aims to explore fractal features by studying: (A) the evolution of the morphological identity of urban fabrics, and (B) the evolution of the cityscape images. Three phases structure this research work. First, the fractal analysis of the morphological identity of three neighborhoods in different periods; Second, the fractal analysis of the cityscape images of three neighborhoods in different periods; and finally, the comparative study between morphological identity of urban fabrics and cityscape images over time. Correlation and dilatation analysis methods have been used in this research in order to study the built-up areas and their urban boundaries. Box counting method has been used to analyze cityscape images. The results showed that fractal measurements represent a relevant tool in the characterization of urban fabrics and cityscape images. All neighborhoods are characterized by a homogeneous surface morphology regarding modern period, but each urban fabric have an intrinsic complexity degree, more or less important and specific. Neighborhood's boundaries are characterized by a heterogeneous, dendritic and rough morphology. The results clearly confirm that all urban fabrics do not have the same morphological identity; this is due to cultural, historical and geographical differences. But their morphological indicators converge after the 19th century.

# **Theory 1 : emergence, relational theories, the social sciences and urban morphology.**

Wednesday, 03 Jul

12:00 - 13:30

Room: Ammochostos

**Chair: Alessandro Camiz**

12:00 - 12:15

## **The auto-poesies of urban emergence**

N.X. Alygizou<sup>1</sup>

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Relational theories of the urban settlements mix with the human activities under the spectrum of urban emergence. To empirically define emergence and the derived urban experience, relational theories could analyze notions of adaptation and incremental change occurring in the urban settlements. In general, the generated transformation processes have fueled theories in which urbanism is seen as an assemblage of components composed by agents and actors. However, these theories do not often persist on how the transformation relates physically to the urban morphological emergence (typologies) and, practically, on the human experiences (typicalities). Therefore, this paper intends to examine where typologies and typicalities meet and how they further (self)-define urbanism through a series of patterns. Christopher Alexander saw these components/patterns as a product of living things; a great symphony of the urbanism. Motivated by Alexander and theories of adaptive change, here urban space is seen as a space of a multiple and overlapping set of activities. Urbanism is handled as an existence of an inherited dualism; a physical and social existence or a place of "living patterns", a set of patterns defined yet not too defined. Nevertheless, the "living patterns" reveal the key mechanism that incorporates typicalities and typologies under the adaptive change and eventually, how they put their different imprints in the urban space. Ultimately, the resulting balance of morphological and social dynamism is highlighted as the pattern that auto-generates urbanism throughout the history.



12:15 - 12:30

## **The Literary foundations of contemporary Urban Form thinkers**

T. Marat-Mendes<sup>1</sup>

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Over the past two decades, many environmental problems that affect society have been directly related to issues of urban lifestyles and consumption patterns (WCED, 1987, Echenique et al., 2012), with far-reaching and long-term effects in the urban areas, but also at entire regions, the atmosphere and the biosphere (Rees, 1994; Niza et al., 2016). Thus, the relationship between urban form and lifestyles appears to be central to the field of knowledge of urban morphology as urban culture and sustainability.

The recognition of Urban Morphology as an international scientific field of knowledge, occurred during the second half of twentieth century with the foundation of the International Seminar on Urban Form (ISUF), established through a multidisciplinary effort to congregate knowledge devoted to the study of the city and the human habitat (Moudon, 1997).

This presentation aims to expose the results of a revisiting to the literary foundations of those that have established ISUF, in order to identify which were the most influential books which have contributed to shape the debate on cities, built environment, urban planning, urban design, urban form and urban morphology, at a time when Urban Morphology, as a scientific discipline, was founded. Furthermore, while considering the current changes that have affected the human and natural world, with the arrival of a new geological age, the Anthropocene, this presentation promotes a reflection over the relevance of such foundations for the pursue of a Sustainability agenda by contemporary urban morphologists.

12:30 - 12:45

## **Memory and morphology: relics and the urban landscape**

P. Larkham<sup>1</sup>

<sup>1</sup>Birmingham City University, United Kingdom

While urban landscapes are palimpsests, layers reflecting the values and aspirations of the societies that created and reshaped them, some features endure the pressures for urban landscape change and can be conceptualised as relics of those past societies. Sometimes those relics are still in full use today, including many religious or public buildings; while others are true relics, embedded within a landscape but with little or no function. Not only buildings, but also streets and other structures can fall within these categories. The catastrophes of wartime destruction, fire or natural disaster often produce relict features and, although many of these are redeveloped within a relatively short time, others may persist for decades. This paper considers a range of relict features of varying scales in English urban and suburban landscapes; some produced by the Second World War, and some by other pressures including redevelopment pressure. The interplay between relict and urban form and structure is explored from the very local to the city scale. The longevity of relics, and the 'landscape of destruction', are considered, as is the manner in which they can constrain future development through their very persistence or their impact on the morphological frame.

12:45 - 13:00

## **Shared Inference of urban morphology**

C. ZHANG<sup>1</sup>, Z. LI<sup>1</sup>

<sup>1</sup>Tongji University, College of Architecture and Urban Planning, Siping Road 1239, Shanghai, China

"Sharing" disintegrates the boundaries of urban spatial. From the perspective of "graph theory", public is as collection, private is as decomposition, and sharing means re-synthesis. It is used as a verb, representing behavior, and a noun, a method of model expression. Meanwhile, sharing is not only a response to sociology as an economic strategy, but also an architectural solution to the critical reconstruction of urban space. From the perspective of spatial topology, the involvement of sharing concept has brought four aspects in interpretation of urban morpheme: embedding and isolation; compounding and transformation; fuzzy and infiltration; collage and reconstruction, and interpretation of Urban Transformation. Berlin has undergone important changes in urban space due to wars and politics. When society becomes stability again, the involvement of shared culture and life have had various degrees of influence on using and forming Berlin space, and gradually Berlin becomes one of the typical shared cities. The paper expects to explore the meanings of sharing as a virtual urban morpheme by analyzing the spatial form and social historical factors of Berlin.

This paper is subsidized by NSFC project which is named as <Research on Technical System of "Downtown Factory" Community-oriented Regeneration in Yangtze River Delta Region> (Grant No.51678412).

13:00 - 13:15

## **Morphology of the post-carbon city it the understanding of urban theory**

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In the urban theory there are several established concepts of the modern city. "Post-carbon" city is the common definition describing wide list of the newest attitudes to urban design in general. The most important understanding is the idea about last technological revolution which should radically changes the form of the modern cities. It indicates a new era of understanding the morphology of the city due to the appearance of a series of the new interpretations of the zones and parts of the city as well as processes driving those changes. Attitude towards high quality of urban life is associated with understanding of dynamic synergetic uncontrolled urban processes and growing interest in the ways in which cities are changing their structures in this regard. At the turn of the 20th and 21st centuries, in the process of overcoming the problems of the industrial city, an active brainstorm took place in professional circles in search of a logical and comfortable structure of the modern city. In the twentieth century, first in the theory, then in the practice of urban development, new morphological units which were characteristic to the urban modernity essentially changed the structure of cities. The "Modern city" of the twentieth century has accumulated morphological changes that are subject to study. Moreover, classical urban morphological concepts such as "market concretion", "landscape units", "fringe belts", other confirm the general laws of the development of the city within the modernistic view. Their action is manifested in the structure of a modern city.

## **Theory 2 : the scope and limits of urban theories.**

Wednesday, 03 Jul

12:00 - 13:30

Room: Halkos

**Chair: Karl Kropf**

12:00 - 12:15

## **The historic urban landscape and planning for heritage-led urban changes: a case study of Pingyao, China**

K. Gu<sup>1</sup>, S. Wang<sup>1</sup>

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Much has been written about the development and other changes of Chinese cities. But limited research attention has been paid to the urbanisation and transformation of small-sized cities, which comprise the majority of Chinese urban settlements. Pingyao, the capital of the county of Pingyao, is located in Shanxi in central China. Its historical development and resulting spatial pattern were representative of many small-sized Chinese cities until the late 1990s. The designation of Pingyao by UNESCO, in 1997, as one of the first urban World Heritage Sites in China has stimulated rapid tourism urbanisation. Although considerable effort has been devoted to reconciling urban conservation and the demands for growth in the past 20 years, a more effective and historically sensitive framework for the management of urban landscape change is slow to develop. Focusing on UNESCO's historic urban landscape recommendation and issues in its implementation, this paper explores the ways in which theoretical and practical aspects of urban landscape management can be further improved in Pingyao and elsewhere.

12:15 - 12:30

## Thinking about morphological regions

M.A. Yaygin<sup>1</sup>, V. Oliveira<sup>2</sup>

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Various approaches have been developed within the field of urban morphology. In the end of the 1950s, MRG Conzen started to develop seminal work that would later be expanded by JWR Whitehand, establishing an historico-geographical approach (Oliveira, 2018). For Conzen, the climax of urban morphological analysis was the concept of morphological region. A region is a spatial grouping of form ensembles based on the principle of geographical and historical similarities. The concept suggests a sound basis for urban landscape management. Utilization of the concept has increased from the second half of twentieth century onwards. Despite the amount of research on the concept, the derivation process of morphological regions has remained elusive. The focus of this research is on how morphological regions can be established in a systematic way. First, it aims at clarifying former applications of the concept in different continents. Second, fourteen criteria have been identified for discussion. These are as follows: main expansion phase of the town (in relation to the natural context), subdivision of main expansion phases, geometrical arrangement of streets, dimensions of street blocks, plot layout, block plan types, plot coverage ratio, position of buildings - on the basis of ground plan; floor area ratio, ratio of building height to street width - based on the relationship between ground plan and building fabric; architectural style, building materials, building height - based on building fabric; and, finally, land and building utilization.

12:30 - 12:45

## **Building Typology as Urban Morphology Generator: A Retrospective Review of Tentative Ways in Architectural Theory Approaching Urban Design**

Y. Yang<sup>1</sup>, F. Kossak<sup>2</sup>

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In the history of urban morphological study, building typology has long been taken into as just one of the hierarchical components in analyzing the urban form. Its hidden property per se as the generator of constant shaping of urban fabrics, as well as the catalyst for social interaction and integration, has not been well-paid attention and studied in great depth. According to assemblage theory, parts constitute the whole and generate emergent properties arose from the mutual interactions; parts also have own autonomy to retain its own identities and can be detached from one assemblage and then be plugged into another different whole generating new emergent properties. This paper hypothesizes a series of typological spaces and elements as the "fundamental parts" in urban morphology shaping. These urban elements in architectural design dedicated to the making of the city — an assemblage conceived from a naturally bottom-up growing formation rather than artificially top-down design and planning process — through manipulation of building typologies as the basic growth unit. In hence, this paper tries to collect, extract, and analyze the architectural theory that is associated with the relational theory and has an applicable impact on shaping the urban morphology within the urban studies in the history. It aims to discover, testify and explain the way how building typologies working as an intermediate interface at mesoscale re-connect the detached urban environment from microscale to macroscale, and lead to an alternative approach of comprehensively reading, understanding, and designing of our urban environment.



12:45 - 13:00

## **Typo-morphology and urban analytics – Tracing the morphological antecedents in philosophical traditions and discussing implications for urban design**

T. Stojanovski<sup>1</sup>

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Johann Wolfgang von Goethe (1749-1832) coined the term morphology in the book “Zur Naturwissenschaft überhaupt, besonders zur Morphologie” (translated “On Natural Science in general, Morphology in particular”) in 1817. Morphology is a science that deals with the essences of forms (Marshall & Çalişkan, 2011, p.412). Goethe (1988 [1817], p.69) seeks to find the concept or idea of the form. Essence and forms, abstractions and ideas are key terms in metaphysics and urban morphology finds its antecedents in philosophers of metaphysics. Urban morphologists recognize and interpret physical reality as abstract concepts (Marshall & Çalişkan, 2011, p.415). Many morphologies have discussed schools and approaches (see Moudon, 1992; 1997; Kropf, 2011; Oliveira, 2016). This paper reviews these typologies and schools to discuss implications for morphological informed urban design. The morphological approaches can be grouped in two major traditions by method of abstraction. Typo-morphology understands urban form through types and patterns (including their structure, elements and hierarchies) in a tradition of Aristotelian and Platonist metaphysics. Types are conceptualizations or abstractions about houses, buildings, streets, cities etc. produced by observing (detached, terraced, semi-detached, etc.). Urban analytics has roots in Pythagorean metaphysics of understanding the world in terms of mathematical abstractions, but it accepts Heraclitian philosophy of a continuous state of flux. In a tradition of arcane numbers and formulas of the Pythagoreans, the urban analysts draw on complexity theory to build mathematical models of the structure of cities and their dynamics (Batty, 2005; 2013).

13:00 - 13:15

## **Typo-morphology and urban landscape management: a case study of the Ciyun Street area, Chongqing**

X. Li<sup>1</sup>

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The typo-morphological approach integrates the analytical methods of architectural typology and urban morphology. Despite the increasing academic interest, its use in planning and urban design practice has been slow to develop, especially in China. The lack of adequate historical cartographic materials partly explains the problem. Through the study of the core theory of typo-morphology and its application in the management of historic urban landscape changes in the Ciyun street area, the paper explores the ways in which typo-morphology can be adapted to the physical and socio-cultural conditions in China. The reconstruction of urban development is achieved by the comparison of historical images and the use of limited archive materials. In conjunction with morphological fieldwork, the evolutionary process of built forms and the sense of place can be established. The typo-morphological investigation lays a strong research foundation for the preparation of the conservation and redevelop plan for the Ciyun Street area, Chongqing. To promote typo-morphology and its use in planning and urban design in China, more empirical investigations and cross-cultural comparative urban studies are needed.

# **Urban Design : urban morphology, building typology and design A**

Wednesday, 03 Jul

12:00 - 13:30

Room: Meeting Room 1

**Chair: Zhong Xing**

12:00 - 12:15

## **Planned occupation in the west of Parana: the consolidation of the urban form in New Cities**

M. Diniz<sup>1</sup>, A. Cristiano Bozzi Ramatis Lima<sup>1</sup>

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Investigating through a morphological approach, the present paper analyses the planning and the insertion of the human groups in the context of the changes and continuities of the urban space. The research's study case is the of city of Marechal Cândido Rondon, West of Paraná, Brazil, one of the fifteen urban centers created by the private colonization company Industrial Madeireira Colonizadora Rio Paraná S / A - MARIPÁ within a specific context of the history of Brazil of the XX century, when the Getúlio Vargas's government encouraged the occupation of the country's western borders. It is important to emphasize that the area purchased by the colonization company was originally a British property. Taking into account this historical perspective, the aim of this paper is to investigate to what extent the parceling in long lots practiced by the colonization company influenced the current urban forms of these cities. It is known that the practice of land parceling by long lots was used to spatially organize the areas around the urban center of these cities as well as that this technic originated in Germany. The research was methodologically based on a bibliographic review and documentary analysis, given that the original map of the company was redesigned and overlaid on the current map of Marechal Cândido Rondon. As a result, it is possible to infer that the urban form of these cities created by the company still hold patters of the original rural long lots, with particularities, however.

12:15 - 12:30

## **The change of spatial configuration under the hybrid culture in Milan**

X. GAO<sup>1</sup>, F. Lian<sup>1</sup>

<sup>1</sup>Harbin Institute of Technology, architecture, 66, St.XIDAZHI, Nangang district, Harbin, Heilongjiang, China

The blending of different cultures in cities has become a topic of concern today. This paper demonstrates the relationship between urban morphology and hybridization of the culture especially on the invasion of foreign cultures and people in Milan. Urban morphology as being continuously produced or reproduced through social practice are rooted in a given spatial context and at the same time to identify the most significant elements of the physical context in the terms of livability or inhabitability. The relationships between these elements can have a different nature, since they can express different emotions and behaviors to the space which is connected to the urban morphology and building typology. This relationship is never a deterministic one, but it is the result of a peculiar combination of multiple factors. According to the present situation of Milan, different spatial configurations are generated. Attention is focused on a cross of cultures and races in the same city which have conflict or contention for the resource and lead to urban conflicts. It also shows Milan has school segregation problems in some area especially on the workspaces and urban spaces and high flows of students and peculiar school. Besides, contrasted with the traditional Italian urban morphology in the past, the development and changes brought about by hybrid culture, including segregation of race are analyzed and may could provide a preliminary interpretation

12:30 - 12:45

## **Morphological Formation of King William Historic District, San Antonio**

S. HOSKARA<sup>1,2</sup>, S. DOGANER<sup>3</sup>

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Cities, in morphological terms, are composed of a set of elements of urban form – streets, street blocks, plots and buildings, which evolve throughout history under various natural, political, social, cultural and economic factors. In each city, these elements of urban form are assembled in different ways, creating different types of identities to be preserved, particularly in historic areas. The King William area which is located just south of downtown San Antonio, about one mile from the Alamo, on the Mission Trail Corridor, was designated as an Historic District in May 1968. It is one of the well-preserved areas in the city of San Antonio, with unique architectural characteristics. Although the area has been well preserved as a designated historic district, no study exists on its urban morphological characteristics. Thus, the proposed paper aims to study the evolution of urban form of the King William Historic District through town-plan analysis of M.R.G. Conzen, by concentrating on streets and their arrangement into a street-system, plots and their aggregation into street-blocks and buildings in the form of the block-plans; as well as townscape analysis covering pattern of building forms and land use and plan unit. The study will evaluate the layering of these aspects and elements through history, in order to comprehend the existing urban form of King William Historic District, which will guide the future development and management of the area within the city.

12:45 - 13:00

## **Friedrichstadt and the city of Berlin: a different scale analysis**

M. Caja<sup>1</sup>, S. Zaroulas<sup>1</sup>

<sup>1</sup>Politecnico di Milano, ABC Department, Piazza Leonardo Da Vinci, 32 - 20133 Milano, Italy

Studying the city of Berlin and particularly the part of the city along Wilhelmstraße represents an interesting challenge for different reasons: the position of this urban axis in the middle of the baroque city, the interventions on this area during World War II, the large voids created by the massive bombardments with the end of the war, the division of the city in east and west Berlin in 1961, the numerous architectural projects during the '80s IBA exhibition.

This means that in the course of time it was formed a complex built situation. It was created whole urban parts, where many new interventions favoured the development of a typological variety of buildings. Moreover, the demolitions after the World War II and the continuous transformations the city undergone, left behind parts of the cities of the past not well connected with or even ignored often by the new interventions.

The analysis which is presented here concerns a certain number of urban blocks in this specific area of the city. The aim was to elaborate by the students a preliminary study useful to the subsequent construction of their project and it was based on a different scale approach to the buildings and their architectural elements.

The result was a series of drawings in different scales that spans from the large scale analysis of the whole urban block to the reduced one of the single building and its parts.

13:00 - 13:15

## **Urban Form of Coromandel Region – a case of Chennai**

X. Benedict<sup>1</sup>, D.R. Vedamuthu<sup>2</sup>

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The medieval period word 'Coromandel' has two versions- Chola-mandala indicating the grand kingdom, and another is karu-man-el-medu (black-soil-high ground) emphasizing the toponymy. The ecology of this region had great influence on the history, urban-form, and administrative setup of India. It is the only region to depend on Northeast monsoon and supports a unique type of vegetation called Tropical Dry Evergreen forest/region. The literature study and analysis points out historical, and geographical facts. The research part focuses on the evolution of the urban form with reference to the ecology of the region that is wetlands ecosystem. Historically, Madras (old name of Chennai) was evolved from and around the British trading post. The annexation of various self-sustaining villages during 18-19 CE had a significant impact on its urban morphology. The colonials dictated the morphological form that Madras would take by demarcating certain areas of the city for particular occupational purposes, and by settling migrants in colonies according to their economic skills. This segregated themselves from the indigenous inhabitants, and the new neighbourhoods followed western models of design, expanding laterally and replicated land use without vernacular principles. The paper gives an in-depth analysis of the historical urban-form with GIS study that highlights the influence of temperate-climate design principles in this sub-tropical landscape. The alteration of nature-culture linkages which existed in the vernacular urban form has risen into frequent flooding and disaster. The paper concludes stating the sustainable strategies and need of vernacular-thinking to reduce the impact of climate change.



# **Urban Design : urban morphology, building typology and design B**

Wednesday, 03 Jul

12:00 - 13:30

Room: Meeting Room 7

**Chair: Anna Agata Kantarek**

12:00 - 12:15

## **A morpho-typological and perceptual analysis of the pocket parks morphology in the Southern European compact cities: Valencia case study**

D. Urios<sup>1</sup>, V. Colomer<sup>1</sup>, A. Portalés<sup>1</sup>, J. Colomer<sup>1</sup>

<sup>1</sup>Universidad Politécnica de Valencia, Departamento de Urbanismo, Cno. de Vera, s/n 46022 Valencia, Spain

At the present time, urban dynamics in European cities prioritize urban regeneration over the creation of new growth areas. The cities of Southern Europe maintain a very compact form so they generally have a lack of public green areas. It is outstanding the importance of the neighborhood or pocket parks system in cities like Valencia, both in terms of aggregate area –a third of the whole green city areas–, and dispersion –they are near to all city dwellings–. From this point of view, these small parks become spaces of opportunity, since they manifest in many cases functional and material obsolescence. Urban morphology raises the physical conditions and the spatial framework of the neighborhood parks. To contribute knowledge about open space morphology we proposed in the last ISUF Conference held in Krasnoyarsk in 2018 a methodology based on quality aspects survey by coding them into indicators that answer in a binary form in order to provide evaluation in the most objective and simplest way. Topics selected are set around variables of urban insertion, environment and landscape, program and materiality and coded into seven factors that are related to urban quality indicators. We have now developed in Valencia that perceptual analysis on 22 pocket parks located in fringe belt consolidation districts, selected as representative samples of an analytical process whose reading patterns can be exported to any pocket park located in any plot of the consolidated urban periphery in Valencia and, going some steps further, in any Southern European city.

12:15 - 12:30

## **Compacts typo-morphologies by use of local search methods**

Q. Meurisse<sup>1</sup>, I. De Smet<sup>2</sup>

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In prospect of sustainable urban densification, a tool aiming to assess and to assist the design of compact housing blocks with a target population density was created and tested in the scope of the CoMod Project (see details in biography). The concept of spatial compactness is here applied, at the architectural scale, on the built environment, the non-built environment and both combined. This approach allows us, during the project stage, to encourage typo-morphologies which save land and material resources while achieving high energy efficiency. These typo-morphologies exploit the spatial quality of compact spaces. A possible exaggeration of the concept is bounded by numerous objective criteria notably relative to green areas, projected shadows as well as minimal distances and surfaces to consider. This study led to a catalogue of more than 1600 typo-morphologies validating all the criteria for square, rectangular and triangular urban blocks, with an outline of 1 to 8 levels.

However, targeting urban compactness faces a difficult conciliation between various quantitative and qualitative parameters. Numerous mathematical tools have already been applied on the problem of urban planning (using optimization methods, multi-criteria decision help, cellular automata, fractal sets, etc.). The study of compact typo-morphologies with the help of graph theory, game theory or local search can help solving the problems that arise when dealing with conflicting criteria. We are currently developing a prototype of software that generates urban blocks using local search algorithms. The generated blocks optimize compactness criteria with respect to a set of comfort, privacy and legal constraints.

12:30 - 12:45

## **Compact & Collage: a Spatial Morphology Research on Xi'an Old City**

R. Wang<sup>1</sup>

<sup>1</sup>Tongji University, College of Architecture and Urban Planning, 1239 Siping Road, Yangpu District, Shanghai China, 200092, China

It is profound history background and diverse cultural heritage that make unique charm of cities, which present in urban morphological layers of different historical stages. The spatial morphology of Xi'an Old City today is the result of compression, superposition and collage in various historical periods, which contain logic and dialectics.

The article takes urban morphology of Xi'an Old City as the research object. Xi'an is the starting point of the land-based Silk Road connecting Europe with Asia and the capital of 13 dynasties in Chinese history. The spatial morphology in the Tang Dynasty (618AD-907AD) was the accumulation and evolution result of former capital cities, which also had a far-reaching influence on contemporary capitals of Japan and Korea. This period laid the cornerstone for today. In the Mongolian Yuan Dynasty (1271AD-1368AD), Hui nationality Islam was an essential factor influencing the city morphology. Then the large-scale expansion and reconstruction in the Ming Dynasty (1368AD-1644AD) and Manchurian Qing Dynasty (1636AD-1912AD) made the city a hub and fortress of central and western China, leaving the most details for today. Since then, Western architectural culture also exerted impact.

The article interprets and reorganizes the compacted and collaged urban morphology of Xi'an Old City through study of historical maps, images, Chinese and foreign literature and critical thinking on existing research. The accurate and comprehensive cognition can offer a case study for East Asian city history; provide basis and guidance for protection, restoration, regeneration of local historical environment and lively inheritance in contemporary urban renewal.

12:45 - 13:00

## **Exploring the morphological process of new districts in China: the case of Nanjing**

S. GUO<sup>1</sup>, Q. Li<sup>1</sup>, W. Ding<sup>2</sup>

<sup>1</sup>Nanjing University, School of Architecture and Urban Planning, Hankou road 22, Nanjing, 210093, China

<sup>2</sup>University of Leeds, School of Architecture and Urban Planning, Hankou road 22, Nanjing, 210093, China

Morphological research enables better understand of the urban physical form through studying its generating process. In the past 3 decades, urban expansion leads to a rapid construction of new districts recognized by scholars as a “top-down and one-shot” process, which is believed to have caused a high degree of similarity in their structures and fabrics. In fact, in parallel with urban expansion, the market economy has integrated with former planned economy, which means the bottom-up forces have started to play the important role during this period. Thus, it is meaningful by focusing on urban new development zones to investigate two interwoven forces with morphological tools.

Hexi area, a new developing zone of Nanjing, used to be farmland before 1992. In 2004, due to the upcoming National Olympic Games, a new developing plan for Hexi was founded and growing. This paper reviews the morphological process of Hexi to analyze the way of its morphological changing, the pattern of the structure and idea behind. Focusing on the center area of Hexi, the paper carefully draws out the land changing step by step, and the morphological changing process is clearly shown, in terms of cultural intension, social activities and commercial values. Based on various planning indicators, the paper characterized the morphological features of the new zone, including building height, arrangement of buildings and street interface. Result shows social economic demand is the main driving force of the development of the area, rather than a top-down planning, which determines the network structure.

13:00 - 13:15

## **The evolution and thoughts based on urban form of Guangzhou**

X. GAO<sup>1</sup>, F. Lian<sup>2</sup>

<sup>1</sup>Harbin Institute of Technology, architecture, 66, St.XIDAZHI, Nangang district, Harbin, Heilongjiang, China

<sup>2</sup>Harbin Institute of Technology, Architecture, 66, St.XIDAZHI, Nangang district, Harbin, Heilongjiang, China

History truly exists in every construction site, and provides a wealth of design resources for architects. The city is the working field of various forces. The evolution of the city is also closely related to economic, politics and other factors. This paper demonstrates the process of urban change from the beginning of the establishment to the present situation according to the historical processes in Guangzhou. Combined with several important points of time to analyze the various factors leading to the formation of urban typology changes. Focus on the urban changes from initial development of treaty ports, the cultural aggression and expansion after the Opium War, the economic and policy changes of Guangzhou after China's reform and opening up to the intermingling of population and culture in Guangzhou today. This paper summarizes the theoretical elements related to the urban form and the changes in the road, the composition of human beings and the urban hybrids in the historical process, which have an attempt to conceive the future urban construction.

## **Nicosia's Urban Form**

Wednesday, 03 Jul

15:30 - 16:30

Room: Chateau Status Room 1

**Chair: Fatma Cana Bilsel**

## **The short story of Nicosia**

Byron Ioannou

The presentation debates significant moments of the city evolution through the images of iconic structures. These images highlight two prevailing notions on which the presenter bases his narrative: incompleteness and diversity. The slideshow starts through selected architectural fragments of the city expansion outside the medieval walls from the Mid-war to 1974. At a second stage, images and notions connect with maps and diagrams codifying Nicosia's transitional spatial structure all the way from the middle ages to today. Incompleteness and diversity persist in both the architectural images and fragmented geographies of the Cyprus capital.

## **The planning system of Nicosia**

Lora Nicolaou

Cyprus despite an apparently 'zoning' regulation it has a highly discretionary planning system. Walking the streets and experiencing its open space it is obvious that urban morphology mid-20th century onwards, is characterized by random shifts and changes to the 'city building' rules. Nicosia Municipality introduced for the first time in Cyprus, planning at a local level with the adoption of the Nicosia Center Area Plan in 2016. It uses tools such as character areas descriptors in order to set zoning parameters, attempts to regulate the locational character of taller/larger buildings as regenerators and constructs three strategic Projects; all an attempt to redefine the 'centrality' of the 'edge condition' of the city Centre in a divided city.

## **Nicosia's spatial configuration through time**

Konstantinos Kipris, Nadia Charalambous, Ilaria Geddes

Analysing the relationship between urban form and society through time is key to understanding the patterns of socio-spatial phenomena observable in contemporary cities and the mechanisms through which such phenomena unfold. This presentation identifies a need for enhancing research into the relationship between physical transformation and social change in a city through time. Spatial models of Nicosia, at key periods of its development from 1883-2014 are presented using space syntax methodology, in an attempt to compare the city's urban form at different points in time in relation to social historical data.



## **EPUM Round Table**

Wednesday, 03 Jul

15:30 - 16:30

Room: Chateau Status - Room 2

**Chairs: Ilaria Geddes, Andreas Papallas**

## **Design practice and urban morphology: teaching combined morphological approaches to the next generation of practitioners**

This third Round Table of the **EPUM project-Emerging Perspectives on Urban Morphology**, ([epum.eu](http://epum.eu)), builds upon previous discussions of the benefits and challenges of applying the different morphological approaches to the same case study of the historical centre of Porto during EPUM's first intensive summer workshop in Portugal in September 2018.

The first two Round Tables addressed the possibility and desirability of combining the approaches, their complementarity in the understanding of the urban form, common threads and concepts, as well as the potential of building a common structure and systematizing the knowledge of urban morphology to expand existing methodologies, without radically altering the background theories which support them.

This debate focuses on the implications of teaching a multiplicity of approaches for the future of design practice. The discussion will address issues such as: i. the benefits and challenges of teaching multiple approaches within the time and resource constraints of existing urban morphology courses; ii. balancing broad knowledge and understanding of concepts with the need for teaching specific skills and practice of methods; iii. the potential of urban morphological knowledge for future professionals and for design practice.

**Discussants:** Karl Kropf (Oxford Brookes University), Vitor Oliveira (University of Porto), Giuseppe Strappa (Sapienza University of Rome), Laura Vaughan (University College London).

**Moderators:** Ilaria Geddes (University of Cyprus) and Andreas Papallas (Cyprus University of Technology).

## **Focus 1a : urban conflict and divided cities.**

Wednesday, 03 Jul

17:00 - 18:45

Room: H4C

**Chair: Valentina Donà**

17:00 - 17:15

## **Decoding Urban Form of Self-Organized Settlements with Computational Tools: The Comparative Study of Traditional Settlements of Amasya**

P. Çalışır Adem<sup>1</sup>, G. Çağdaş<sup>2</sup>

<sup>1</sup>Yeditepe Üniversitesi, Department of Architecture, Kayışdağı, İstanbul, Turkey

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Urban form is affected by various determinants. Especially in traditional settlements, formation is a complex and self-organized process which takes its shape for years as a result of complex relationships of urban components. The lack of understanding the complexity of urban formation process in designers destroys identities of traditional settlements and creates incompatible urban patterns with old areas. To overcome this issue, designers must understand self-organized structure of the formation process and respond to its demands in an objective way. Therefore, the aim of this paper is to propose a method for unrevealing self-organized structures in the traditional urban form by utilizing computational tools.

The method for decoding the self-organized structure of traditional settlements is consists of three stages. The first stage is called "the data collection". In this stage, we can available official data or we can produce our own with computational tools-GIS spatial analyst tools for topography and Space Syntax tools for social interactions-. The second stage is called "the database formation". GIS environment will be used in this stage to merge and visualize data. The last stage is called "the decoding structure" in which we will apply Data Mining tools in order to investigate and define self-organized urban patterns and their relationships between each other.

The case study is carried out in two different traditional settlements in Amasya/Turkey. By the end of the comparative study of these two settlements, we can identify different rules in the same historic city for creation of a self-organized urban form.

17:15 - 17:30

## **Climatic Investigation of Iranian vernacular architecture by using space syntax method**

P. Pourvahidi<sup>1</sup>

<sup>1</sup>Cyprus International University, Faculty of fine art, design and architecture, Department of Interior Architect, Lefkoşa, North Cyprus via Mersin 10, Turkey

Iranian vernacular architecture developed with the obligation of natural and cultural features. This research endeavors to illustrate the scarcities of space syntax method for climatic design and social cultural analysis on vernacular Iranian architecture. Consistent with this aim, first attempt is from the theoretical background of the Iranian vernacular architecture and then analyzes the space organization of vernacular buildings from the climatic and privacy point of view. Agraph software have been used as a space syntax method tools. This research apply Agraph in order to investigate the total depth of a node, which is the total of the shortest distance from node n (entrance) to the other node in the graph. Hence, Agraph analysis assist this study to do the analysis on five vernacular buildings where are located in five different climatic region of Iran such as Abyane (hot-dry with cold winter), Naghadeh (cool climate), Bandar Lengeh (hot-humid), Shushtar (hot-dry), Nushahr (temperate-humid). This study by considering the parameter of total depth value (TD)<sub>n</sub> from the space syntax approach illustrated that climate or privacy is the main reason for configuration of the spaces in Iranian vernacular buildings.

17:30 - 17:45

## **Urban Morphology: A magical tool for collecting, analysing and designing poetical urban spaces**

K.A. Alangoya<sup>1</sup>

<sup>1</sup>Istanbul Bilgi University, Faculty of Architecture, Department of Architecture, Emniyettepe Mahallesi, Kazım Karabekir Cd.N0:13 D:2 34060 Eyüp/İstanbul, Turkey

The aim of the modern art hasn't been to reflect the beautiful or balance but contradiction, conflict, intensity. Hence the modern artist's depiction of modern life and the spaces of the modern city which envelope the individual and society do not treat of peace of mind, balance, or a measured beauty. Intensifying realities art treats of the adventure of the soul, which becomes stronger in urban environments as if it were obstinately defying the challenging conditions. The modern city has been the space of challenging living conditions for at least three hundred years. Nevertheless, the works of modern planners, architects, and theorists bear witness to how they immediately focused their attention mostly on the spatial, functional, and morphological contexts of urbanity, which attract the attention to the body of the city. Yet Urban Morphology is not a tool only for analysing the body shape of urban environments. The urban spaces or maps conceived, inhabited, and dreamed up by societies, immerse in thought those who wander and look around, impressing them like works of art. There is a poetics to the relationship between the physical elements of the city. The poetical urban spaces are made of from the basic elements of urban morphology. Yet the processes of collecting, analysing and designing poetic spaces gain depth through the phenomena of Curiosity, Adventure and Service. Using Urban Morphology as a magical tool the following is an attempt to unify the urban soul and the urban body for a poetical urban environment and urban life.

17:45 - 18:00

## **City as Assemblage: The Influence of Urban Morphology on Resilient Neighborhood Design**

D.O. Aytac<sup>1</sup>, T. Vural Arslan<sup>2</sup>

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Assemblage concept suggests heterogeneity, differences and relations as well as a bottom-up approach to universal uniqueness. This thinking has brought into two key concepts which are 'tree like / rhizomatic' structures and 'being / becoming' dialectics. These two concepts have been adopted by urban morphology, so that cities are seen as 'multiplicity' rather than a 'whole' and interacting elements of the city have become more important than the qualities of its elements. In parallel to assemblage urbanism, resilience concept in socio-ecological and urban design perspective presupposes the nature of complex systems (such as cities) as interacting on a multi-scalar scale ranging from building to neighborhood and city, as well as creating redundant, flexible, adaptive capacity to sustain its essential functions from a short term to long term needs. Qualities of resilient design is being conceptualized and adopted by resilient urban design research including resilient urban design form. However, the link between urban morphology and resilient neighborhood design has not been adequately studied. Presenting a habitat for the people, neighborhoods are essential parts of the city in terms of providing physical, social, psychological, spatial, administrative and economic base. Therefore, urban morphology study could notably facilitate through forming resilient neighborhood design principles. By aligning urban morphology and assemblage concept, the study investigates the influence of urban morphology for generating resilient neighborhood design. Ultimately, a conceptual framework is formulated by means of linking urban form components and processes with resilient neighborhood spatial attributes.

18:00 - 18:15

## **Approaching a Squatter Settlement as Assemblage to the Historic City: a Morphological Study on Mollafenari and Ivazpasa Neighborhoods in Bursa, Turkey**

İ. Berk<sup>1</sup>, F.C. Bilsel<sup>1</sup>

<sup>1</sup>Middle East Technical University, Architecture, Ankara, Turkey

Changes in the production processes have been one of the major factors that affect the social organization and shape the urban form. For Bursa, which was the first Ottoman capital city, the change was stimulated with the emergence of silk factories working with steam and the increasing need for labour starting from the late nineteenth century. This need triggered a population flow from nearby villages to the southern outskirts of the city, through the migration routes passing along the slopes of Uludağ mountain. Mollafenari and Ivazpasa neighbourhoods located between the mountain and the historic city were developed as a result of this process. Starting from the mid-twentieth century, Bursa was subject to another, yet unprecedented migratory flow that has affected all major cities of the country. The migrants, mostly originated from the surrounding villages, created their squatter settlements between the old neighbourhoods of the city and the steep slopes of the mountain. The resulting urban development did not follow any specific rules; the migrants created their self-organized territories in the close vicinity of their working places. The squatter neighbourhoods have been consolidated through physical and social stratification that formed a whole system.

The complex structure of the dense squatter settlement that has been integrated with the historic fabric of the old neighbourhoods is still alive. It is possible to define these neighbourhoods as "assemblages" both integrated with the historic district and distinguished with their social and morphological character, which make these neighbourhoods a locus solus within the city.



18:15 - 18:30

## **Study on generating 3D Building models in Urban Design**

R. Duan<sup>1,2</sup>

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Urban designers collect cases to study similar projects as precedents and analyze the existing site conditions for new projects. The study aims to develop an automatic generation method that converts land-use indexes and building codes such as FAR, height limit etc., as well as site condition quantitative analysis data, into visible 3D building forms for both new and regeneration projects in urban design practices in China. It aims to adopt a research paradigm of “case analyzing, computational modeling, solution searching” on three levels, namely street blocks, building groups, and individual buildings to develop a hierarchy of parametric prototype system, so that prototypical accumulation reduces time to modify the system for a target project. This study raises a method with the concepts from knowledge-based engineering. It builds upon a street block case library composed by self-adaptive parametric case models of the previous urban practices. The cases contain morphological information as well as other evaluations such as indexes of market value and social capital. In the automatic generation, it is expected to provide adaptive cases to fit in the existing codes and optimize the generation through parameters adjustment. The implications of urban codes and forms in urban design practices are discussed.

# **Focus 1b : urban conflict and divided cities**

Wednesday, 03 Jul

17:00 - 18:45

Room: Chateau Status - Room 2

**Chair: Marko Kiessel**

17:00 - 17:15

## **The fragmented / the isolated/ the polarized city: urban forms of social segregation in Cairo, Kathmandu and Ulaanbaatar**

O. Kummel<sup>1</sup>

<sup>1</sup>Research Institute for Regional and Urban Development, research group spatial planning and urban design, Brüderweg 22-24, 44135 Dortmund, Germany

Segregation is visible in the urban form – even how segregation takes place. In Cairo, Kathmandu and Ulaanbaatar different types of self-provisioning settlements exist lacking of adequate technical and social infrastructure and other urban services. Consequently, the inhabitants used to provide themselves with necessary infrastructures at the initial stage of their settlement. As soon as those informal, squatter or yurt\* settlements, this is, how the settlements are usually called, started to grow attracting development agencies. Urban improvement programs were implemented, not in all ways for the sake of the inhabitants. The success of these programs highly depends on the involvement of inhabitants and on the negotiations for recognition of the settlements and for an improved living standard. The presentation aims to provide insights of the different types of urban form in Cairo, Kathmandu and Ulaanbaatar, how the urban fabric is composed of these types and where the self-provisioning settlements are located in the city. Depending on the embeddedness of the self-provisioning settlements within the urban fabric, the city appears fragmented, isolated or polarized. This is not only a matter of space but also of societal acceptance. Another focus of the presentation lies on the socio-spatial characteristics, the spatial development of the self-provisioning settlements and the influence of the urban improvement programs on the socio-spatial segregation of the settlements.

\*Yurts are round felt tents generally used by the nomads in Mongolia. Mongolian urban areas also partly consist of yurt settlements, an assemblage of yurts, which later on are replaced by houses.

17:15 - 17:30

## **Specific forms of spatial segregation in Corsica?**

S. Diaz<sup>1</sup>

<sup>1</sup>Université de Corse, UMR LISA CNRS 6240, 20250 Corte, France

Corsica is the fourth island of the Mediterranean, a "land of mountains in the sea" as Ratzel called it in 1899. It has undergone different evolutions in terms of urban morphology between the coastal area and the inland areas. The coastal area is the area of cities often inherited from Genoese colonization between the 12th and 18th centuries. The interior space is more rural, formed by a multitude of hamlets, a heritage of the agroforestry and pastoral lifestyles that strongly influenced the urban morphology of these areas until the first half of the 20th century. These two spaces, coastline and inland, so different in their urban morphology, have always been in close connection. However, with the contemporary evolutions that Corsica is experiencing (demographic growth, development of activities related to tourism, high rate of second homes, land pressure), spatial segregation of different types of housing modes is already highlighted. We can note, for example, the prevalence of second homes in municipalities close to the coast. It is also possible to observe the formation of "fragmented communes", with a capital city in loss of centrality to the benefit of one or more hamlets. This study will attempt to observe and analyse these spatial segregations by combining the configuration analysis of urban forms with a multi-criteria approach combining geohistory, demography and socio-economic study.

17:30 - 17:45

## **Agents in Urban Conflicts and Morphological Process: Exemplified by Guijie Street in Beijing**

B. Wang<sup>1</sup>, C. Shi<sup>2</sup>, F. Song<sup>1</sup>

<sup>1</sup>Peking University, College of Urban and Environmental Sciences, No.5 Yiheyuan Rd, Haidian District, Beijing, 100871, China

<sup>2</sup>Ministry of Natural Resources of the PRC, Urban-rural Planning Administration Center, No.64 Fuchengmen Inner St, Xicheng District, Beijing, 100812, China

There is emerging literature on the spatial and political impacts of different stakeholder in China. However, few have thoroughly addressed the interaction between the government and residents at the block level. Taking Guijie Street as an example, this paper explores the conflicts of public space use among different stakeholder and how “discipline-resist” spatial attempts affect the morphological process. As a typical traditional commercial street in Beijing, Guijie Street is only 750 meters long with amazingly 220 shops along it, resulting in the transformation and replacement of forms due to the survival strategy of merchants. Resulting from the flexible, individualized and small-scale activism of maintaining their livelihoods, merchants changed the landscape of Guijie Street and led to multiple rounds of rectification activities by government, which caused the orderliness but the lack of street vitality. Hence Guijie Street is typical enough to deepen the concept that named “revolution” by Conzen.

Based on the existing conflicts of public space use and the evolutionary history of Guijie Street, this paper aims to explore the ways in which informal mechanisms for surviving articulate with the governance of the authority. While the different morphological features in this block are closely related to the governance system in China and the power of capital and agents. Thus, when conducting researches with the theories and methods of Conzenian School, attention should be paid to the particularity of China's power structure and its different economic and social context.

17:45 - 18:00

## **Morphogenesis and Segregation of the agricultural and industrial residual in Beijing CBD**

D. Jiang<sup>1</sup>, F. Song<sup>1</sup>

<sup>1</sup>Peking University, College of Urban and Environmental Sciences, 5 Yiheyuan Rd., Haidian District, Beijing, 100871, China

The study focuses on agricultural and industrial residual features in Beijing CBD in China to discuss issues of segregation and cohabitation in urban areas. The residual mostly refers to farmer houses and working-class dormitories of previous villages and factories, which isolate in the bustling Beijing CBD. Using urban-morphology method together with the knowledge of human geography and sociology, the study analyzes the development process of the CBD and identifies the causes and extent of the segregation of the residual. From agricultural land to industrial district to CBD with different functional plots, the area has developed fast except for the residual. Involved with different stakeholders: former villagers and workers of the factories and their descendants, migrant workers from other provinces, residents in buildings of 1980s-1990s, local government and community administrations, property management companies, the change of the social structure of the residual is complicated. Urban conflicts within the residual and with the outside CBD take place. And the spatial isolation leads to economic, institutional and psychological segregation. According to sociospatial dialectic, economic, demographic, social and cultural forces are continuously interacting with urban spaces. Therefore, it's vital for urban management to identify the morphogenesis first, consider economic and cultural background of all periods to solve the problem of segregation.

18:00 - 18:15

## **Formal City grows in an Informal Way**

C. Zhang<sup>1</sup>

<sup>1</sup>Tongji University, College of Architecture and Urban Planning, Siping Road No.1239, Tongji University, Shanghai, China, China

The cities study today marked themselves a paradox that the "Scenario Planning" of the city are supported by developed regions, but the core factors of how city operation are remaining rooted by the developing regions. As to a specific city, even if it has perfect geometric shapes and urban boundaries, it is not actually working in a regular way. These formal rules or laws and informal disciplines seem to be wrapped in a magic box which decide the development of the city in negotiation methods. This paper is focus on a case study of the Urban Conflict of Muslim Quarter in Xi'an, China. Muslim Quarter is a historical block. In the late 1990s, some Muslim rented houses to run catering in this street. After that, the population gradually accumulated, and the government tampered with the transformation to the dining street. The Beiyuan Gate became Muslim Quarter and built up 10 mosques of different ages and sizes. However, Muslim Quarter is also the most special "slum". Due to the national history and culture, it has become a gathering place for more than 60,000 Hui Muslims. Since 21st, Muslim Quarter has becoming an invisible and sensitive area, gradually forming a situation of regional autonomy. While adding benefits to the city, it has added a lot of contradictions and pressures. This paper is subsidized by NSFC project which is named as <Research on Technical System of "Downtown Factory" Community-oriented Regeneration in Yangtze River Delta Region> (Grant No.51678412).

18:15 - 18:30

## **Comparative Study on the Gated Communities of Suzhou Industrial Park and the Non-gated Communities of Singapore within Their Urban Morphologies**

Y. Sun<sup>1</sup>, J. Han<sup>1</sup>

<sup>1</sup>Xi'an Jiaotong-Liverpool University, Department of Architecture, Xi'an Jiaotong-Liverpool University, Suzhou, Jiangsu Province, China

The State Council of the People's Republic of China made an official suggestion for future city planning in 2016 that, on basic principle, suggests the gradual opening up of residential gated communities. This means that China is facing a new round of urban reform in which non-gated communities will inevitably become the morphological code in future China. Suzhou Industrial Park (SIP) is a new district located on the east side of Suzhou and is the first national development town created through collaboration between China and Singapore since the early 1990s. The new town planning system and the urban model from Singapore were widely adopted and further adapted into SIP's development from the beginning. Therefore the urban morphologies look similar, yet they are in essence different owing to their completely different approaches to massive housing compounds: most of the housing compounds in SIP are private gated communities developed by private developers, while over 80% of people in Singapore living in public non-gated communities developed by the government. This paper focuses on the changing urban fabric coming out of the proliferation of gated communities in SIP and non-gated communities in Singapore, and also investigates the social, cultural and economic forces underlying the gated and opened communities respectively. The comparison between them aims to provide new insights into the housing compound liberalisation reform by gradually integrating existing residential gated communities with the public and developing a new mode of open housing compound.



# **Focus 1c : urban conflict and divided cities**

Wednesday, 03 Jul

17:00 - 18:45

Room: Goethe

**Chair: Byron Ioannou**

17:00 - 17:15

## **Palestine's Spatio-Temporal Fragmentation: Mapping the narrative of Hebron's division**

R. Abughannam<sup>1</sup>, S. Khasib<sup>2</sup>

<sup>1</sup>Carleton University, School of Architecture and Urbanism, Ottawa, Canada

<sup>2</sup>Birzeit University, Department of Architectural Engineering, Birzeit, Palestinian Territories

Throughout the past 70 years, the Israeli occupation has divided the Palestinian cities into various layers and scales, shifting their landscape through time and space. Whereas colonization in the occupied territories occurs usually on the outskirts of the Palestinian towns, the old city of Hebron constitutes a peculiar condition where this process has taken place inside the city, producing an extremely contested, highly militarized, and divided terrain. As a UNESCO World Heritage Site, the city of Hebron presents an odd palimpsest – an old city where ancient built heritage overlaps with checkpoints, military posts, and settler colonies. The old city contains the Ibrahimi Mosque/ Tomb of the Patriarchs with religious significance to Christianity, Judaism, and Islam. This religious monument has shifted from a public place of reverence to a divided, controlled space where Muslims and Jewish spaces of worship are scrutinized and defined through barriers, watchtowers, and specific entry points. Starting from the idea of partitioning, this paper investigates the division of the Palestinian landscape at different times and scales. It tracks the history of segmentation starting from the national division of 1948, to the urban fragmentation of the West Bank and Hebron, and finally to the finite architectural partitioning of the built space. By delving into the question of separation as an apparatus of control, the paper presents a spatial-time scale through the history of the Palestinian conflict and argues that the incremental division of Palestine has allowed for the violence of occupation to be more accepted and normalized.

17:15 - 17:30

## **Negotiating boundaries: a theoretical reflection on 19th century Jewish urban segregation**

L. Vaughan<sup>1</sup>

<sup>1</sup>University College London, Space Syntax Lab, Bartlett School of Architecture, 22 Gordon Street, London, WC1H 0QB, United Kingdom

The institution of the Venice Ghetto in 1516 is the preeminent example of how political powers have in the past used spatial exclusion alongside regulations of movement to force Jewish religious minorities to remain outside the public sphere. Yet the way in which such exclusion took shape was influenced by a number of factors: political status, social position, economic opportunity as well as – importantly – the spatial configuration of the urban sphere in which it occurred. It is therefore necessary to bear these factors in mind when considering the apparent spatial segregation of minority religious populations. Taking one of the myriad examples from history, this paper focuses on synagogue thresholds, considering the degree to which they transformed over the course of a century of upheaval from a sharp division, to a varying mode of interface, between public and private domains. It measures these thresholds both in plan and in elevation: considering the relative visibility of the façade from the street.

This paper will consider these spatial interfaces in relation to Jewish political status in the 19th century. Examples are drawn from across Europe, focusing on the post-emancipatory (Napoleonic) countries in the continent's west and post-Tanzimat (Ottoman) reforms in its south-east, ending with London, 1899. The analysis suggests that the relative visibility of buildings of migrant faith reflects an internal shift from congregational to choral modes of worship, whilst an increase in synagogue-street porosity signifies an increasing freedom in the public sphere.

17:30 - 17:45

## **The relationship between power, morphological characteristic areas and their boundaries: Case study on the conservation areas in Cardiff, Wales**

L. Deng<sup>1</sup>, F. Song<sup>1</sup>

<sup>1</sup>Peking University, College of Urban and Environmental Sciences, 5 Yiheyuan Rd. Haidian District, Beijing, China

Through the case study of Cardiff, the capital of Wales, this paper investigates the interaction between decision makers of different identity backgrounds and boundaries of different level urban morphological characteristic areas. In view of the case study of the boundaries of Cardiff conservation areas and the boundaries of the morphological regions and further observation on the morphological characteristic areas in Cardiff, this specific research reveals that the formation of the boundary of the morphological characteristic area is closely related to the change of the spatial hierarchy system of the decision-making force formed by the relevant stakeholders. In other words, urban morphological characteristic areas are the result of interaction between different power owners in a given period. On this basis, this paper holds that the boundary is the marker of the power limit owned by the decision maker in a certain period, which reflects the power hierarchy system of the current society. Therefore, the morphological features of cities and the features of urban morphological characteristic areas are the spatial representations of the composition of social power in their formative period. Consequently, understanding the urban landscape structure from the perspective of power plays an important role in reflections on the history of city and social development. From this point of view, this paper discusses the relationship between the structural differences of cities and the hierarchy systems of social power.

17:45 - 18:00

## **The Emergence and Extinction of a City Dividing Line: Study on Urban Morphology Along the “Secondary Borderline” in Shenzhen, China**

X. Liu<sup>1</sup>

<sup>1</sup>Tongji University, College of Architecture and Urban Planning, No.1239, Siping Road, Shanghai, China

This paper studies the evolution of urban morphology along the Shenzhen Secondary Borderline from 1980 to 2018. In 1982, an administrative line, commonly known as the “Secondary Borderline”, was set up on the boundary of the Shenzhen Special Economic Zone (SZSEZ) which was established in 1980. The planned economic system is implemented outside the border, while the market economy system is implemented inside the Secondary Borderline in SZSEZ, where outsiders are required to apply for a “Special Zone Pass” before getting in. With the establishment of the market economy system throughout Shenzhen and China, the Secondary Borderline has become an obstacle to the city’s development. On January 2018, the State Council finally agreed to abolish the 36-year-old borderline.

This paper summarizes the history of the Secondary Borderline from its appearance to being abolished and describes the conflicts brought about by the implementation of two different economic systems within and outside the line. Taking Tongleguan, Meilingguan and Bujiguan Checkpoint as examples, based on historical research, the changes of urban fabrics on both sides of the border are graphically analyzed, and the impact of urban structure changes on the urban development of Shenzhen is analyzed.

The article concludes that the evolution of urban morphology along the Secondary Borderline are essentially forced by the transformation and integration of the economic models on both sides, which has certain reference significance for the formulation of development policies in other similar divided cities in the world.

18:00 - 18:15

## **Urban Ethnic Segregation: a morphological investigation of a dominant assumption in planning theory**

M. Sarraf<sup>1,2</sup>

<sup>1</sup>University of British Columbia, SCARP | School of Community & Regional Planning, BC, Canada

<sup>2</sup>Uppsala University, IBF- Institute for Housing and Urban Research, Box 514, 751 20 UPPSALA, Sweden

Urban segregation has been associated with different types of social groupings primarily based on ethnicity, religion, culture and income status. Despite being an interrelated complex of variables, the notion of segregation often connotes some extent of spatial correlation. Having spatial dimensions at the core of investigation, the contemporary urban planning approaches the question of urban ethnic segregation by identifying the clusters of ethnic residents as the segregated areas. In simple words, there exists a prevalent assumption which – implicitly or explicitly – considers the clustering of ethnic neighbourhoods equivalent to the social problem of segregation. Questioning that assumption, this research intends to explore the relation between ethnic segregation and spatial clustering through the lens of urban morphology. It tries to identify different clustering types which, notwithstanding similarities in spatial morphology, are associated with notably different social meanings. Adopting quantitative GIS analysis of census data, the study enunciates how the social problem of segregation is to a large extent shaped by the contemporary political rhetoric rather than being based on tangible evidence. The study concludes whether spatial clustering is per se problematic, and therefore, is equivalent to ethnic segregation. The research conducts comparative case studies between the two cities of Stockholm and Vancouver. Both cities enjoying a relatively high percentage of ethnic residents, Stockholm represents a European capital as a typical case where the social problem of segregation is associated with the ethnic clustering of citizens with foreign backgrounds; while the Canadian multiculturalism policy might have developed different understanding of ethnic clustering.

18:15 - 18:30

## **Research on the Types and Formation Mechanism of Urban Spatial Segregation**

Q. Mei<sup>1</sup>

<sup>1</sup>Tongji University, Department of Architecture and Urban Planning, 1239 Siping Road, Shanghai, China

The change of urban social structure brings about the variation of spatial structure, which leads to the segregation of urban space. At present, the most striking feature of urban spatial segregation is the division between the rich and the poor. The segregation between luxury residential areas and other residential areas of social members reflects the differentiation of social strata in living space. Spatial segregation is a general state of human group settlement in the era of civilization. It will accompany the urban development process of class society from beginning to end.

Spatial segregation includes material space segregation, social space segregation and psychological space isolation. To define urban spatial segregation clearly, we must grasp multiple perspectives: firstly, rich people's residential areas are isolated from other social members' residential areas in geographic space and social space by means of closure and imprisonment; secondly, the emotional alienation and non-communication between rich people and poor people and other social groups with different socio-economic characteristics are reflected as follows: Separation from each other in emotional attribution.

Segregation between the rich and the poor in many countries are regarded as the root causes of many social problems, which lead to social conflicts and poverty in Inner cities. However, how to realize the fairness and efficiency of social space allocation in the process of social stratum differentiation has not attracted much attention. Thus this paper will discuss the basic characteristics, formation mechanism and social effects of urban spatial segregation, which may promote sociological understanding of this issue.

# **Focus 1d : urban conflict and divided cities**

Wednesday, 03 Jul

17:00 - 18:45

Room: Chateau Status - Room 3

**Chair: Lora Nicolaou**



17:00 - 17:15

## The lost centre of Nicosia

C. Kypris<sup>1</sup>

<sup>1</sup>University of Cyprus, Department of Architecture, 68 Ledras & 23A Ariadnis, 1010, Nicosia, Cyprus

Nicosia, a divided capital, in the last few decades has seen dramatic socio-spatial changes.

The centre of commercial and business activities shifted out of the old city after the impose of the division line in 1963. In our days there is evidence that the urban centre in the south part is shifting again losing its compactness.

The syntactic properties of the urban space have been shown to relate with accessibility and movement in urban areas.

In order to answer the question about the causes of the shifting, the paper approaches the issue of accessibility in the urban center of the south part of Nicosia and directly connects it with the structure of the entire spatial system. The paper covers the period from 1957 to the present. A future scenario of unified Nicosia is discussed.

Using configurational analysis based on Space Syntax theory, the spatial syntactic properties are compared to corresponding data about movement and land uses in the urban centre for different periods. The results suggest strong relation between them.

The paper concludes that the continuous expansion of the urban fabric to the south and the continuation of the division is affecting the accessibility to the urban centre causing the shifting. The reunification of Nicosia is possible to reverse the shifting procedure and give back to the city a compact urban centre.

The findings of this paper could help to understand better the phenomenon of the shifting of urban centres in divided cities asymmetrically developed in one direction.

17:15 - 17:30

## **Use of the Public Space in the Walled City of Nicosia: Urban Mapping Experience**

S. Covarino<sup>1</sup>, M. Godinez<sup>1</sup>, D. Mısırlısoy<sup>2</sup>

<sup>1</sup>Girne American University, Architecture, Kyrenia, Cyprus

<sup>2</sup>European University of Lefke, Architecture, Lefke, Cyprus

The research has been developed in Nicosia, capital of Cyprus, which is known as the last divided capital in Europe. The Walled City of Nicosia is divided into two with the Buffer Zone and Turkish Cypriots in the North and Greek Cypriots in the South. The study focuses on the Northern part of the city.

The current dynamic of immigration in North Cyprus and as a consequence the change of population in the Walled City has created a different type of social composition than before the conflict. Most of the inhabitants in the area have neither cultural links nor attachment to the area. This situation is a serious threat to the conservation process and involves meaningful differences for the use of the public space in the historic area of the Walled City.

Nicosia is the selected case study for the research because its division led to changes in the use of public space. The Walled City was segmented and remained closed across the island after August 1974, the border was 'opened' only after 2003, since then, the social composition of the area had variations that have influenced in the use of open areas, green and public space. The aim of the research is mapping how are the actual situation of those areas and the perception of the inhabitants thought the "opening" of the border. In the study also there is a description of the social projects in progress and process of renovation and social inclusion.

17:30 - 17:45

## **Urban form and social phenomena: addressing urban segregation in the divided city of Nicosia**

R. Christodoulou<sup>1</sup>, N. Charalambous<sup>2</sup>

<sup>1</sup>University of Cyprus, Architecture, Steliou Siepi 7, Cyprus

<sup>2</sup>University of Cyprus, Architecture, Ledras 68, Afghanistan

The management of ethnic diversity in facilitating interethnic understanding as a socio-spatial tactic continues to be highly relevant in Nicosia up to the present days. Ethnic diversity in contemporary cities is often discussed in relation to the phenomenon of urban segregation, especially in public spaces of a city where the life of the different and diverse groups unfolds. Urban segregation is admittedly a multidimensional and complex issue, since it has social, political, economics and spatial dimensions. This paper aims to address the spatial and temporal dimensions of urban socio-spatial inequalities in the city of divided Nicosia, within the walls after the checkpoints opened, to further facilitate an understanding of the ways in which urban form influences social phenomena and vice versa. It explores the role that public space plays for triggering and fostering segregation, as well as for posing challenges to people's everyday life and identity, through both a quantitative analysis of urban form and a qualitative analysis focusing on observations of movements and uses on urban space. It is argued that the understanding of such processes is often limited due to underestimating the function of the physical environment and the way places are shaped and connected to each other. The potential for interaction and meetings between people from different areas, ages and social backgrounds is a crucial prerequisite for creating an integrated society and encouraging tolerance and a feeling of belonging.

17:45 - 18:00

## **A critical approach to urban resilience: the case of a refugee area in Nicosia, Cyprus**

E. Zippelius<sup>1</sup>

<sup>1</sup>University of Nicosia, Department of Architecture, 31 Michael Yiorgalla, Cyprus

Urban form is exposed to transformation through time. Its ability of adaptation rests on its characteristics and can therefore vary greatly. Cypriot refugee areas have come to life after the Turkish occupation of the island's north. Though thoroughly planned, they have meanwhile undergone change on various levels and exhibited clear signs of robustness as they were able to withstand changing conditions and adapt to newly emerging needs. This ongoing adaptation is stirred by dwellers' activities who in a process of assemblage have replaced certain components within the given frame. The outcome can, though, not always be considered as favourable as areas now also clearly show signs of underuse, abandonment and degradation. This paper investigates how urban resilience can be further reinforced and urban components can be adapted, replaced or newly assembled. The study is grounded in a translation of the concept of critical practice into a critical approach to urban planning and design and applied to the specific case of a refugee area in Nicosia. A methodology is suggested that looks into the quality of life, the conditions and perceptions of inhabitants, from a micro perspective and a position of interiority through the bridging of social capital, transformative learning and empirical testing. Or in other words, how the "flows of desire" which are the primary "force of life" and the drivers of urban assemblages can be harnessed once again in order to make the area fit for the future.

18:00 - 18:15

## **Divided cities or twin cities? Cieszyn/Český Těšín and Zgorzelec/Görlitz. Comparative study from Polish-Czech and Polish-German borderlands**

M.E. Adamska<sup>1</sup>, M. Spyra<sup>1,2</sup>

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<sup>2</sup>Martin Luther University, Department of Sustainable Landscape Development, Von-Seckendorff-Platz 4, 06120 Halle (Saale), Germany

The history of Cieszyn/Český Těšín, twin towns of the Polish-Czech borderland goes back to the year 1918, while twin towns of the Polish-German borderland, amongst them Zgorzelec/Görlitz, are a newer phenomenon, dating to 1945. Firstly, the article presents the origin of the both twin cities and analyses the phases of their spatial development in reference to economic, demographic and political conditions. Secondly, similarities and differences in their spatial development are indicated. The research also includes the issues of spatial policies implemented so far and development perspectives based on the planning documents, programs and projects scheduled. Furthermore, the development challenges for both twin cities are identified and formulated. The results enable not only to identify the hitherto directions of development, but also to define new narratives in the space of both twin cities, in particular based on the integration processes of the borderland, connecting the past and the present with the future.

## Poster Presentations

Wednesday, 03 Jul

12:00 - 13:30

Room: Zenon Kitieus

**Chair: Andreas Papallas**

12:00 - 13:30

## **The action of social and economic agents in the production of urban land use**

A. Romanini<sup>1,2</sup>, A. Marques Rossetto<sup>1</sup>, V. Oliveira<sup>3</sup>

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<sup>2</sup>Meridional College IMED, Architecture and urbanism, Rua Dona Laura, 1020 - Mont'Serrat, 90430-090, Porto Alegre - RS, Brazil

<sup>3</sup>Universidade do Porto, Faculdade de Engenharia, Rua Roberto Frias s/n, 4200-465 Porto, Portugal

In order to understanding the structure of urban space, it is first necessary to identify the processes that originated its spatial structure and the patterns they produce from it. Conzen (2009) emphasizes that the spatial patterns characteristic of a city are determined by the land use and by the types of constructions. So, based on the unequal nature of urban growth, we intend to present in this research, the changes that occurred in urban land use that bordered the axis of SC 401 and SC 404 from the 2000s, as a response to economic cycles during that period in Florianópolis, a city located in the South of Brazil. Since the 1970s, the State of Santa Catarina Island has presented a series of public investments that have been determining the consequent and excessive capacity of valorization of urban land to the present day. The implantation of these investments directly reflects the production of the urban space, from the moment its location promotes changes in the morphological structure of the city, modifying the physical or built form, the interdependence of the plan, the urban fabric and the use of the soil, through action of the social and economic agents that shape and/or transform it.

12:00 - 13:30

## **Methodical approaches in Polish research on urban morphology based on Conzenian tradition**

T. Figlus<sup>1</sup>, Ł. Musiaka<sup>1</sup>, R. Szmytkie<sup>2</sup>

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Presented poster attempts to outline the history of Polish post-war urban morphology, including the achievements of the main research centres in the country. The Polish school of research on urban morphology has developed specific methodological approaches. The first one refers to modification of the method of Conzen's urban development cycle, adapted to present the phases of morphological changes in street blocks. The second approach was based on a detailed metrological analysis, which was used to describe the hypothetical modular structures regulating the layout of medieval city. The third approach was related to the use of graph methods and quasidendrite, which is the analysis of settlements' morphology as a set of lines. The next two approaches are related to urban sprawl research and changes in land use. A separate group of works are morphogenetic approaches, using stratigraphic settlements to determine the morphogenetic structure of the city and/or to identify specific morphogenetic units. We can also distinguish emerging and developing urban fringe belt analyses. Urban morphology in Poland on the basis of the Conzenian approach is currently the subject of interest of geography, architecture, urban and spatial planning, as well as interdisciplinary studies. After a period of stagnation, we can now observe some kind of revival of urban morphology studies, which are continued (in varying forms) in Wrocław, Łódź, Kraków and in the Silesian research centre.



12:00 - 13:30

## **Neo-morphologies: questioning the formation of spatial types through topological characteristics**

G. Bruyns<sup>1</sup>, D. Nel<sup>1</sup>

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In general, urban morphology examines the conditions of cities patterns, layouts and structural characteristics through specific types of analysis which attempt to expose deeper understanding of contemporary structures of cities. Different to the more normative typomorphological approach of urban analysis, which centers activity around the study of a building-to-open-space relationships, topological urbanism reframes typomorphology's conceptual framework and its methodological application to one that exposes new spatial structures through a relational formation of urban entities. Within this relational understanding of cities, this paper examines new types of spatial structures which are revealed through a topological method, specifically within low and medium density urban landscapes. This work demonstrates how low and medium density cities can be read through district movement armatures, each in a specific scale of mobility, that in turn affect the types of commercial clusters and hence the formation of public spaces in the city. The area of focus is that a 60 km x 25 km strip of the Dutch Randstad, inclusive of Amsterdam. Through the topological analysis, this paper will critically examine the link between morphology and topological aspects, in the development of new methods, whilst further questioning the re-applicability of such concepts in dense and laminated environments. The paper concludes by proposing possible directions for future research of how the topological approach might be applied within tangent debates driven by formal and morphological notions of the city. These include questions surrounding resilience, urban walkability and eventually volumetric understanding of planning the 'three dimensional' city.

12:00 - 13:30

## **The third (plastic) way of transformation. The typological process**

M. Crognale<sup>1</sup>, M. Crognale<sup>1</sup>

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Within a general reflection on the design approaches to the theme of transformation of the existing, two major contemporary trends are to be identified in dealing with this issue: one ideological, the other pragmatic. Such approaches seem to have in common the acceptance of the fact that contemporary cities were formed after pre-established drawings (usually as a praxis) and that these drawings are the basis on which to operate to activate the future modification processes.

A third way, a plastic one, is proposed for transformation. This approach arises in an original position compared to the previous ones because it recognizes the contemporary cities a contextual ability to renew and preserve the signs of their evolutionary process.

The starting point is the belief that cities, whether planned or not, were formed after phenomena - apparently not traceable - of spontaneous development and that precisely these phenomena, are the engine of the transformation of existing building fabric to which follow profound mutations of building types. It seems in fact possible to activate a chain reaction in basic building that tries to adapt to transformation and spontaneously begins a new evolutionary process. This approach inevitably linked to custom and therefore to the idea of spontaneity, refers to the theories of Saverio Muratori and his studies on the cities of Venice and Rome in their dual role: understanding the spontaneous evolution process of the city, even of the contemporary one, and deriving from such an understanding the rules for the transformation of the existing.

12:00 - 13:30

## **Type-morphological Analysis of the Shaping of Street Layouts in Historical Cities——Taking Nanjing City as an Example**

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The built environment is the physical carrier of the history and culture of a city. Both how we identify the urban morphological characteristics and how we understand the formation and transformation of urban forms is essential for the conservation and revitalization in historical cities. In this article, Nanjing city is taken as the study case for the interpretation of urban morphology in Chinese historical cities. During one thousand and seven hundred years since the Six Dynasties, The whole city was built, added, erased, and rewritten through a series of historical periods. It presents different historical layers in its urban fabric. Based on the principles of type-morphology, three characterization parameters of street layouts including orientation, density and geometric configuration are examined. The diversity of urban forms and its influential factors are revealed. Furthermore, we found that the modes of street-block-building provide a series of urban space genes, each of which has its own background. The morphological types of street layouts, as well as their spatial and temporal distribution, are investigated. It is expected that this article contributes to understand the shaping of street layouts in historical cities and their historical processes of transformation.

12:00 - 13:30

## **Comparative Analysis of Public Space among Mediterranean Port Cities Utilizing Remote Sensing and Street View—Valencia and Genova as Study Cases**

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Under the global theme of sustainable and resilient cities, new thinking about the development and design of Mediterranean port cities are expected. This paper shall discuss urban public space, especially the open space that determines the intrinsic characteristics of urban imagery, vitality and attraction. Valencia and Genova are selected and analyzed comparatively employing remote sensing satellite and street imagery. Firstly, urban physical form and spatial structure elements including public space, street-system, building blocks are extracted as analysis objects. Thus the analysis focuses on overall functional partition and transportation network, exploring the functional and spatial interrelation between port and city. Then extracted public spaces (landscape, theme parks, plazas, etc.) are analytically investigated with intra-urban networks and urban fabric. After the analytical and interpretive comparison under the theory of urban typology and scene perception, the results indicate that the public spaces enhance activity patterns of civil life and strengthen cities' identity. Whereas Valencia owns a higher level of vitality, the reasons owe to the following aspects:

- Multiple urban plan morphology, spatial profile, spatial interface, and spatial organization mode with strong accessibility;
- Diversified and people-oriented public space stimulates social and commercial activities;
- Local-famous buildings play the role of 'Catalysts', activating the city with creativity and resilience.

In conclusion, this paper strongly emphasizes the importance of the effective and rationalized organization of the public space in port cities. This comparative analysis of Mediterranean cities of Valencia and Genova can inspire the future urban design of port cities in a global context.

12:00 - 13:30

## **Urban Fabrics change and city boundaries: Comparing urban form**

A. Ricchiardi<sup>1</sup>

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Usually, a boundary produces differences, it considers the duality of the inside and the outside. Limits transmit and control exchange between territories and have the potential to mark the transition between different modes of existence. The ambivalent role of dividing and connecting make limits or boundaries fascinating to study. The dynamics of urban evolution make the limits of cities change according to its social, economic and morphological evolution and recognizes the city as a mixture of communities, interactions, places and commons. In this sense, a historical urban development review proves that changes of urban form within a city are accentuated when boundaries are exceeded or modified. For this work Borgo Dora in Turin serves to exemplify how urban form is strictly linked to a city's old boundaries and urban history. A morphological comparison of three enclaves taken from different sides of the city's historical and natural boundaries bring to light how urban fabric changes as the city grows and how the morphology of the city changes depending on the context constrains. The first extract refers to an enclave located within the historic consolidated city centre. The second enclave comes from the area developed after the historic roman wall. The last enclave analysed is a piece of the city overcoming the natural boundary marked by the river. These three extracts become a manifestation of the urban form of different periods and a guideline of the city's history.

# **Methods 1 : embedding different approaches into the study of urban morphology**

Thursday, 04 Jul

10:00 - 11:30

Room: Elia

**Chair: Wowo Ding**

10:00 - 10:15

## **Exploration on the Refined Urban Design Guideline Methods in High-Density Development Area**

F. Rong<sup>1</sup>, W. Enqi<sup>1</sup>, H. Dongqing<sup>2</sup>

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Urban morphology defines a traditional city as a combination of streets, blocks, plots and buildings. However, in the limited land resources, with the increase of population, the city breaks through the boundaries of plots and expanding in a three-dimensional direction. Particularly, in some high-density development areas, influenced by urban infrastructures, terrain features, construction sequence, etc., these phenomena are observed: multi-ground-floor development, the blur of boundary between urban street and building interior, share of underground space among urban blocks, three-dimensional property right division, etc. The city and buildings tend to be integrated. The elements of the city are more complex and diverse. Urban design must consider the combination of more elements, exercise an integrated design, and develop an innovative, sophisticated but flexible urban form control and guidance approach.

This article uses the methods of typology to interpret high-density development areas in several urban design projects, as well as discusses the corresponding control and guidance approach in urban design guidelines. In particular, we first illustrate the main characteristics of high-density development urban blocks. Secondly, we analyse the contributing factors, constraints, urban form components and their correlations to build a generating model. Finally, taking the guidance method of public walkability among urban blocks on different levels as an example, we discuss effective urban design guidelines technology. It is expected that this article contributes to an effective urban design and guidance method to adapt high-density development area.

10:15 - 10:30

## **Urban tridimensional special fabrics: formative and transformative process**

V. Buongiorno<sup>1</sup>

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Situated in the macro area of study of formative and transformative processes of contemporary city, especially specialized parts of it, the paper focuses on the most complex and sophisticated example of contemporary specialized urban fabrics: the tridimensional specialized urban fabric. The paper's purpose is to trace an hypothesis of formative process, starting from the sperimental innovation of the XIX century such as the introduction of escalators and elevators. Passing through the formation of wider multilevel fabrics such as the 'underground city' or 'skywalks' parallel urban networks in the context of northamerican cities - in response to the need of facing hard climatic conditions during some seasons of the year - and through the formation of similar parallel networks in the overpopulated asian cities, the process leads up to the actual phase, in which the overlapping of urban grid, the tridimensional development of urban fabric, constitutes an interesting response to the problematic question of soil consumption, land scarcity and urban life quality improvement, after decades dominated by the suburban model. The last part of the paper is devoted to the study of the actual phase, through the analysis of problematics and critical elements of contemporary tridimensional specialized fabrics. As a result of the study of the formative process, by continuing critically it in a virtual "future phase", that of the urban/architectonic design, some perspectives of transformation constitute the conclusion of the paper.



10:30 - 10:45

## **Mapping and Quantification of Urban Form through Urban Section**

Z. Tong<sup>1</sup>

<sup>1</sup>Nanjing University, School of Architecture and Urban Planning, 22# Hankou Road, Nanjing, 210093, China

Urban form has a profound impact on our lives and the environment. Different urban form usually means different urban space, different environment, and different microclimate. A more comprehensive and in-depth understanding of the urban form is seriously needed.

Most of research on urban form is from the aerial view. However, with such perspective, the height information of the buildings is implicit. And the three-dimensional space between buildings lacks sufficient recognition. Here, section is a potential answer to this disadvantage. In the form based code, which is a means of regulating land development to achieve a specific urban form, demonstrate the different urban form with both planes and sections, from rural to suburban, to urban enter, to CBD.

Urban section visually represents the three-dimensional shape from a transection of the city. It's a new mapping approach for representing urban form. Then, as a linear graph, the section can be quantified with some indicators easily and accurately.

In the research, we wrote a program which can automatically generate a serial of sections of urban form and calculate the relative indicators. Then different districts of the city, such as old town, new CBD, and suburbs, were extracted as experimental samples and imported into the program. Both the serials of sections and the statistical analysis can clearly present the difference between the samples. Furthermore, the analysis of samples from different cities also proved it.

10:45 - 11:00

## The street as a three-dimensional urban form

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The complexity of cities can be seen as adaptive systems in human culture that reflect a range of ways we try to understand them. In urban morphology research, as well as in practice amongst urban design professionals, there is often the challenge to understand the different elements of urban form as three-dimensional processes and not only as two-dimensional forms of spatial information. The purpose of this paper is to undertake an initial critical analysis of the street as the basic unit of space in our experience of the city as a three-dimensional urban form. The richness of subject matter presented by cities and their nature of street form and configuration has given rise to an equal richness in methods of investigation. As such, this research develops a measure for assessing the physical complexity of the built environment by incorporating cross-sectional data of streets comparing different cities. The first aim is to demonstrate an automatic, scalable and reproducible method to measure and visualize street profiles, revealing spatial patterns that are of visual importance. The second is to identify the morphological properties shared by clusters of cases, associating aspects of urban design (character, ease of movement and connectivity) and development form (density, mix and scale). Findings of this study reveal a taxonomy of street typologies through hierarchical clustering, offering a composite view in which different morphological approaches are combined and providing a better understanding of how urban streets constitute the set of spatial relationships that determine the morphological identity of cities.

11:00 - 11:15

## **Street Box: A Model Perspective for Measuring Urban Street Spatial Form**

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As is a common way to quantify urban form, the block associated with buildings inside is easy to be calculated into density and FAR. However, the Street Space is easy for perception while the Block Space is not because street network is the most fundamental elements of urban public space. The measurement of street space has been neglected for a long time in which a street is regard as a road centerline in many classic measurement models. Street Space should be volumetric which is composed of the building interface on both sides and the open space in between. Based on the profound rethinking, this paper puts forward the concept of 'Street Box', which is aimed at expanding the domain of a street from a 'line' to a 'volume' in order to refine spatial morphological measurements. The specific approach of measurements is realized via an add-on functions on GIS platform through python language, which manages to automatically compute multi-indicator of the street space such as width, ratio of height to width, density and intensity, etc. The measurement of 'Street Box' can help construct the technical framework of morphological measurement, in which street space is regarded as the main body. Two predictable application scenarios are also forwarded. Macroscopically, it can be used to evaluate the differentiation characteristics of various urban street spatial forms, while microscopically, it can be used to assess the specific design scheme. This paper will elaborate via typical urban cases.

## **Methods 2 : combining Conzenian, typological and space syntax approaches**

Thursday, 04 Jul

10:00 - 11:30

Room: Morphou

**Chair: Peter Larkham**

10:00 - 10:15

## **Multiple depth analysis and the urban design consequences of semi-public realms**

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In the context of the need to accommodate increasing urban populations and densities, many emerging building types incorporate increasingly large and complex shared circulation spaces. These 'semi-public realms' can be found in both perimeter block and 'megastructure' types and present potential benefits but also potential problematic consequences for the combined private, semi-public and public realms. Key issues include: ambiguity of form, boundaries, use, control, and imagability. Some of the factors at the root of these issues include lack of connectivity, excessive connectivity, excessive spatial depth, lack of hierarchy and spatial differentiation in relation to depth. As the latter points suggest, a key concept that can help in understanding these issues - and contribute towards designs that avoid them - is depth. Within the field of built form studies and urban morphology, the idea of depth encompasses a number of different specific conceptions. Three of the most relevant are: configurational depth (Hillier and Hanson 1984, Hillier 1996), territorial depth (Habraken 1998) and structural depth (Conzen 1969, Caniggia and Maffei 2001, Arthur 2011, Kropf 2017). The aim of this paper is to show that these three forms of depth are not mutually exclusive but have specific complementary relationships that can be used together to undertake a coherent, 'multiple depth' analysis of built form. Using examples of contemporary buildings types with extensive semi-public realms, the paper goes on to show how such an analysis can aid in both urban design practice and urban design education.

10:15 - 10:30

## **Street frontage between socialism and neoliberalism – Case study Belgrade, Milutin Milankovic Boulevard**

A. Djordjevic<sup>1</sup>, J. Radosavljevic<sup>1</sup>, J. Bugarski<sup>1</sup>

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The paper focuses on the morphogenesis of street frontage, highly influenced by changes in planning and regulatory system, deepened by abandonment of socialist system and introduction of neoliberal concepts. The most intense changes are perceivable in the narrow street through densification, plot subdivision, increase of built and floor area ratio and change in land use. If the street frontage is observed both as a constructive element of the public realm and a dividing element between private and public ownership, these relations can be perceived as a critical aspects of the image and quality of place.

The focus of the paper is on the morphological profile of Milutin Milankovic's boulevard in New Belgrade, taken as a axis of linear central activities. This research polygon provides ground for the analysis of urban form development, planned by modernistic principles in socialist period, and transformed in market oriented development manner.

The goal of this paper is to provide ground for spatial and temporal contextualization and offer understanding of urban tissue transformation over the time, using the space syntax model as an integral part of morphological studies. The synthesis of various methods in morphological research can provide a platform for better understanding of the existing built environment affected by socio political processes and needs of local residents and emerging businesses. At the same time, it could create a starting point for further improvement and development of the urban blocks located along the major streets.

10:45 - 11:00

## **The Adaptive Application of Typological Map: from Italian Approach to Chinese Traditional District**

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Typological map, which is the map of all the ground floor of a city, a district or a neighborhood, is an important tool used by the Italian typo-morphological school in the research of traditional towns. This kind of map clearly presents different kind of building layouts and their combination to overall urban form, could be used not only to study buildings' types using the instrument of analogy, but also to understand urban landscapes.

However, in the study of Chinese traditional district, there are still many challenges in the application of typological map, such as insufficient cartographical sources, different construction system and complex property right, which increase the difficulty in the drawing of typological map and put forward new requirements.

This paper taking Xiaoxihu traditional district, Nanjing as an example, trying to explore a cross-regional and cross-culture expression and application of typological map. On one hand, Chinese traditional buildings are based on the special wooden structure system, and then organized around several courtyards in a similar way. Combined with rare cadastral maps and aerial maps, the special structure system and typical layout can help to conjecture typological map, and also require more for the drawing. On the other hand, with the transformation of land ownership from private to public after 1949 and the surging urban population, one same plot, even one same building is often occupied by many households. Therefore, a new expression of overlay of property rights on typological map should be proposed to express human behavior.

11:00 - 11:15

## **Transitional Morphologies. A Joint Research Unit between China and Italy**

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In paleontology a transitional fossil is any fossilized remains of a life form that exhibits traits common to an ancestral group and its derived descendant group. In the taxonomy of evolution “transitional morphologies” are the linking phenomena between the past and the future. Studying transitional morphologies of urban centers or of anthropic landscapes means understanding the development of human settlements and not only describing them in a historical time. When Muratori outlined the different phases of some Venetian neighborhood, he worked on transitional morphologies, highlighting permanencies and variations.

Furthermore this method allows relevant procedure to design the future assets of the same settlement. The so rapid changes in Asian cities' space can be observed and studied in an analytical and complex way, using the tools of the Italian traditional typo-morphological approach, for example the so called typological maps.

During last five years, some scholars in China (at Southeast University in Nanjing) and in Italy (at Politecnico di Torino) jointly started working together on these topics in academic researches, in teaching experiences in both the continents (Asia and Europe) and in practicing design's opportunities.

The aim of this paper is expressing the position of the “Transitional Morphologies Joint Research Unit” (based both at Southeast University Nanjing, China, and Politecnico di Torino, Italy), in order to declare the mission and the scientific position of the research team, that is also linked (together with ETH Zürich) to the “Advanced Urban & Rural Research Center” established in Nanjing by MIT Boston in November 2017.



# **Theory 1 : emergence, relational theories, the social sciences and urban morphology**

Thursday, 04 Jul

10:00 - 11:30

Room: Halkos

**Chair: Ivor Samuels**

10:00 - 10:15

## **The Synergy of “Power-Technology-Space” ——Capital Plan and Construction in the Republic of China Era as an Example**

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In general, the capital plan is a piece of well-designed work by the governors, who make great efforts to consolidate power and strengthen social identification through moulding space. Capital morphology is the symbol of state power. After the 1911 Revolution, the KMT government had made several rounds of Capital Plan, including location decisions of the Central Administration District and vast constructions in order to reorganize and recreate the political institution, culture and economy by the reorganization and recreation of urban space. With the method of “phenomenon-analysis”, this paper interprets how various forces, compelling technology together, scrambled in the planning stage, and again infiltrated in the implementation stage, thus intervened the formation of urban space. In the process of planning conception, the long-term disputes and changes of the location and planning of Central Administration District fully reflected the furious ideological struggle and governance intentions from different political factions. While in the process of space implementation, not according to the Plan, the urban administration space showed unexpectedly decentralization and axial distribution instead of centralization and foliation. However, the consensus of strengthening Sun Yat-sen's political symbol and declaring the legitimacy of the regime formed the new urban framework of Nanking, which was the highest executed part in the Capital Plan. Space was produced strategically and politically with intent and purpose. The research of the synergy of “power-technology-space” of constructing Nanking will enlighten in improving the ability of modern urban space governance of the synergic relationship among space shaping, technology application and social values.

10:15 - 10:30

## **The Hybrid Architecture: a morphological perspective**

n. marzot<sup>1</sup>

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In 1979, Gianfranco Caniggia and Gian Luigi Maffei were introducing in Urban Morphology and Building Typology the unprecedented distinction between “critical consciousness” and “spontaneous consciousness”. Their goal was to justify the sheer opposition between Modernity and Tradition in the field of urban form, already heavily manifested at that time through the industrial transformation of the European city. While the former concept clearly refers to the intentionality of Architecture- that is singular, exceptional and not repeatable in itself- the latter explicates the unintentional character of Buildings, since it is plural, normal and commonly shared within a specific and coherent historical period. This paper's aim, far beyond the originating motivation pursued by the quoted authors, is to demonstrate that Architecture is the domain of the Hybrid, while Buildings pertains to the Rational. Furthermore, it states that the aforementioned definitions do not exclude each other but are complementary and mutually related, to an extent the one cannot be given without the other. Finally, it introduces an original definition of the type as the conceptual threshold, which defines and explains the complex and ongoing relation between the previous two frameworks. Evidences about this position will be extracted from a selection of traditional (in favor) and modern (in opposition) case history. The main aim is to draw a compelling design strategy to face the contemporary increasing offer of vacant buildings and waiting lands prompted by the crisis of financial capitalism, at least since 2008 onwards.

10:30 - 10:45

## **Unfolding Urban Assemblages: Mapping spatial objects' affective capacity**

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While spatial objects (design objects, buildings, urban configurations, etc.) are regarded as systems composed of interacting parts, within the assemblage theory, their ability to affect and to be affected <sup>01</sup> has not yet been mapped or sufficiently explored. This paper aims at establishing an affective mechanisms index to map the affective capacity of city's architectural elementary unit - the building - in order to reveal the urban affective capacity of its material reality.

Spatial objects are analysed in two axes. The first axis focuses on the relations that the assemblage's material and expressive components develop in order to enter the assemblages. <sup>02</sup> The second axis records the processes known as a-signifying signs or a-signs, <sup>03</sup> which are the triggering mechanisms able to stabilise or destabilise the assemblage and thus allow it to assemble anew. As a-signs cannot be isolated from matter, we point to their resulting affects, <sup>04</sup> which without entering the linguistic level they are expressed in terms of intensity fields: modulations, movements, speeds, rhythms, spasms, etc. <sup>05</sup>

In that respect an affective mechanisms index is created, where each a-sign is now connected with the list of affects it triggers and which thoroughly defines it. And vice versa, the same affect can be triggered by different a-signs, allowing the design object to lie in a perpetual state of becoming. Through this index we are able to analyse and direct the final form of the spatial object while at the same time establishing the mechanism to measure its continuous transformation.

10:45 - 11:00

## **ASSEMBLAGES or MULTIPLICITIES: the Heredity of Urban Emergence**

B. Murati<sup>1</sup>, B. Murati<sup>2</sup>

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If present contains nothing more than the past and nothing less than the future, and if what is found in the effect was already in the cause, then, to understand urban emergence and contingency of parts upon the concept of assemblages is nothing more nor less than a political effort to artificially contextualise their historically heterogeneous complexity. How are we to explain them if assemblages are incomplete temporal isolators of complexity -concerned with functional sub-whole in their end-intervals and not with the processes between intervals themselves. We challenge the view of cities as assemblages and argue against that concept as not a safe platform to capture complexity of urban emergence nor to explicate contingency of its component parts. In contrast, we elaborate on two kinds of Deleuze's (Bergson's) notions of multiplicities to grasp them both: numerically divisible and indivisible (durational) multiplicities. The former one explicates attractors and thresholds of change/deterritorialisation of system's and component's parts in stimuli-response relationship. We find that cities are compatible with the complexity theory, but their emergence and behaviour of component parts is compatible with those of living organisms. We argue that urban emergence is hierarchically driven by co-evolution of relationship patterns between multiplicities and component parts upon external metric stimuli, while the behaviour of component parts is endogenously pre-determined upon multiplicities' involutions: nothing can ever change in emergent processes nor in the behaviour of its component parts prior to change of autopoietic nature of multiplicities.

11:00 - 11:15

## **Design with non-urban planners**

C. Zhang<sup>1,2</sup>

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Urban design is a contradictory discipline. Its contradiction lies in that the city itself is both an aggregation of complex and contradictory. Even the single (special) research of urban morphology is complicated, therefore, it is unscientific to establish a so-called "urban design" discipline to unify. Consequently, scholars who study urban design can't avoid saying that 'Urban Design is multidisciplinary.' When the problem of urban design exists, the discipline is not established, therefore, the question is how to establish the research foundation. This article aims at the postgraduate degree of the Berlin University of Technology: Urban Design discusses UN-Studio(teaching) methods of the urban transformation, mainly concentrate on: 1. The definition and liberation of Multidisciplinary. Establish four discipline system frameworks with Architecture, Urban Planning, Landscape, and Sociology as the core, as well as students' context that do not limit the academic background. 2. The mutual support of the curriculum, based on the theoretical curriculum assistance under the core studio practice. 3. Simulating reality: sociological charette and Fast-Works 3. Future Scenarios and Urban Territories 4. Actor-Network and the PlanSpiel Game 5. Contradictions and failures in the process

This paper is subsidized by NSFC project which is named as <Research on Technical System of "Downtown Factory" Community-oriented Regeneration in Yangtze River Delta Region> (Grant No.51678412).

## **Theory 2 : the scope and limits of urban theories**

Thursday, 04 Jul

10:00 - 11:30

Room: Ammochostos

**Chair: Vitor Oliveira**

10:00 - 10:15

## **A morphological study on the urban inner fringes, in case of Nanjing**

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Nanjing is a metropolis located in the Yangtze River Delta on the eastern coast of China, with a population of 8 million and a built-up area of nearly 700 square kilometers. Similar to many Chinese metropolises, Nanjing's rapid city expansion by leaps and bounds has transformed the metropolitan area into an amalgamation of different and discrete pieces. The gaps between the pieces are the inner fringes, which might have commons but also differences with the traditional fringe belts.

This research focuses on this special urban morphology, and aims to describe its formal features and to understand its historical evolution.

Firstly, in metropolitan scale, historical city maps and satellite images are collected and carefully studied, expected to restore the urban expansion process and the evolution of inner fringes. Some key elements, like railway, administration boundary, in shaping the inner fringes are identified.

In local scale, typological and morphological studies are conducted to classify the architecture, landscape and infrastructure of inner fringes into several categories. By comparing the components and categories, the types and sub-types of inner fringes are defined. With the above two scale studies, an systematic description and understanding of inner fringes is accomplished.

In the conclusion part, based on the knowledge discovered in this research, the structural potentials and urban values of inner fringes are discussed, which would contribute and enlighten the renewal of them in the future.



10:15 - 10:30

## **The origin, further transformations, and present-day importance of Krakow's fringe belts resulting from the liquidation of the Fortress Krakow**

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Based on four key decisions, the history of Krakow urban form can be divided into five periods: 1. the organic agglomeration of settlements focused around Wawel Castle-and-Cathedral Hill; 2. the gridiron plan of walled city, initiated by the 1257 Cracovia charter; 3. the longitudinal complex of Clepardia, Cracovia, Casimiria and Podgorze charter towns, continued from 1320s till early 1800s; 4. the concentric and radial form of the 1850s fortress complex, consisting of three consecutive rings of fortifications, continued with the 1910 plan of Greater Krakow; 5. the latitudinal development after the 1949 establishment of Nowa Huta large industrial town, east of historic Krakow.

In the article the urban fringe belts emerging in the latter part of the fourth period have been discussed. The liquidation of the Fortress Krakow in the 1910s gave way to the development of vast land, which the military had controlled. Despite losing their original importance, the former borderlines and edges have not disappeared completely from the city and its districts. The general ideas provided by the results of the 1910 competition for Great Krakow plan were combined with various factors, resulting in the considerable development of Krakow. Some of the new districts of the city, especially in its western part, became typical fringe belts dominated by public functions. The other districts, especially in the northwest and northeast parts, tended to be of exclusively residential character. Paradoxically, in some cases it was compensated later (in the fifth period) with the next fringe belts of mainly public functions.

10:30 - 10:45

## **Exploring fringe belts in Moscow: the implications for the city's spatial development in 1990-2020**

E. Kotov<sup>1</sup>

<sup>1</sup>National Research University Higher School of Economics, Faculty of Urban and Regional Development, office 417, Myasnitskaya str. 13-4, 101000, Moscow, Russia

Fringe belts have been analysed and identified only in few Russian cities – St. Petersburg, Krasnoyarsk, Yeniseysk. We employ new data sources such as detailed land and building cadastre in GIS and combine these with old city plans and other sources to reveal the fringe belts in Moscow.

We analyse the role of the identified fringe belts from several spatial development and urban planning perspectives:

1. Transport accessibility. We analyse the street layout of the fringe belts and their adjoining territories to evaluate the effects on the transport accessibility of individual city territories and the city as a whole.
2. Conservation. We compare the fringe belts against official heritage protection and development control zones and analyse whether the fringe belts had any effect on the boundaries of these zones either on purpose or by accident.
3. Urban redevelopment. We map the recent spatial development patterns (such as zones of industrial redevelopment and for residential renovation programme that aims to relocate about 10% of the Moscow's population in 15 years) against the fringe belts.
4. Density of functions. We analyse the density of the tertiary sector businesses within and outside the fringe belts and discover if the fringe belts in Moscow have any effects on repealing or attracting this type of urban activity.

By analysing the fringe belts in Moscow from these perspectives, we reveal whether they have played an important role in recent urban development processes and should be considered as important urban structure features in the future planning decisions.

10:45 - 11:00

## **A tracking research on a special fixation line in Shenzhen, China**

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As one of the significant concept of Conzenian School, the traditional research on fixation line emphasized more on the relationship with inner fringe belt rather than on its nature and evolution at different scales. This research focuses on a special fixation line—"the second line"—as the boundary between Shenzhen special economic zone and the mainland. The previous research of this special fixation line in 2010 has analyzed the evolution process during the construction period and expanded the concept of traditional fixation line. Based on previous research, we track the overall historical evolution of "the second line" from its formation to annulment, and comparatively analyzes the morphological elements' changes and evolution mechanism at different scales with the hierarchical structures of morphology. We found that, on the scales of building and the land use on both sides, structures and urban form have heterogeneous landscapes respectively. On the urban scale, the social and economic development inside and outside the special zone has a direct impact on the change of the fixation line. In addition, combined with another boundary between Shenzhen and Hong Kong, "the first line", we found the regional evolution relationship and interaction between "first-line" and "second-line" in the historical process from the scale of the national land. Compared with the traditional fixation line, this research discusses the special fixation line's general evolution at different scales and the prosperity and decline reasons in the new era, which develops the understanding of fixation line.

11:00 - 11:15

## **Reading cadastral data: ownership as morphological frame in Taiwan**

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The plot system is part of the constitutions of the morphological frame providing a constraint to the future development of urban form. In Taiwan, the definition of plots mostly refers to a unit of ownership which regards the land as one of the most important property. Under the market mechanism of real property, the ownership of land becomes the critical factor that affects the planning and development in the area. The cadastral survey in Taiwan was firstly conducted in 1903, which established the land registration system to administrate the usage of land. This cadastral data, which is continuously in use, not only displays how boundaries subdivide the land into units of ownership but also represents the record that thoroughly documents the inheritance, transaction, transfer and occupation of the land. It displays phenomena of historical stratification as evidence of urban formation.

This study intends to clarify what mechanism do plots and plot patterns persist by reading cadastral data. It starts with identifying the characteristics of plot boundaries, including a physical entity, property boundaries, building lots and the land use control in urban planning, and classifies the plot boundaries into different layers. Successively, comparing the result with the ownership of plots, the process of plot subdivision would be explained and the relationship between abstract and physical boundaries in the plot system could be bridged. The outcome also explores the interaction between human behaviour and physical environments involving in shaping urban form and is able to speculate the future development situation.

# **Urban Design : urban morphology, building typology and design A**

Thursday, 04 Jul

10:00 - 11:30

Room: Meeting Room 1

**Chair: Ilaria Geddes**

10:00 - 10:15

## **The impact of neoliberal economy on the urban morphology of Rafidia neighborhood in Nablus city- Palestine**

Z. Zawawi<sup>1</sup>, S. Awad<sup>2</sup>

<sup>1</sup>An-Najah National University, Urban planning engineering, Rafidia main street. new campus- Nablus, Palestinian Territories

<sup>2</sup>Birzeit university, Department of Architectural Engineering, Birzeit Campus. Birzeit, Palestinian Territories

Rafidia, the today's modern neighborhood in the city of Nablus was a small village before 1963 when it was annexed to the city of Nablus. The neighborhood's urban morphology has been transformed since that time, however a drastic morphological transformation of the neighborhood took place after 2009 when the Palestinian government adopted a neoliberal economic policy that enabled a rapid change in the urban landscape in several Palestinian cities. This paper is going to study the impact of the neoliberal economic approach on the neighborhood of Rafidia as the most dynamic in the city of Nablus. The role of economy in transforming and producing various urban forms/morphologies in the neighborhood will be studied and analyzed with a focus on the socio-economic conditions. Moreover, an alternative planning scenario for this neighborhood's development will be developed depicting an alternative urban form that values visual integrity. The theoretical base for studying the urban morphology and its relation with economy in this paper is the Conzenian School pursuing a deductive and inductive process. The process starts with a study for the urban morphology of the area as a whole and moves into its parts, through the study of its urban form development at its different levels of resolution during the different historical periods of time. Then from parts again back into the knowledge of global pattern, affecting the urban morphology of the neighborhood that resulted from the prevailing economic approach in order to reach a comprehensive understanding of the change in the urban landscape.

10:15 - 10:30

## **Houseboat communities as floating neighbourhoods for degrowth: how living afloat is reshaping the urban morphology of European metropolises**

M. CALLEGARO<sup>1</sup>

<sup>1</sup>University of Genoa, Department of Architecture and Design (D.A.D.), Stradone S. Agostino 37, 16123, Genova, Italy

Houseboating is a relatively recent trend that since the last few decades is reshaping the waterfront of the many European cities. Living afloat has become a new form of settling that makes the cost of housing more affordable accomplishing the need of owning a space called 'home'.

London, Paris and Berlin, are three examples that better show the development of this bottom-up phenomenon. All these cities are adapting themselves to the rising number of houseboats but they are struggling with the absence of dedicated infrastructure, the lack of attention to the needs of the boaters and the connections between the existing neighbourhoods and the new floating ones. These 'liveaboards' belong to many different generations and lifestyles, but they mainly live in communities, tied together by a genuine sense of sharing and need of each other's experience. They have organised themselves into associations to make their life on water easier and to face local authorities in order to claim their rights to live on board, being stronger together.

Houseboating is an interesting model of housing for degrowth, that is already providing accommodation to thousands of people in Europe. This research enlightens the strength of these communities and how they are taking an active role into the urban development. The aim of this work is to illustrate how this alternative dwelling contributes to rediscover values such as the sense of belonging to a neighbourhood and the responsibility for their waterways, bringing back waterfronts to its city.

10:30 - 10:45

## **Watershed: the transformation and interrelationship of urban Tianjin and its water environment in China's planned economy era**

R. Ma<sup>1</sup>

<sup>1</sup>The University of Hong Kong, department of architecture, Pok Fu Lam, Hong Kong Island, Hong Kong

Much has been written about cities in China's planned economy era from 1949 to 1978. Most of them focus on the political and economic background, urban-rural relationship, land policy, and residential registration system to gain a general understanding of the time, while some, by choosing typical components or important projects, reveal characteristics of urban development. With a few notable exceptions, little is known about the relationships between built and natural environments of a city at that time. Mao, who had terminated the long time unrest status of the nation, gained unprecedented power to mobilize the masses. This power, facilitated with the traditional eager of water ruling and modern water conservancy technology, made a radical shift on the water environment. What was easily overlooked is that this change not only influenced irrigation, navigation, flood control, and hydropower generation, but also affected the development of cities along the rivers.

This article focuses on the city of Tianjin, which is located at the mouth of the Haihe River, to exam the interrelationship between the city and its water environment at that time. By investigating water conservancy works in and beyond the city, comparing several versions of urban master plans, and depicting the evolving urban forms and structures, the paper argues that the transformation of the water environment along the river deeply impacted the urban development, set the foundation of transforming the river-based trade city into a plain-based industrial city, and tore the city into an urban-harbor dual structure.



10:45 - 11:00

## **Researching and Mapping on Waterfront Industrial Heritage: the Urban Morphology Study of Soochow Creek, Shanghai**

Y. Zhu<sup>1</sup>, Z. Li<sup>1</sup>, J. Song<sup>1</sup>

<sup>1</sup>Tongji University, College of Architecture and Urban Planning, 1239 Siping Road, Shanghai, China

Waterfront industrial blocks are severed an essential part of urban morphology. Under the rapid urbanization in Shanghai, the industrial structural transformation along Soochow Creek has turned many former industrial blocks into urban industrial heritage, which directly influence the urban morphology and further development. How to properly conserve urban heritage and recover the civic nature of public space for the built environment become a key challenge for urban designers. To respond the question, this paper focused especially on the public space of waterfront industrial heritage, based on the analysis of urban morphology and architectural typology. First, the paper would summarize the three key elements of urban morphology transformation of waterfront industrial site: the liner transportation, the warehouse and factory typology, and the residential blocks. Then, the paper would briefly review the four periods of transformation and preservation process of Soochow Creek area since 1990s. Two typical blocks would be discussed here: the Sihang Warehouse area and M50 creative clusters, which represents two different ways for waterfront industrial area transformation. While applying the Historic Urban Landscape approach, this paper highlights an integrated, dynamic and specific way to mapping the transformation of these waterfront industrial sites, and aims to provide a holistic, dynamic and inter-disciplinary strategy for the conservation and management of industrial heritage, especially for the reconnection between the waterfront and inner city. This paper is subsidized by NSFC project (No. 51678412).

11:00 - 11:15

## **Integration of the archaeological sites into the urban web**

R. Pelengaris<sup>1</sup>

<sup>1</sup>Frederick University, Graduate Architect, Cyprus

The issue of the integration of archaeological sites in the city fabric is neglected in the Urban design literature despite its potentially significant impact in the surround urban fabric and the image of the overall city in general. Archaeological excavations often generate large scale 'voids' (kena) in the infrastructure and the morphology of the city. The paper makes references to the nature of the different types of excavation particularly in the south east Mediterranean Region and in Cyprus and the potential for their assimilation and contribution toward the public realm of the surrounding area drawn from a series of good practice examples in Europe. The issue which arises from the current debate is not simply the interaction of open site or the restoration of the infrastructure networks of the city, but the development of urban narratives through which appropriate interventions connects perceptions about the associated historical layers of a city through fragments of archaeological references with value both as urban experiences as well as educational hotspots. Research and approaches to design are studies through the close examination of a large archaeological site in Nicosia (PA.SY.D.Y.) a key location in the capitals Civic Quarter and very close to the city's Venetian walls.

# **Urban Design : urban morphology, building typology and design B**

Thursday, 04 Jul

10:00 - 11:30

Room: Meeting Room 7

**Chair: Paul Osmond**

10:00 - 10:15

## **The role of Participatory Planning methods in the development of cities: A systematic literature review on Sustainable Urban Governance**

N. Charalambous<sup>1</sup>, A. Papallas<sup>2</sup>

<sup>1</sup>University of Cyprus, Architecture, P.O. Box 20537, Nicosia, Cyprus

<sup>2</sup>University of Cyprus, Architecture, P.O. Box 20537, Cyprus

Urban Design and Planning worldwide have long been criticised for their lack of meaningful public consultation and participation in the process of shaping our built environment. Currently, the existing practices of consultation and participation are within the confines of council meetings, complex form filling and survey reports that often carry little weight towards the decisions made by the planning authorities; the latter are increasingly seeking for ways to encourage meaningful public participation in urban development decisions. This paper, presents a systematic literature review on sustainable urban governance vis-a-vis participatory planning, in an effort to consolidate, evaluate and critique the various approaches on involving the public in decision-making process in relation to urban form. The literature presented is referenced across a scale of degrees of participation, referring to a range of influence that participants have in the decision-making. In its two extremes it can be viewed as no participation, where designers make assumptions of users' needs and requirements, and full participation, based on user-defined criteria of quality. The evaluation of many participatory research practices is somewhere in between the two extremes, focusing more on design with the users. However, the given theoretical process, might provide an insufficient degree of realism that designers need to cope with, due to time and budget constraints. If it is to remain grounded to the practice of design, literature should be able to cope with barriers, and seek understanding beyond its conceptual approaches.

10:15 - 10:30

## **Research on Urban Renewal Strategy from the Perspective of Sharing: Take Village in School at Huaqiao University as an Example**

T. Lu<sup>1</sup>, Z. Li<sup>1</sup>, D. Wang<sup>1</sup>

<sup>1</sup>Tongji University, College of Architecture and Urban Planning, Siping Road 1239, Yangpu District, Shanghai, China

In the process of rapid urbanization of the initial stage in China, space expansion speed is far beyond the pace of social development. First-tier cities have used colleges and universities to expand their enrollment with university towns, engulfing some of the existing villages. As a result, the remaining villages have formed a unique "school-in-village" under the squeeze and encirclement. There is a conflict between the school and the village, but they are functionally interdependent. This is not an isolated case in the construction of Chinese universities, and the special nature of the campus itself faces new challenges in the renewal of the campus.

From the perspective of shared space and based on the field research and diagram analysis, this paper tries to explore the characteristics of Village in School from three aspects of the complex in a synchronous way, the incomplete and the porous defined by Quito Papers. In summary of these theoretical analyses, several renewal strategies of social function, urban form and landscape environment are concluded for reference to future renovation practice.

This paper is subsidized by NSFC project which is named as <Research on Technical System of "Downtown Factory" Community-oriented Regeneration in Yangtze River Delta Region>, NO.51678412.

10:30 - 10:45

## **The role of Urban Living Labs in urban form production**

C. Panayi<sup>1</sup>, N. Charalambous<sup>1</sup>

<sup>1</sup>University of Cyprus, Department of Architecture, P.O. Box 20537, Nicosia, 1678, Cyprus

In the context of studying public space as an open system and a dynamic element of encounter and interaction, the role of Urban Living Labs and participatory planning in the creation of public spaces is explored. Spaces where people socialize today, out of the private sphere and beyond the classical public spaces, are at the focal point in such a framework. Public sphere as a process with multidimensional approaches should be designed by taking into account its various physical or intangible characteristics and the stakeholders connected to it. The access, use, program, flexibility and adaptability are some of these aspects. Also, it is critical to understand the role of local authorities or government, as well as the role of private actors and the user / citizen in the whole procedure. The collaboration between the stakeholders and across sectors is vital for the process of creating viable and vital public spaces.

This paper focuses on the study of the role of Urban Living Labs in the urban design process, as real-world laboratories; sites to design, test and learn about urban form in real time. Their key element is user involvement and participation of different stakeholders that facilitates co-creation with users in the designing operation and brings users' knowledge and experience to inform the overall design. (Menny et al, 2018) Different user participation levels, from information to consultation or co-creation, in different stages of Urban Living Lab such as design, implementation or evaluation and also the right combination in the right time may be vital and have the potential of affecting the public space and urban form production.

10:45 - 11:00

## **Participatory Regeneration of Urban Village Public Space under the Conflict of Urban-Rural Dual Structure: Case of Puntoon Village in Guangzhou**

P. Zhao<sup>1</sup>

<sup>1</sup>Tongji University, College of Architecture and Urban Planning, NO.1239,Siping Road,Yangpu District,Shanghai, China

Under growing market demand, a lot of villages surrounded by expanding cities have appeared in China, which are so-called "urban village". It is a special and alternative urban space, economic and social environment driven by the failure of urban control and pure economic rationality, which embodies the conflicts and contradictions caused by the urban-rural dual structure. Although located in urban centers, urban villages provide relatively low rental housing and a variety of employment opportunities, becoming temporary sanctuaries for newcomers to adapt to the harsh external urban competitive environment. Taking Puntoon Village in Guangzhou as a typical case, this paper analyses the morphological evolution of the village from 1980 to 2018, and points out the degradation and germination of two types of public spaces: declining traditional public spaces based on patriarchal clans (e.g. ancestral halls, market) and new public space which gradually emerges at the border of external city. (e.g. park and square). Furthermore, the use of public spaces by new tenants, local residents and external residents, who have a huge conflict of interests in their demands for future regeneration, is introduced. The author elaborates on the ongoing research and regeneration attempt of NGO FaanNgukKeei in this village, in order to reconcile the conflicts of interests of users with participatory design method. Finally, the author concludes that the key point of regeneration is to get rid of the traditional top-down space renovation method, but first to work on the basis of arousing different groups of people's sense of community identity.

11:00 - 11:15

## **Uncovering Hidden Divisions: A Grassroots Method for Urban Visioning**

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This study focuses on environmental justice and its effect on the urban district visioning process. Environmental justice is the combined effect of urban morphology and the socio-economic legacy of segregation, disproportionate allocation of public amenities, and equal access to a healthy environment in which to live, learn, and work. Contemporary planning approaches offer situational strategies for complex areas struggling with inequitable lands and uses, emphasizing specific infrastructures and land patterns that support sustainable community lifestyles. A visioning process offers a participatory design-based forum for collaboration between residents, businesses, professional consultants, and broader community partners generating meaningful data and information that can lead to a more effective vision for urban communities. Building on these approaches our study identified the power of a grassroots approach to uncover hidden socio-economic and cultural divisions, as well as historically unseen and vulnerable groups within the community, such as transient residents.

This paper uses Southwest Raleigh, North Carolina, as a case study of a district visioning method to describe a bottom-up analysis and planning process initiated to transform the apparent inequities and hidden divisions within neighborhood morphology and demographics into a generative design tool for defining a distinct identity for the area. This research and visioning process was a multidisciplinary collaboration. The multi-year effort involved large-scale resident and business surveys, community meetings, interviews, market analysis, space syntax, and historic documentation. This grassroots visioning process uncovered strengths, assets, and challenges unseen at the outset of our study, revealing consensus on developing equitable infrastructure and a district identity.



# **Methods 1 : embedding different approaches into the study of urban morphology**

Thursday, 04 Jul

12:00 - 13:30

Room: Elia

**Chair: Yingchun Li**

12:00 - 12:15

## **“Plot by plot urbanism”. Mapping post-socialist changes in urban tissues of Krakow and Belgrade**

A.A. Kantarek<sup>1</sup>, V. Djokic<sup>2</sup>, K. Kwiatkowski<sup>3</sup>, A. Niković<sup>4</sup>, W. Korbel<sup>3</sup>, A. Djordjevic<sup>5</sup>, I. Samuels<sup>6</sup>

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Political ideologies of the Soviet Union resulted in deep cultural and economic transformations in post WWII Poland and Serbia (Ex-Yugoslavia) including profound changes to urban space and planning. Time of war destruction, neglect of inherited urban structures and the modernist doctrine of urban development led to functional zoning based on modernist spatial concepts. Accordingly, social systems led to land nationalization, elimination of private property resulting in centralized city planning and especially large urban housing complexes. Political changes at the end of the twentieth century returned to policies based on democratic systems and a decentralized economy with private land ownership. After nearly 30 years (Poland) and 15 years (Serbia), it is possible to see successes and failures in the system and the implementation of spatial changes. Faced with today's challenges to implement sustainable solutions, post-socialist cities must respect the existing urban structure while achieving the best possible use of existing investment.

This paper aims to present the first findings of the project on post-socialist urban form currently being undertaken with the support of ISUF, Faculty of Architecture-University of Belgrade and Cracow University of Technology. Through the historical evolution and a general analysis of the planning contexts, a comparative discussion will be focused on understanding the characteristics of the current urban form. Research on particular cases, Krakow and Belgrade, can not only help to reveal varieties of conditions to which similar urban tissues have been exposed but can also open up methodological discussion on tools and technics for reading post-socialist urban form.

12:15 - 12:30

## **The evolution of the plot under different circumstances of original planning**

B. Scheer<sup>1</sup>

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Does the original plan of a city have an effect on the subsequent evolution of the plot pattern? This research will compare five cases of city centre plot changes over a minimum of 150 years each to determine the effect of origin form in the stability of the plan. "More stable" means that the original pattern of plots has stayed clear and constant throughout the period of time, and "less stable" means there are many instances of change, including disruptive change that compromises the original pattern substantially. The different plan types include: 1) Grids and plot patterns planned for a specific building type that was common at the time (Manhattan, New York); 2) Grid patterns with plots that were incorrectly sized at their origin (Salt Lake City, Utah); 3) Loose grid developed from geometric farm fields (Cincinnati) and 4) Areas without an original geometric plan that grew organically (Boston).

While four cases are not enough to make a definitive finding about the evolutionary differences because of different original patterns, this framework could be replicated easily in many places around the world. If the differences in the relative stability of the plot patterns can be demonstrated, it would make a case for the best kind of new city foundations, which would be flexible and yet stable.

12:30 - 12:45

## **Defining the Plot Pattern of Jinjiafang: Conzenian Approach to a Chinese Walled City**

Y. Li<sup>1</sup>, T. Zhou<sup>1</sup>, S. Zhang<sup>1</sup>, H. Yin<sup>1</sup>

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Plot is one the three essential elements of urban built environment in the Conzenian approach of town-plan analysis, featuring as an invisible yet vital aspect in the understanding of urban form and transformation. However, due to the lack of cadastral maps, scientific plot pattern study has been a major challenge in the plan analysis of Chinese traditional cities. This proposed paper attempts to introduce an experimental method of plot pattern study through multi-resources field surveys. Taking Jinjiafang, a well-preserved historic district in the Shanghai Walled City as example, the study managed to construct the plot pattern map through four resources: (1) 3D surface model created from aerial photos; (2) boundary stones surveys; (3) on-site interviews; and (4) identification of architectural styles, decorations and materials. It reveals that the distinctive urban fabric of Jinjiafang was generated upon small-piece, mixed-used land parcels, which is a typical way of land development in Shanghai in the late 19th and early 20th centuries. Five building types were further recognized based on their relationship with land parcel, i.e., independent traditional courtyard houses, traditional residential ribbons, semi-detached shikumen houses, lilong residential quarters, and workshop-residential mixed-used building complexes. The findings reveal that the Shanghai Walled City is not merely a remanence of traditional built form as was widely-accepted, but had undergone a thorough redevelopment during the early modern period. Methodologically, the study argues for a critical site-based survey in the study of traditional cities and settlements where historical archives are insufficient but the historic townscapes are well preserved.

12:45 - 13:00

## **From Rome to Modernity: updating of Mediterranean city centre through urban plot analysis. Urban renewal in Ciutat Vella, Valencia**

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Ciutat Vella, the current city centre of Valencia, corresponds to its historic old town, the complete city till the 19th century. It has its origin in a Roman settlement by Turia river banks in 238 BC. Following historic moments involving Visigoths' and Muslim occupations and Christian re-conquest were extending the city. Subsequent surrounding belts were formed in every period – the flood, river centred plain by the Mediterranean coast favoured an almost perfect fried-egg extension shape. In the 19th century first extensions of the city over the walls and their consequent demolition promoted the first sanitation works in the walled city and a great urban renewal -calle de la Paz- in a Haussmannian way. Other specific corrections of the urban pattern and a second bigger intervention –avenida del Oeste- during the 20th century updated old town to modern times. By analysing urban plots is possible to read the urban genesis in every time period – surface and shape of plots talk about urban pattern evolution an city extensions. Furthermore, fringe belts onto the successive urban old rings are clarified as well. In addition, the plot conformation just made possible the final setting of those both bigger urban interventions in 19th and 20th centuries -calle de la Paz and avenida del Oeste- by opening new urban spaces among the existing city. In conclusion, the historic plots explain the true updating of urban patterns and, with all this, Valencia becomes an almost urban prototype of historic urban growing in Northern Mediterranean.

13:00 - 13:15

## **Unpredictable predictabilities: a new town development in Taiwan**

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In the post-war era, new town plans were broadly implemented in land consolidation approach in response to the impact of urbanisation. Successively, Urban and Housing Development Committee (UHDC), sponsored by the United Nations Development Program from 1966 to 1972, made a significant influence on establishing modernised systems of urban planning and has begun new town developments in Taiwan. Linkou, the first new town plan projected by UHDC, was served as a paradigm of modern urban planning to alleviate the drastically-increased population in Taipei. Through land consolidation, plots were rearranged and, ideally, were supposed to turn into building lots and go under construction immediately.

However, connections between plots and building lots were ignored which made plots tend to be over-subdivided. Thus, under the market mechanism, finely-divided plots needed to be re-consolidated to conduct planned unit developments (PUD). Building types were mixed and diverse instead of consistent suburb housing, resulting in an incremental volume of roads and forcing unconstructed public facilities to modified to residential zones. Nearly 30% of plots were again adjusted in only two years after land consolidation in Linkou new town. Besides, high-density apartments account for 40% of building types and create unexpected and chaotic urban forms under the TOD concept. Phenomena demonstrate that the land consolidation only sticks to the adjustment of plots without appropriate development strategies under the socio-economic conditions. Hence, unclear correspondences between plots and building lots could lead to the excursive townscape, underestimated infrastructure capacity and delayed periods, causing unpredictable predictabilities in new town developments.

# **Urban Design : urban morphology, building typology and design A**

Thursday, 04 Jul

12:00 - 13:30

Room: Morphou

**Chair: Teresa Marat-Mendes**

12:00 - 12:15

## **Bridging Configurational and Urban Fabric Analysis: The Street as a Keystone**

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There is a growing body of research bringing together concepts and methods from distinct approaches of urban morphology studies. The underpinning idea is that urban form is multifaceted and the combination of different descriptions might provide a “better result than any one on its own” (Kropf 2017). Configurational and urban fabric analysis represent the two main streams of research on urban form. Kropf (2017) proposed the street as a possible keystone able to bridge these two approaches. Based on Kropf’s theoretical proposition, we suggest here a methodological response. New methodological procedures allow a quantitative description of the street considering its three main aspects: 1) The streetscape: a set of morphological indicators describing the local spatial arrangement of buildings along each street side (Harvey 2017). 2) The urban fabric from the pedestrian point of view: applying the classificatory protocol of Multiple Fabric Assessment (Araldi Fusco 2017) the concept of urban fabric as defined from the traditional schools of urban morphology (Conzen 1960, et al.) is reinterpreted from the perspective of the street segment. 3) The configurational properties: a set of indicators describing the relation that each street establishes with its surrounding connected streets implementing the Multiple Centrality Assessment (Porta 2006). These three methodologies, share the same spatial unit, allowing a straightforward cross analysis between local, contextual and configurational indicators. Their application on the cities of the French Riviera is used as a case study in order to investigate the different facets of the urban form from the pedestrian point of view.



12:15 - 12:30

## **Morphology of city assemblage: A methodological framework for analyzing co-evolution of urban street network and higher order activity centers**

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The hierarchical perspective of urban form can be understood from the spatial distribution of economic activities as it leaves traces in the network evolution. In this paper, we use the above notion to develop a methodological framework to examine the co-evolution of street network and spatial distribution of higher order activity centers.

A combination of land use map and thresholds established on population and job density along with information gathered from popular literature is used to identify the location of higher order economic activities across a period. The case of Bengaluru, a city in India which is undergoing unprecedented urbanization is taken up for the study. The profile of the city for six different moments in time corresponding to years spanning over two centuries is used. First, the locational choices of the higher order activities at each point of time, which are discrete rather than continuous, is mapped. Next, the hierarchy of nodes organized due to the topographic and structural properties of the street network and its spatial correspondence to locations of higher order activity centers for each time slice is analyzed.

The work elucidates that a combination of topographic and structural properties of the street impact the locational attributes of higher order activities. The methodology can be used to analyze the properties of the street network to predict the location of activity centers of the succeeding period. It provides a framework for relating the variations across the population to the emergence of cities and processes of persistence and change.

12:30 - 12:45

## **Evolution and Enlightenment of Neighborhood Street System Morphology in Slope Areas in Southwest of China**

Q. Xia<sup>1</sup>, X. Zhan<sup>1</sup>, Q. Wan<sup>2</sup>, W. Tan<sup>1</sup>

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Street system is one of the important elements of town plan, which is of great significance to the study of urban morphology. From the perspective of regional exploration, this paper analyzes the typical neighborhood street system in slope areas in southwest of China in the four periods of 1949-1957, 1958-1977, 1978-1998 and 1999 to present, with the multi-story residential areas as a sample. The author adopts qualitative and quantitative methods to have a comparative study of the street system form, street length, width and density, plane line type and other morphological elements in the four time periods. It can be concluded that over the past half century, the street system of sloping neighborhood has experienced four stages of development: chaotic period, budding stage, mature phase and differentiation stage. According to the Conzen School, all the morphological changes and innovations in the city reflect the special social, political, economic and cultural requirements of the time. Therefore, in order to understand the inherent law of street system morphological evolution in sloping neighborhood, this paper discusses the dynamic mechanism of street system form change from four aspects: fundamental impetus, internal driving force, extrinsic motive and environment binding force. This article explores the implications of street system evolution of sloping neighborhood, which may be a positive reference for the construction of sloping neighborhood in the new era of the 21st century.

12:45 - 13:00

## **Route structure and continuity models of street networks: emerging commonalities**

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With a flourishing of interest in network analysis, street networks have become subject to an increasing number of studies involving a widening range of both disciplines and ways in which street networks are represented and modelled (Marshall et al, 2018). Beyond the more conventional segment/graph related approaches there is renewed interest in route structure analysis (Marshall, 2005; Kropf, 2017). A significant driver in this interest is the desire to develop tools and understanding that can be used more directly in the urban design process such as continuity, routes, types and hierarchies. A quick survey of this work suggests that there are a number of different ways of defining routes and route structure. On closer inspection, however, it appears there may be degrees of commonality not only between methods of route structure analysis but also with other approaches such as continuity lines, natural streets and named streets. This suggests the possibility that these might all be seen as part of a single family of 'continuity' models. Accordingly, this paper re-examines the basis of route structure, identifying the different attributes used to define routes (e.g. network context/hinterland; road hierarchy; junction priority; alignment) and shows how the different approaches relate to each other. Taking a comparative, relational approach, the paper goes on to suggest a wider 'solution space' of possible approaches to route continuity modelling within which existing published approaches can be seen to fit. The paper concludes by highlighting the potential for greater generalization and applications in practice.

# **Theory 2 : the scope and limits of urban theories**

Thursday, 04 Jul

12:00 - 13:30

Room: Ammochostos

**Chair: Benjamin Vis**

12:00 - 12:15

## **Study on the Regeneration of Wen Village in Hangzhou Fuyang Based on Typo-morphology Research**

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The paper studies the transformation of the typo-morphology of Wen Village in Hangzhou Fuyang before and after its renewal (2012-2018). The Wen Village is located in southwest Dongqiao Town of Hangzhou, China. There are more than 40 dwellings from the Ming Dynasty, Qing Dynasty and the Republic of China. The village was planned, designed and renovated throughout three years since 2012 by the Chinese Pritzker Prize winner, Wang Shu. The typo-morphology of Wen Village went through a significant transformation in the process of the regeneration, the morphology and urban fabric of Wen Village have also changed significantly.

Through a diachronic study, the typo-morphology of Wen Village in different periods can be presented in several diagrams. The paper also studies the specific variants of morphology in each period with the theory of fringe belts and plot redevelopment cycles from morphological Conzenian School. Based on typological reading, the author analyses the regeneration of traditional dwellings in Wen village from the aspects of the morphology of village public space, the morphology of village street spatial form of the dwellings, the use of building materials and the spirit of literati architecture. The article concludes the common influence of social factors such as land system and architect's subjective will on the morphology of the village. Finally, the paper summarizes the guiding significance of typo-morphology research on rural construction, and the enlightenment of Wen Village for the rural renovation in China.

12:15 - 12:30

## **Rethinking the Production of Petržalka: A Phenomenon of State Socialist Urban Assemblage**

A. Arzmi<sup>1</sup>

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As the largest housing estate in the former Czechoslovakia, Petržalka was a special case not only because of its size but also because of its strategic location in Bratislava. Its construction during the normalisation periods of the 1970s took place concurrently with the realisation of the nation-wide Prague-Brno-Bratislava highway. Thus, the development of Petržalka was not just about building residential complexes, but also to comply with national economic planning of the territory. It is a product of interactions between various agencies, from centralized state planning commissions, industrial and building enterprises, national regional councils, architects and engineering collectives. Important concepts in defining socialist cities in central and east Europe, according to Kimberly Elman Zarecor (2017) are 'infrastructural thinking' and 'socialist scaffolding' while Ivan Andráško (2018) suggested adopting the Actor Network Theory (ANT) in studying the housing estates, to trace relationships between actors and understanding the 'complexity of socio-technical configurations of places.' Along with Colin McFarlane's definition of assemblage (2011) to describe the actors' relations to each other in the process of urban development, I will contextualise Bruno Latour's ANT (2005) for the case study of the production of Petržalka in the 1970s and 1980s. I attempt to use these tools to explain how territorial development plans were translated on site by tracing the relationships between various urban agencies. This analysis would conclude how far centralised economic policies on infrastructure influenced the production of the housing estates during state socialism and how they allowed variations in practice over time.

12:30 - 12:45

## **Layering Morphologies and Topographical Structures in Historic Rurban Landscape. Integrating Typo-Morphological, Topographical and Landscape Tools with Feng Shui**

L.A. Pezzetti<sup>1</sup>

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Intertwining theoretic approach with research on a case study, the paper addresses the issue of reading, de-coding and re-coding Chinese historic villages and towns, proposing an integrated approach aimed at their reading, protection and enhancement.

Reading and de-coding, as urban studies have demonstrated, are the essential basis to define comprehensive strategies for preservation, appropriate modifications and innovations in heritage and historic contexts.

The intertwining of typo-morphological and historic-structural tools with topographical reading and landscape systemic approach has proved to be effective in the Chinese context where latency, disappearance, intangibility too often open the path to demolitions, substitution, and simulacra reconstruction.

In the case study, the discovery of a resistant structure, that takes its shape from the original and triple relationship between settlement type, rurban morphology and rural structure opens unexplored reading, which may be essential for the urgent Chinese challenges.

The fact that rural villages are the locus of the permanence of Chinese settlement forms and not just that of vernacular traditions and xiangchou is perceivable. Nonetheless, studies have been insufficient in relating typo-morphological analysis to a deep knowledge of built facts in order to define an analytical methodology capable to capture both the locus solus and to make explicit general criteria. At the same time, to relate to the geography as a dominating character, expressing the close relationships between latent form, typology and geographic factors, thus providing an instrumentation to give a describable physical "mise en forme" to Feng Shui within the rapport urban-rural form and ground-form

12:45 - 13:00

## **Adaptability in the Urban Place Shaping System: Empirical Case Study of typological evolution in London**

K. Baek<sup>1</sup>

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It is widely accepted that most traditional towns are adaptable because they are generated by decentralized mode and process of production which forms space gradually, being added piece by piece by its users. However, the belief has never been tested with appropriate methodology. This paper argues that adaptability needs to be understood within Complexity and Evolutionary perspectives as urban places are far from static (equilibrium) and dynamic product of interactions between urban elements and environment. Therefore, adaptability is a system ability to keep the balance between coherence (order) and diversity (chaos) and to get out of inadaptable traps. The study needs to look at system trajectory rather than causality. The paper, first, sets up a descriptive framework of complex urban place shaping system, arguing that urban places consist of activity system and morphological system. Each system evolves with four distinctive phases: ordered status, enrichment process, enriched status and order formation process based on population of different types and diversity of types in each system. Each phase should have different adaptability as each actor interact differently; dissipative self-organisation (order breaking), conservative self-organisation (order preserving) etc. By comparing activity and morphological systems and their adaptability in three distinctive areas in Shoreditch, London, the paper found that there is no one-for-all solution for adaptable urban place and each phase has different urban design types and preconditions to make systems adaptable. Although top-down and all-of-a-piece urban design could be useful in certain phases of systems, generally piece-by-piece urban design has ability to keep systems adaptable.



13:00 - 13:15

## **The geopolitics of capital interest and the development of the European capital cities in the late 19th century**

A. Efstratiadi<sup>1,2</sup>, T. Nielsen<sup>3</sup>

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Geopolitical conditions, providing an ever changeable, non-static structure, changing and re-structuring over different time spans, are central in understanding capital movement and ur-ban transformation expressed in economic cycles of developments and crisis. The study aims to give a systematic presentation and interpretation of the different geopolitical factors in the performance of capital and urban development, with particular emphasis on the period during and after the Long Depression of 1873-1896. The hierarchy of the capitalist world including core and peripheral countries, reflects the geopolitics of the world economic interests. This study investigates through the comparison of Berlin in Germany (core) with Athens in Greece and Copenhagen in Denmark (periphery), how these capital cities dramatically developed in the late 19th century on the basis of a series of geopolitical factors and international economic transformations, like economic crisis, capitalism, liberalism, etc. Adopting a comparative pro-spective on capital cities, the paper intends to develop an integrated methodological frame-work to provide insight into the different facets of capital in city development that will be focused on: a) the geopolitical factors b) the capital interest and c) the evolution of urban space. The paper concludes with discussion about the role of the relation between geopolitical conditions, macro-economic factors, local policies and specific urban contexts, determining city's developmental tendencies under different geopolitical, economic, political and social contexts. And from this draws new knowledge and research perspectives for historical urban research as well the current development of capital cities.

## **Theory 2 : the scope and limits of urban theories**

Thursday, 04 Jul

12:00 - 13:30

Room: Halkos

**Chair: Michael Barke**

12:00 - 12:15

## **From Settler Colonisation to Urbanisation: Urban Form Transformation in Taiwan**

Y. Chung<sup>1</sup>, C. Chen<sup>1</sup>

<sup>1</sup>National Cheng Kung University, Department of Urban Planning, No. 1, University Rd., East Dist., Tainan City 70101, Taiwan

From the Age of Exploration to World War II, Vereenigde Oostindische Compagnie (VOC), Koxinga (China), Qing Dynasty (China) and the Empire of Japan sequentially established ports, missionary positions, fortresses, trade routes and military bases in Taiwan, and the colonial culture shapes the urban form. Han Chinese, who immigrated from Southeast China since VOC and Koxinga period, inhabit in clusters in traditional courtyard houses (San-Ge-Yuan) which called "clan settlement" to broaden and defend cultivated territory. To hold a close clanship, the Han people believed family relationship and their co-inherited lands including an ensemble of buildings, defensive paths and courtyards as form complex for living and ritual. Such custom gradually turns into not only land institutions and land markets but also representative townscape in the Qing period nowadays.

Since 1920, the renovation program had been conducted under the order of Government-General of Taiwan in the Japanese era and constructed paths connecting clan settlements which were regarded as winding, narrow and dark streets into planned roads. The traditional courtyard houses located inside the planned blocks were partly reconstructed or maintained the status quo. On the contrary, the houses abutting on new roads were torn down and built into a new type of shophouses. Moreover, shophouses along major roads become new commercial areas where the clans positively bought lands to broaden their territory. The jointly-owned lands and the blocks formed by planned roads, shophouses, paths and courtyards spatially represent the transformation from settler colonisation into urbanisation and might become the significant historical heritage resources.

12:15 - 12:30

## **The Spatial Pattern Characteristics and Type Classification of the Traditional Towns in Minjiang River Basin, Fujian Province**

Z. Binghua<sup>1</sup>

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Minjiang river basin area of 60992 km<sup>2</sup> accounts for about half of the land area of Fujian province. It retains a large number of the traditional towns with different topography characteristics. Based on fused images of both topographic map CAD and TM as the major data sources, in a grid as a unit, analyzes its spatial pattern characteristics, and type classification with the help of ArcGIS spatial analysis and cluster analysis technology. The grid pattern attribute data of the traditional towns (patch density, mean patch area, mean patch shape index, mean patch fractal dimension, the distance of the mean nearest neighbor, the distance of the mean nearest neighbor water or road) to import the SPSS analysis. And then, the traditional towns is divided into four types, such as mountain valley basin type, alpine valley type, valley plain type, alluvial flat plain type with the system cluster method, and according to the structure characteristics. The subtypes are subdivided according to density and morphological characteristics. The traditional town clusters have regional effect in Minjiang river basin. In order to reveal the impact of economic development, traffic development and urban construction on the change of regional settlements pattern under the background of rapid urbanization. The dynamic characteristics and causes of its spatial pattern need further research. The optimization and reconstruction of the classification types of the traditional town clusters is of positive significance to the improvement of the regional ecological environment and the coordinated development of settlements.

12:30 - 12:45

## **Research on the Evolution and Motivation Mechanism of Urban Form: A Case Study of Tanhualin District in Wuhan**

Q. MEI<sup>1</sup>

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Wuchang is a city with a long history. In the urban structure of modern Wuchang, many outstanding historical buildings are scattered in every corner of the city, which has become an important object for the protection of the city's history. This paper takes Tanhualin historic district in Wuhan as the main research object.

This paper outlines the related theories of urban morphology research, and reveals the relevant contents in the field of social spatial structure, providing a theoretical basis for the analysis of later articles. On the basis of historical maps before modern city form in the Tanhualin area, the author provides the basic framework for follow-up form period. It also makes analysis of the Tanhualin area in different periods of modern times. On the one hand, it introduces a framework to sort out the Tanhualin area from all the basic elements of the city form, and summarizes the changes in different periods; on the other hand, it tries to research the influence of dynamic mechanism form in different period, and investigate the factors of different people in the form of the city interaction. Finally, the author summarizes the evolution rule and motivation of urban morphology in this area, so as to provide reference for future research and provide new ideas for transformation and renewal of historical and cultural protection area.

12:45 - 13:00

## **The Layered History of Yerevan: Transformations of Urban Tissue**

A. Aktaryan<sup>1</sup>

<sup>1</sup>Independent researcher, No institution, Aghbyur Serob str. 11/1; apt 52, Armenia

The settlement of modern Yerevan occurred in the 12th-13th centuries. Since that Yerevan went through many cycles of both structural and contextual transformations through its history. A foreign invasion for almost 3 consecutive centuries and earthquakes seems to have erased most of the medieval heritage of the city and took memories with them.

The most significant urban developments that shapes nowadays city took place at the beginning of the 20th century. Though during reconstruction processes and identity building trials city was “recasted” and decontextualized, the preexisting urban layout originated under hard morphological peculiarities preserved the remains from earlier periods.

The article focuses on studies of urban form of Yerevan, mostly its principal constituting element – the streets, to retrospectively reconstruct the process of formation, consolidation, and transformation of the city. Based on comparative analysis of first accurate plans of the city overlapped with topography, which significantly influences the formation of urban tissue of Yerevan, article intends to show the presence of the past as a part of nowadays homogenous city which otherwise have been though was gone.

On the example of Yerevan the article aims to interpret morphological characteristics of main urban elements and to illustrate that most long-lasting traces and yet most trusted evidence of architectural transformations are “inscribed” in the urban tissues.

13:00 - 13:15

## **Urban form – in search of a past community: The Jewish district in 19th century Lodz, Poland**

R. Kaplan<sup>1</sup>, R. Kallus<sup>2</sup>

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Can one trace disappeared communities by exploring the morphological structure of a place?

This research examines Lodz's Jewish district's spatial development and the everyday life of its Jewish inhabitants. The questions posed are: Was the development of the Jewish district related to its residents' identity? Did the Jewish district exhibit a "Jewish character"? Advocates of urban morphology claim that urban form expresses the history of previously occupying communities. Based on this claim, my goal was to find "past ghosts" of the Jewish community in the Jewish district maps. I have analyzed the district's formal development and extracted additional information from literature and archival material such as photos, documents, memoires, periodical newspapers and prose.

Research's findings do not relate a formal Jewish identity to the Jewish district. The district's morphological difference is derived from its location in the Old Town while the New Town was well planned by the authorities. Even religious edifices, which can be prominent elements in city plans and imply a certain religious community living in an area, are scarce.

My conclusion is that spatial survey alone cannot present the character of the Jewish district of Lodz. In order to understand its nature, one must understand the history of the industrial town, the historical factors leading to the establishment of the Jewish district and arrival of Jewish immigrants. One must understand the attitude of Jews to urban space and the attitude of other city residents and city authorities to Jewish inhabitants.

# **Urban Design : urban morphology, building typology and design B**

Thursday, 04 Jul

12:00 - 13:30

Room: Meeting Room 1

**Chair: Nicola Marzot**



12:00 - 12:15

## **The aesthetic control in Chinese urban design: The case study of the South Railway Station area in Nanjing, China**

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<sup>1</sup>University of Liverpool, School of Architecture, Leverhulme Building, L69 7ZN, United Kingdom

This paper investigates the contents and measures of the current urban design control policies in China and their reflections in design practice in order to help improve the effectiveness of urban design control in promoting good design. The research firstly conducts an intensive content analysis of urban design policies in China. Then it takes the South Railway Station area of Nanjing as a case study to explore the planning and design of the area as a whole and its blocks and buildings. The master plan of the station area, an urban design proposal of the urban blocks and the design of two building projects in the northeast part of the area will be examined in detail. Relevant urban designers and architects will be interviewed to reveal the design process. The paper argues that concerns on visual qualities dominate design policies and practice nowadays and such concern has a long tradition in Chinese city planning (Abramson, 2007). The outcome of such policies is that while certain visual qualities are achieved at large scales or from designated viewpoints, the spatial quality of urban spaces at the human scale is largely neglected. The research calls for a paradigm change in urban design control in China, from a primarily visual-focused approach to fully embracing the morphology of urban form at all scales (Chen and Thwaites, 2013). In doing so, urban design will not only sustain the city's identity, but also produce quality spaces for people's daily lives.

12:15 - 12:30

## **Typo-morphology of transportation – Looking at historical development and multimodal futures of Swedish streets and roads**

T. Stojanovski<sup>1</sup>

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Typo-morphology is an approach in urban morphology that looks at historical emergence and transformation of urban elements or patterns (streets, lots, buildings, building façades, city blocks and districts). Swedish typo-morphology has a long tradition (Abarkan, 2009; 2013). This paper looks in the history of Swedish cities to identify and classify types of streets and roads in the small and large Swedish cities. It also proposes futuristic (scenarios) for the typical Swedish streets and roads considering new trends towards multimodal transportation (a mix of walking, cycling and public transportation) and new transport technologies such as self-propelled cars and carpools. Swedish morphologists have classified streets according to historical periods (Forshed, 1997; see Figure 1). There is also international research about historical street development and types (Southworth and Ben-Joseph, 1997). Currently new planning trends and new patterns of mobility are emerging such as energy efficient mobilities (walking and cycling), shared automobiles and bicycles, hybrid and electric cars and self-driving vehicles. These new transportation technologies will change the way in which streets and roads are designed in the future. Urban morphology can help with conceptualizing typologies and design elements in a context of morphologically informed design.

12:30 - 12:45

## **Examining the Effectiveness of Reserved Road Development in Tainan City, Taiwan**

Y. Cheng<sup>1</sup>, T. Lee<sup>1</sup>

<sup>1</sup>National Cheng Kung University, Department of Urban Planning, 1, University Road, Tainan City 70101, Taiwan

The aim of the present study is to investigate the effectiveness of constructing reserved roads in the city plan of Tainan using axial analysis. Tainan has a history of 400 years and used to be the ancient capital of Taiwan. Its urban fabric is an overlay of the street patterns from different periods, i.e. Qing dynasty rule, Japanese rule and post-war periods. The post-war city plans have reserved many urban spaces for road developments, which have not been constructed due to the difficulty in acquiring the properties. In addition, these reserved roads might be redundant due to overlaying with the historical street patterns. Hence, the necessity of constructing these reserved roads has long been a matter for public debate. To tackle this issue, axial analysis is employed to examine the configurations of the reserved road constructions using the parameters such as local integration, global integration and connectivity. A total of 15 reserved roads are drawn using the technique of road-centre line map, and their configuration are calculated. In addition, the marginal measures between different developing scenarios, such as the combination of number and location of roads are tested. The results of this study help to set the road constructing priority and figure out the best developing strategy. When constructing multiple roads, the benefit of synergy between adjacent roads are quantified and realised. Also, the outcomes provide a perspective for decision makers and practitioners to resolve the debate of reserved road constructions.

12:45 - 13:00

## **Centrality as a tool for sustainable mobility: Building an evidence-based spatio-functional planning strategy for an Athenian Suburb**

Y. Paraskevopoulos<sup>1</sup>, S. Tsigdinos<sup>1</sup>

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In this paper we propose an evidence-based planning methodology that combines spatial and functional centrality to construct a discrete planning strategy towards sustainable mobility. A crucial component of our approach is that analysis and planning are treated as a unified process. A significant amount of research proves positive correlation between density of spatial centrality and economic activities as well as the importance between diversity of activities and success of central areas. Therefore, the proposed planning strategy is based upon these urban features. Specifically, we present a three-stage methodological framework which combines space syntax and land-use pattern analyses in a GIS environment.

In the first step we identify the established local centres of the suburban city of Alimos in Athens, using the Kernel estimated density of non-residential activities and the potential centres through spatial and functional centrality criteria. These criteria are derived from urban vitality notion and examine the functionality, land-use diversity and multi-scalar spatial centrality, as measured by space syntax angular analysis. Secondly, after taking into consideration the emerging dynamics of the centers identified, we re-configure the centrality pattern of the study area in order to achieve a sustainable urban form. The last step includes the formulation of a new road network hierarchy system, aiming at a comprehensive connection of the most significant centralities along with promoting sustainable and active modes of transportation. The outcome of the present research is a compact planning strategy that forms an explicit “road map” towards a unified urban and mobility planning strategy.

13:00 - 13:15

## **Multi-scalar mapping of transit-oriented assemblages: metropolitan mobilities, neighbourhood morphologies and station design**

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With the vast expansion of cities enabled by motorised transport, the conjunction between metropolitan and neighbourhood mobilities has attracted increasing attention in transport and urban research. Within these fields, transit-oriented urbanism has become a key paradigm for environmentally sustainable, healthy and creative environments. While the importance of urban design has been well acknowledged, research has been generally focused on exploring correlations between metrics of built form characteristics and transport, public health or environmental outcomes. However, many of these metrics are not capturing the spatial complexity of actual urban forms and are poor proxies for capacities for movement. Urban morphological studies on the other hand, while exploring historical change at neighbourhood scale with spatial precision through mapping, often neglect the importance of metropolitan transport networks on how transit nodes are assembled. Based on case studies from Chicago and Melbourne, this research is seeking to bridge the gap between micro-, meso- and macro-scalar urban morphological studies, by focusing on metro stations as the inter-scalar interfaces between walkable neighbourhoods and rapid transit networks. In this pursuit, new mapping methods for capturing capacities for movement at multiple scales are developed. It is shown that urban mobilities are mediated by the complex assemblage of station architecture, neighbourhood form and the metropolitan transit network.

# **Urban Design : urban morphology, building typology and design C**

Thursday, 04 Jul

12:00 - 13:30

Room: Meeting Room 7

**Chair: Vincenzo Buongiorno**

12:00 - 12:15

## **The Cultural Capital of Urban Morphology**

F. Mancini<sup>1</sup>

<sup>1</sup>Curtin University, Architecture, Kent Street, Australia

In its less than 200 years of history, the city of Perth has been steadily changing its urban fabric and appearance, from a colonial outpost to a post-colonial centre embracing modernity and all its virtues and vices. The brief history means that the grounding in prior historical periods and civilisations may appear, at a first glance, missing. In this paper, we are arguing that the young history is not necessarily precluding the existence of these qualities, but that these are largely underestimated in relation to present and future developments in Perth. As a consequence of this, a perpetual ideological scenario of a virtual tabula rasa is created where everything and anything is considered fleeting and easily substitutable. This paradigm, strongly supported by particular global and local economic forces in place, has to date been largely preferred over an approach to urban transformations based on the typological process. While we acknowledge that economic factors undeniably impact on the urban transformations and development, this paper suggests that other factors must be considered for sustainable urban growth, such as the development of cultural capital discussed by Pierre Bourdieu which is not adequately supported by the tabula rasa approach. This urban design model limits the development of the city's identity and social and cultural sustainability. The authors argue that the understanding and application of urban morphological and typological principles in urban design can be used to sustain the permanence of cultural capital as an essential and tangible component of the city.

12:15 - 12:30

## **Palazzi, case, orti, rue: combining different research approaches in the morphological reading of Ascoli Piceno's urban blocks**

F. Di Lorenzo<sup>1</sup>

<sup>1</sup>MiBAC, Polo Museale dell'Umbria, Piazza Giordano Bruno, n. 10 - Perugia, Italy

This paper features the results of a research concerning the urban form of Ascoli Piceno (Italy), an ancient settlement that turned into a roman colonia and then developed into a modern centre. The study aimed at defining a general framework of the town's growth through the centuries and at identifying the typological process of its buildings.

Selected urban blocks were analyzed, focusing on their stonework and architectural details, seen as direct sources of information. Results were combined with information coming from historiographical, archaeological and archival sources (medieval land registers, ancient maps and documents).

A map of the urban archaeological remains was combined with morphological readings in order to define a new model of the Roman forma urbis of Asculum. This layout can be considered as the foundation of the town's historical building tissue, where new house typologies were arranged from the early Medieval age.

The morphological analysis carried out on the case-studies identified the tipo di base [base-typology] of Ascoli Piceno, a simple house that evolved from the early medieval house. Later typologies are a result of transformation processes that formed a tissue made of case [simple houses], palazzetti [medieval little palaces], palaces, orti [vegetable gardens] and rue [narrow alleys].

Intersecting various approaches into the study of the town's morphology, this research offers a general understanding of Ascoli Piceno's historical layering and its buildings' architectural features. It is important to recognize these dynamics in order to become aware of the urban fabric's conditions and to plan more appropriate conservation strategies.



12:30 - 12:45

## **A quantitative approach on Morphological characteristics study: Using the case of Nanjing**

Y. Song<sup>1</sup>, L. Tang<sup>2</sup>, W. Ding<sup>3</sup>

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After a century of development, the urban morphology of Nanjing, a historical city, has changed with the changes of society: historical districts reflected the old lifestyles, residential areas integrated modern lifestyles and urban central business districts as well and new expansion zone completely in accordance to the urban planning. Urban morphology provides a scientific and systematic approach in representation and explanation of urban fabric, which has enabled designers to understand the causes of morphogenesis. However, considering the objective of urban design, urban fabric needs to be identified and described in characteristics, so that it is worthwhile to further depict urban fabric characteristics based upon morphological research.

This paper takes four cases of urban fabrics generated in different periods in Nanjing as examples to analyse their characteristics based on physical forms and the cause of formation. Firstly, the morphologic elements are extracted and mapped in three hierarchies: street structure, plot pattern and building layouts and the types. Site coding and indexes are used to draw the morphological properties with FAR, average height and plot coverage. Combining with layered physical forms and morphological properties, the morphologic features of fabric cases are identified. The result shows the morphologic analysis can help not only to understand generation process but also to depict the form features. Finally, the paper puts forwards the quantitative methods and try to find co-relationship between plot size, shape, function and planning indexes with site pattern regularities.

12:45 - 13:00

## **Villages as a Frame from Rural to Urban Case study of urban villages in Shenzhen and Hong Kong**

Y. GENG<sup>1</sup>

<sup>1</sup>The Chinese University of Hong Kong, School of Architecture, Room 506, AIT Building, The Chinese University of Hong Kong, Hong Kong

Villages in the city, as a dramatic case in metropolis such as Shenzhen and Hong Kong are seeing an urban expansion with the engulfing of rural settlements and relocation of original peasants, especially in which property ownership is affected by the local housing and land policies and a series of municipal updates launched by the local government after the late of 1970s. These so-called “urbanizing villages” as a distinctive social-political identity with its own traditions and social structures was significantly developed to reshape the urban fabrics and embody the specific contexts in community typology and bottom-up practice. Urbanizing Villages, more than its original definition, is a trajectory of morphological and territorial transformations of building a rural to urban frame, which move beyond respective discipline studies of urban villages. Shenzhen and Hong Kong, with same homogenous archetype, have been laboratories for understanding the different conditions of urban villages and their complexity.

This paper takes the transformations of the villages in Shenzhen and Hong Kong as case studies to better understand the process of urbanization in relation to the issues of land ownership, housing policy and citizenship. After examining the formation of these villages in the city and the role of political machinery during this urbanism, it tries to understand the process of planning schemes mostly driven by not only political apparatus but also social factors. It also looks at this transformation from rural to urban, especially socio-economic dynamics of the urban space, and rethinks the current redevelopment projects in urban villages.

13:00 - 13:15

## **Urban transformations towards an integrated intervention design framework: the case of Paris**

K. Apostolopoulou<sup>1</sup>

<sup>1</sup>University of Patras, Department of Architecture, Tagmatarchou Plessa str. 32-34, 17674, Kallithea, Athens, Greece

This paper is based on the author's previous comparative research and evaluation of the theoretical context of existing city theories and models, that developed a systemic, four-dimensional approach regarding urban regeneration design. The current paper aspires to examine the city of Paris, as a test case study of this strategic approach. At the threshold of the 4th Industrial Revolution, the global city of Paris constitutes a dynamic field of continuous flows of matter, energy and knowledge through its geographic position. In order to promote an agenda for a more global urban practice that affects the means for future transformation of urbanization and urban form, our research learns from the main principles extracted through this examination of the Paris case study and develops a methodological integrated and prospective design strategy for the French capital. The research employs urban data and analytical methods in order to explore the relational coordination between urban morphology and urban flows of all the city's components and where their thoughtful and innovative reformation can lead. Through an inter-scalar approach the research develops an outline for a more incremental and flexible design approach to urban intervention. Towards a moderately densified city, a unified framework for analyzing urban sustainability is thus being articulated. Variables concerning flow management, urban metabolism, cultural identity, adaptability and resilience to urban conditions will be used as indexes, while developing the urban tools necessary to measure an intervention's impact in the global cities of the 21st century.

# **Methods 1 : embedding different approaches into the study of urban morphology**

Thursday, 04 Jul

14:45 - 16:15

Room: Elia

**Chair: Brenda Scheer**

14:45 - 15:00

## **A Study on Effective Utilization Evaluation of Greenery for River Landscape during Urban Renewal Activities**

R. Jiang<sup>1</sup>, D. Nishina<sup>2</sup>

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River landscape always play an important role in urban environment and human's daily life. In order to understand river landscape better and create its values, we need powerful tools to help for evaluating present river landscape and predicting changes on landscape by urban renewal activities in future. During our previous studies<sup>3</sup>, we have established effective references among urban planning(Up), physical evaluation(PHe) and psychological evaluation(PSe). Particularly, the function of physical quantitative indexes(PHqi) serving as bridges to connect the PSe with Up, has been recognized. We also discussed deficiency about certain indexes of urban planning. Therefore, we tried to define new PHqi to provide a quantitative basis for urban planning. Also, according to the past studies<sup>3</sup>, we confirmed that the occupancy ratio of artificial landscape elements (OA) and the occupancy ratio of visibility green elements (OG) as physical quantities, play decisive roles in the psychological evaluation of the landscape. On the basis we mentioned above, in this study, we focused on the shielding relationship between greenery and buildings in river landscapes, using an new PHqi, the ratio of invisible building area shielded by greenery (IBsG) for discussing the effective utilization of greenery, and suggesting a possibility for making better river landscape in a more economical way in urban planning.

15:00 - 15:15

## **Make Balance: Rational Urban Design in High Sensitive Waterfront Area**

J. YANG<sup>1</sup>, Y. Zheng<sup>2</sup>

<sup>1</sup>Southeast University, Urban and rural planning, 2nd Sipailou Street, Xuanwu district, Nanjing, China

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High sensitive waterfront area is a specific urban space should be focused and discussed. On the one hand, due to ecological vulnerability and potential ecological security risk, urban development and construction is usually restricted in high sensitive waterfront area. On the other hand, specific and graceful scenery of waterfront area attract urban development and activity. Here is how to design cities where people, urban development and ecology can both flourish? Many previous researches and reveal the law and internal mechanism of water ecology and provides referential environment recommendation for pollution precaution. However, what is the internal and external influence mechanism between urban development and water ecology, how to rational conduct urban design in high sensitive waterfront urban area. Based on these questions, this research structure a digital ecology analysis sandbox through combine the measured data and multi water ecology data. In this research, Waterfront area of Xianghu lake was selected to conduct case study. During the research, water quality, health, ecological security, etc. was examined. Meanwhile, MIKE 21 model was used to simulate water network flow field. According to the analysis consequences, rational approaches were adopted during the urban design process to enhance self-purification and capacity ability, form complete water network and provide permeable floor design strategy in study area. The paper based on the reality issues, through digital and objective analysis method to understand the reason and influence mechanism behind these issues, the main methods and key design approaches may contribute for further ecological sensitive and sustainable urban design.

15:15 - 15:30

## **Study on the layout of green space within the street-block of Nanjing, China**

Q. Liu<sup>1</sup>

<sup>1</sup>Nanjing University, School of Architecture and Urban planning, Hankou Road 22, Nanjing, China

Green space plays an important role in the microclimate and rainwater cycle of the built environment. However, traditionally, urban morphological research rarely discusses the relationship between green space element and other morphological elements, such as building fabric and plot pattern. This paper focuses on the urban green space layout characteristics at the street-block scale, which can provide morphological support for the research of urban microclimate and surface runoff control. In the traditional city, the layout of the green space in the block is basically internal. When the traditional plot pattern of the block is broken in the modern city, the building fabric is totally changed. It also led to a more diverse layout of green space.

This paper selects the corresponding street-block within the main area of Nanjing, a typical Chinese city, based on the standard street block area ( $7\pm 0.5$ ha) defined by the Chinese urban road network planning code. These blocks are classified according to the rate of green coverage, and the layout indicators (length along the street, shape indicator, dispersion rate, difference rate, Moran index) of the green spaces in these blocks are calculated. Then the relationship between the layout of green space and the shape of the block, the layout of the block, the land use, and the building fabric is analyzed based on the indicators, so as to summarize the basic layout characteristics of the green space and its impact factors in the block of Nanjing.

15:30 - 15:45

## **Space Syntax and Walking in a Historic waterfront neighborhood-case study of Shang Hai Hong Kou port**

Q. Yuan<sup>1,2</sup>, J. Wu<sup>3</sup>

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Due to the change of transportation mode and the lag of renewal and construction,a series of problems such as the decline of living environment,insufficient municipal facilities and weak economic development,have been caused. This study contributes to understanding relationships between the syntactical properties of street design and walking behavior by examining whether space syntax measures in Historic waterfront neighborhood is associated with the walking patterns of residents in these communities.This paper compares the changes of the road network and land use model in Hongkou port area since 1910,and explores its influencing mechanism.Then,through the synchronic study of activities, the distribution characteristics of local residents' outdoor walking activities were analyzed, and the correlation between them and regional spatial morphological variables was discussed.Topological relationship between line segments is quantified by a series of configuration morphological variables (integration,choice,connectivity,control and depth) through a digital model.Other spatial information of the region, such as land use, storefronts along the street, distribution of historical buildings,etc.,are mainly obtained through on-site surveys,historical maps,local Chronicles and other documents.The walking activity data were obtained from the record of the total walking flow at 20 observation points in the region in 5 periods of the daytime in one working day and one weekend.

Conclusion:

Analysis of accessibility in the context of the research has revealed that the impact of proximity to the commercial land use on the distribution of walking activities is continuously weakening, while the integration of streets is becoming more and more important.



15:45 - 16:00

## **City's Perceived Image and Urban Waterfront Morphologies. A City Branding Strategy Approach**

S. Michael<sup>1</sup>, A. Savvides<sup>1</sup>

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The management of spatial planning processes by composing a spatial narrative concerns the act of symbolic economy that aims to create a competitive place identity with benefits and opportunities for sustainable economic investments. The process may be linked to mechanisms of the symbolic economy having cultural and political intentions. Thus, the cultural assets may be treated as active elements in the formation of the perceived image of a place and spatial elements of the desired imaginary content that this image defines. The proposed paper analyzes the paradigms of Mediterranean cities' waterfront as highly performative in the perceived image of the cities' urban cores, related to capital investment and the production of cultural concepts. Specifically, it examines brand equity as this has been defined by eleven regulatory fields in existing city branding research. The proposed methodology contributes to the creation of a spatial narrative and places the urban morphologies at the core of urban branding strategies. Thus, the structured space is treated as an activator of spatial developments, of capital investments and of cultural symbols. The process of investigation concerns the capital investments where urban morphologies seem to control perceptions and to form a competitive cultural identity as a strong economic core and a catalyst for consumer behavior.

# **Urban Design : urban morphology, building typology and design A**

Thursday, 04 Jul

14:45 - 16:15

Room: Morphou

**Chair: Annarita Donatella Amato**

14:45 - 15:00

## **Renovation of Church Ruins and Surrounding Urban Space: Case study of São Paulo Cathedral in Macau and Carmo Convent in Lisbon**

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The establishment and destruction of a church often reflect the history of the city. Located in the core of the city, it often connected with a central square or street, forming a vibrant block. When the church was destroyed in the course of historical changes, the urban infrastructure around it was also facing renovation and reconstruction. How to protect its historical value in a sustainable way and restore the vitality of the block through the reconstruction of urban facilities such as cultural and commercial facilities, is a difficult problem for architects to think about. This paper compares two cases: the renovation of The Ruins of the Cathedral of São Paulo in Macau with its surrounding neighborhoods, and the renovation of the Carmo Convent in Lisbon, Portugal. In the case of Macau, architect Carrilho Da Graca was commissioned by the government to redesign the site of the Ruins of the Cathedral of São Paulo, which had been discovered by new archaeological discoveries at that time, and transform it into a Catholic Museum of Art. In the Lisbon case, architect Alvaro Siza renovated Ruins of the Carmo Convent and the surrounding Chiado neighborhood for 30 years and designed it as a complex of residential/museum/retail functions. In the two cases, by establishing continuity of complex Street elevations around them, architects have refined the integration of complex historical layers. Similar renovation design strategies are used, which may provide possible hints for designers dealing with urban regeneration projects.

15:00 - 15:15

## **The role of ruin in the formative process of the city. Crisis and cyclicity of urban structures**

C. Sammarco<sup>1</sup>

<sup>1</sup>La Sapienza University, Draco/Diap, Via Flaminia 359/ 00100 / Rome, Italy

The ruin is presented in our imagination as a mere object of contemplation because of a nineteenth-century romantic vision that we inherited without a critical contribution. We have been handed down places of memory that in most cases do not have any relationship with the surrounding urban fabric because they crystallized in a sterile phase of the life cycle of the building and the city. Instead, ruin represented a potentially creative phase within the cyclicity of the formative process: the abandoned structure with its shape and its typological characteristics becomes material and substrate for future transformations. The research presents a methodology to read the inverse formative process to that taken from the Muratorian and Caniggian studies of the second half of the twentieth century: the object of the study are the special monumental ancient Roman structures. The "spontaneized" Mediterranean city has consumed these organisms which, even if they have fallen into ruin and become natural topographies, have become, thanks to their cohesive and unitary character, an element of catalysis for the medieval urban fabric and "marked matter" at the internal of the transformation and interpretation cycle of the existing one. The concept of crisis becomes the object of a purposeful study: special structures such as stadiums and ancient amphitheatres, typologically predisposed to host the serial structure of residential buildings thanks to their modularity, become the elements that, interacting with the hierarchical system of paths, organize the fabric and the city.

15:15 - 15:30

## **An Anonymous Byproduct: The Urban Morphology of the Motel in Quito**

K. Cazar<sup>1</sup>, A.M. Carrión<sup>2</sup>

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<sup>2</sup>Universidad San Francisco de Quito, CADI, Diego de Robles s/n y Pampite, Ecuador

Since the 1970s, the industrial structures that once predominated the northern zone in Quito have become the canvas of a Las Vegas-like landscape. When tall walls and colourful signs mesmerize your eyes, you have reached the motel area. The motel was imported from the United States of America to Latin America in the late XX century. Quito was one of the cities that adopted this typology, inserting it in its growing and changing milieu. The motel was misplaced from its original context and function, moving from highways and rural areas to the periphery of the city. The original function of low-cost temporary accommodation changed to one related to the renting of rooms for sexual encounters, usually by the hour and by unlawful couples. Its typology, both as a building and as an urban artifact, mutated and thus transformed its surroundings.

The motel can only be reached by car. Once the users drive into the enclosed parking lot their identity is hidden and they become anonymous. This typology of the anonymous merged into the industrial area of the city due to normative requirements, as a legal agreement not only between the owners of the motels and the authorities but with the predominantly conservative society. Based on analytical drawings that focus on the comparison with the American motel, this paper explores the architectural, typological and urban qualities of the motel in Quito. It will be seen from above and street view, unveiling a unique byproduct that has not been architecturally documented yet.

15:30- 15:45

## **Decoding the Bazaar: Morphosyntactic Properties of the Bazaar in Tetovo**

A. Ferati<sup>1</sup>, A. Saidi<sup>1</sup>

<sup>1</sup>University of Tetovo, Faculty of Applied Sciences, Department of Architecture, Ilindenska nn, 1200, Tetovo, Macedonia [FYROM]

Throughout history, the Bazaars used to be the focal point of public life in the cities. Many of them are not any longer the places where the social and economic activities reach their peak. Although there have been many attempts for the regeneration and revitalization of the Bazaars, it proved difficult to recover their previous spirit.

What made the Bazaars so attractive in the past? Were their typological and morphological properties; were the activities; or, it was the location the cause for the vitality and vibrancy of the Bazaars? In order to answer some of these questions the Bazaars of Tetovo are chosen as a case study. By utilizing Space Syntax as the core theory and methodology along with urban morphology and typology methods this paper investigates their properties and their distribution across the spatial configuration of Tetovo.

The research suggests that it is the network of public spaces and their configurational properties that generate the conditions for the emergence and functioning of the Bazaars. The Bazaars occupy the most central locations in the city and belong to the foreground structure of the spatial configuration. They appear at the intersection of the main arteries of the city, which connect the neighborhoods together into a whole, and at the same time connect the city to the other neighboring settlements into the region.

15:45 - 16:00

## **Genius Loci of Bazaar Street: Crafting Memory and imparting an Image to the City: A Case of Chandani Chowk**

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The paper endeavours to conceptualize and explore the Indian Bazaar Street which has multiple layers of history and the evolving culture, its relationship, and dynamics with the city assemblage. The study demonstrates the Genius Loci of the bazaar street which is an amalgamation of meaning, beliefs, and values, assigned to the physical aspects that crafts the memory and creates imageability. Genius Loci cannot be predetermined but results from human interaction and experience with the environment. Chandani Chowk, a vivacious bazaar street in Delhi 6, India, is taken for detailed study and investigating Genius Loci. Phenomenological method is used which describes the live experience from the perspective of the participants along with the role of various media in promoting the place. The study reflects that the notion of the Bazaar Street as it is not just a two dimensional connect, but, a multi-dimensional element that is vibrant, democratic, which facilitate economical, political and socio-cultural experience unique to the place, with which the people associate and create memoirs. This paper concludes that the Indian Bazaar Streets is the reflection of the non-tangible values associated with the architecture which the people remember. It has a strong connection to the city which is personalized and metaphorically owned by the citizens, creating a collective memory and portraying the city's vibrancy. It is therefore important to highlight the picturesque quality, the warm environment and the quirks of the Bazaar Street to craft a memory which will help in imparting a unique image globally.

# **Urban Design : urban morphology, building typology and design B**

Thursday, 04 Jul

14:45 - 16:15

Room: Ammochostos

**Chair: Sérgio Barreiros Proença**



14:45 - 15:00

## **The neighborhood parks as urban landscape generators: case study of Valencia**

V. Colomer<sup>1</sup>, A. Portalés<sup>2</sup>, D. Urios<sup>2</sup>, J. Colomer<sup>2</sup>

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How could the urban and architectural practice be improved, based on the deepening reading on the morphological configuration of the urban space throughout history?

Giancarlo Cataldi. (Carlotti, 2017).

Knowing more precisely the morphology of the Neighborhood Parks (NP), allows us to detect their socio-environmental strengths and weaknesses, which can help to make political decisions about public investment priorities and better adjust the projects to the needs of NP users.

For 8 years, we have been developing an urban research that aims to create analysis tools for the improvement of the NP. (Colomer, 2017) (Urios, 2017).

The objective of the research is to improve the knowledge of NP, to adjust the projects to the real aspirations of the users of these urban spaces. (Alexander, 1977; Gehl, 2000).

The variables used in the NP research are from a social and environmental nature, within the framework of their morphological characterization.

One of the aspects of the research has consisted of the landscape definition of the NP, through the characterization of their enclosures (Marshall, Zang, 2017), in which we have analyzed the way in which the 4 basic components that structure the landscape: soil, sky, architecture and vegetation. (Cullen, 1961; Lynch, 1960; Panerai, 1980; Prinz, 1980)

In this paper, we will focus on the definition of the type-morphological characteristics of the building that defines the boundaries of the NP, as a tool for the analysis of its urban landscape, which allows us to understand the relationships between public space and architecture in their environment.

15:00 - 15:15

## **The morphological mosaic: urban vitality in central areas (Goiânia, Brazil)**

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This paper explores the relationship between urban morphology and vitality in central areas of Goiânia (Brazil). The aim is to comprehend, in a more refined way, the strategies and morphological patterns which foster the gathering of people in order to emphasize potentials to be explored in urban design. The analysis is developed according to the following stages: firstly, different patterns of centralities are identified; secondly, the features of such patterns are registered and, finally, the relationship among configurational aspects and vitality levels are developed. The analysis is based on Space Syntax theoretical, methodological and technical premises, intending to better investigate the urban dynamics which affect the vitality in central areas. Results have pointed that Goiânia, because of the global planned origin based on the transference of the new capital for the State of Goiás, in general presents a clear similarity: centralities are located mainly in areas with garden-city or modernist design, leading to the idea that green areas, zoning and neighbor unit conception influences the land use distribution, from the foundation to present day. Besides that, the lack of a more refined policy in order to warranty vitality has led to a decaying process, so these areas, in some situations, do not have the expected synchrony among the configurational patterns and the vitality degree.

15:15 - 15:30

## **Geo-morphological matrixes within the urban landscape of Lower Nera Valley in Umbria**

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In Italy, the networks of small historical towns and the cultural landscapes associated with them, have a role of great importance for the territorial structure, both from a qualitative and a quantitative point of view. In a morphological perspective, the image of Italian territory can, in fact, be assimilated to a constellation of local micro-settlements, closely connected to the plastic conformation of the geological support.

The Lower Nera Valley, in Umbria, represents, from this point of view, an emblematic episode, where the hydrographic system played an important role for the development of urban centers. Moreover, the exploitation of hydraulic energy encouraged the formation of productive settlements and, since the early industrialization, it oriented the transformations of the landscape. The process of industrialization that, since the end of the nineteenth century, shaped a landscape marked by the Roman traces and structured through fortified hilltowns, has produced artefacts nowadays recognized as examples of great urban quality.

The Lower Nera Valley represents a noteworthy case because it is paradigmatic of the Italian historical landscape and of its possible future evolutions. Furthermore it allows to test different morphological approaches, comparing the results even with distant territorial realities. The recovery of a geo-morphological matrix of the territory, which takes into account the topographical invariants that outline its physiognomy, constitutes the theoretical assumption of this work, in which the role of morphology assumes the character of a hinge between the urban structure and the form of the territory.

15:30 - 15:45

## **The Role of Urban Design in Shaping the Interactions Between Food Systems and Urban Form**

J. Nasr<sup>1</sup>, J. Komisar<sup>2</sup>

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Recently the food system has been acknowledged to be a basic urban system. The interactions between food systems and other basic urban systems are becoming more evident and better understood. As a result, disciplines that deal with urban design have started to recognize that they can and should play a wide range of roles in shaping the urban food system, particularly by addressing its connections to the material environments on which they normally work: the home, the workplace, the street, the public space, the public institution...

A special issue of Urban Design International that we are editing thus focuses on the food system, recognizing it as a key component of the urban environment – both built and unbuilt – which is shaped by many actors and structural factors. The role of design in relation to many aspects of the place of food within the urban context acknowledges the shaping of the urban environment through the integration of many disciplines. The capacity to shape the city as a physical space and the material needs related to the manifestation of the food system in the urban realm are central to our interests here.

Half a dozen contributions from across disciplines were selected as part of this issue. Building on these contributions, we will reflect in this presentation on how urban morphology can integrate food system thinking, and on how, through the understanding of this interaction, urban design can help address urban food system challenges through a better integration with urban form elements.

15:45 - 16:00

## **Continuous Productive Industrial Landscapes**

H. Davis<sup>1</sup>

<sup>1</sup>University of Oregon, United States

Cities such as London, New York, San Francisco, and Portland, Oregon are experiencing the need to establish incentives and policies for the provision of space and a new urban structure for manufacturing, as many small-scale, high-tech and craft-based enterprises are seeking to establish themselves or maintain their locations in the midsts of these vibrant cities. This paper describes a concept from the urban agriculture movement that helps develop a new approach to industrial location, recognizing the importance of a new kind of industrial "ecosystem." Specifically, the "continuous productive urban landscape" brings together different modes of urban agriculture—community gardens, industrial greenhouses, vertical growing surfaces, home gardens, "green roofs," and other local agricultural types to form a green ecosystem that provides continuity of species habitats, thereby reinforcing the strength of the overall system. In analogous manner, the "continuous productive industrial landscape," based also on the work of the economist Alfred Marshall and the spatial manifestation of the "agglomeration economy," brings together different modes of industrial production, including workshops, small factories, large plants, industrial research facilities, and industrial research labs. They help form an ecosystem in which proximity helps the exchange of new knowledge and industrial innovation. This paper will describe the local geography of this "industrial ecosystem", along with the steps that need to be taken to bring such urban forms into being. It will describe the necessary elements of urban form, including the provision and distribution of industrial land, the size and relationships of industrial sites, the pattern of streets, and the relationships between industrial and other uses.

# **Urban Design : urban morphology, building typology and design C**

Thursday, 04 Jul

14:45 - 16:15

Room: Halkos

**Chair: Constantinos Kipris**

14:45 - 15:00

## **Study on Relationship between Urban Morphology and Land Regulations in China -----Case as Nanjing**

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**Abstracts:** Urban morphology might be described as the result of numerous shaping processes in varying social layers, especially from the power of economic development and the effect of relevant regulations. Focusing on land regulations, our project has illustrated the provisions of main indicators and designed their experimental model of form, on the base of investigating in the relevant land provisions from State level, Jiangsu province and Nanjing city. Secondly, through choosing cases and using comparative and spacemate and other methods, this paper made relationship analysis between the characteristic of urban form and provisions of plots index, plots division, land ratio and others. The results demonstrated that land provisions have controlled to the ratio of land composition and plots development quantity, but have affected characteristics of urban form, and this research has significance for specification revision of urban policy and urban design and for promoting the livable urban form.

**Keywords :** Urban Form, Land Ratio, Plots Index, Site Coding

15:00 - 15:15

## **Transform-mut-ation of Tehran: Discontinuity of urban form and problems of using urban morphology in planning practice**

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Being the capital of Iran for about 240 years, Tehran started from an organic walled town with traditional elements of Iranian cities like bazaar and mahallahs and the castle (Arg) and square (meidan), with a population of 15000, to a large metropolitan area with no evidence of its past in its developments, with a population of 8 million in 2017, in 730 square kilometres area. During this process of change dimensions of social changes, migration, the change of lifestyle, the family size, changes in aesthetic preferences, the combination of exogenous modernisation and indigenous modernity, and changes in aesthetic preferences, was of the main causes of change in urban form. The cell of city form (traditional single-family central courtyard house) incrementally eliminated from urban tissue, and new types of residential buildings took its place. This article first reviews this process of change, and the elimination of single-family house type in Tehran, and emergence of its newer alternatives, in the context of social changes and mutation of urban form, and therefore based on recent research on use of urban morphology in planning and the place of contemporary forms in urban morphology, shows a problematic situation which the connection of the city form to its past is under threat. The article explains how this situation affects possible incremental process of morphological change and finally develops and evaluates procedural morphological solutions to retrieve the continuity of the form of the city (and cities with similar process of change) according to its new social condition.



15:15 - 15:30

## **From practice to policy: temporary uses for a long-term city re-make**

A. Migliorisi<sup>1</sup>

<sup>1</sup>La Sapienza, Urban Morphology, Piazza Borghese, 9, Italy

Contemporary urbanism and city planning are suffering from a kind of rigidity, progressively grown with their institutionalization, that could not let them take innovative contributions from the informal side.

The blossom of different latitudes of spontaneous actions aimed at urban requalification poses the chance to critically question their significances and innovation values today.

These practices are showing in fact their ability to understand the wide vacant dimension of our fragmented society and are becoming the messenger of new needs, aspirations and solutions, but they are also asking to let them act through policies able to experiment out of the narrow prescriptions of city regulations.

Facing the unprecedented demand of a perimeter of action by informal initiatives, what urban planning should do today is to provide the city with the legal conditions and cultural and economic resources not to be braked but, if anything, always to be ready and reactive on the trajectory of complexity and processuality.

In the light of the requirements of the pioneering regional law of Emilia Romagna 24/2017, which introduces the temporary uses as informal practice's experimentation for vacant buildings' reactivation, the paper critically examines how spontaneous initiatives, with their temporal and spatial fluctuations, can produce multivalent outcomes and approaches able to display their effectiveness in the long-term re-make of the city and how city planning could incorporate them as part of the urban development process.

15:30 - 15:45

## **The impact of political urban planning on the urban form in Algeria: The case of the city of Tiaret**

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The study of urban morphology in Algeria is limited to a few disciplines such as architecture, urban planning and geography. The main focus in the approaches of the theme is the historical urban fabric and the analysis of building structure. However, the urban form in Algeria is distinctive, multiple factors interfering with the formation of a mixed urban tissue between an ancient and a modern more complex urban form. The authors aim to address the significant contribution of the political planning on the urban form. For over half a century the adaptation of multiple politics of urban planning which largely was marked by circumstantial intervention in the cities in order to respond to the increasing needs of the population had massive impacts on the urban morphology. Between conducting studies and the application of urban regulations by different actors there is an entire process of producing specific structural forms.

Based on a diachronic approach and the principles of the conzen methodology, this contribution attempts to explain the mechanisms of evolution and transformation of urban forms through different periods in a city in the interior of Algeria, Tiaret. Direct observation, interviews and investigation of urban plans constitute the materials for analyzing.

15:45 - 16:00

## **Planning for Urban Health: evaluating planning strategies to improve public health and wellbeing through cycling A latitudinal European section analysis**

S. Folouli<sup>1</sup>, A. Savvides<sup>1</sup>

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In the late decades public health and urban planning, towards a sustainable future, have emerged with the common goal of increasing public health, and researchers have been initiating a research agenda on the built environment and public health suggesting that there is an obvious overlap between the two fields today. In an effort to review and highlight the major connection between these two fields, this paper tries to evaluate specific urban strategies, forms and infrastructure, specifically those promoting cycling, and their impact on urban population health. More specific, the current research will try to prove that urban strategies and infrastructures, who promote physical activity through cycling, have major impact on improving public health. Sedentary lifestyles have emerged as a pressing public health challenge because some of the consequences – overweight, type 2 diabetes, cardiovascular diseases, and other conditions, - and have reached epidemic proportions. Urban planners have the power on mobilizing population by designing cities that promote physical activity through policies that encourage cycling. An increasing body of evidence suggests that moderate forms of physical activity such as walking and bicycling, when engaged in regularly, can have important beneficial effects on public health. Although, the demand for clear scientific evidence to inform and support the health policy-making process is greater than ever. The current research's results indicated that urban characteristics and infrastructures such as high densities, polycentrism, long and cohesive cycling network, existence and availability of bike schemes and distributed bike parking have a positive impact on public health.

# **Urban Design : urban morphology, building typology and design D**

Thursday, 04 Jul

14:45 - 16:15

Room: Meeting Room 1

**Chair: Malgorzata Hanzl**

14:45 - 15:00

## **Spatial pattern evolution and industrial characteristics of economic and technological development zones and high-tech industrial parks in China's coastal areas**

L. Jing Xian<sup>1</sup>

<sup>1</sup>Peking University, the School of Urban and Planning, Lishui Road 2199, C Building, Suite 326, Shenzhen, Guangdong Province, China

Economic Development Zones and High-tech Development Zones are important types in development zones in China, there are differences and similarities in connotation and function between the two. This article collects basic data of Economic Development Zones and High-tech Development Zones in state-level and province-level in the coastal areas of China, and analyzes the spatial pattern evolution rules of Economic Development Zones and High-tech Development Zones from 2006 to 2018 by using GIS spatial analysis techniques such as kernel density estimation. Firstly, the evolution rules of spatial pattern are extracted by measuring the degree of regional agglomeration and dispersion in 2006 and 2018, and the commonness and difference between Economic Development Zones and High-tech Development Zones are analyzed. Secondly, spatial clustering method is used to explore the clustering types. Finally, the reasons for the spatial evolution of development zones are explored from the aspects of industrial types and policies. Results show that: (1) the development of Economic Development Zones and High-tech Development Zones has experienced a process from decentralization to agglomeration, from "multi-center agglomeration" to regional "single-center agglomeration". (2) the distribution and spatial evolution of various types of industries in Economic Development Zones and High-tech Development Zones have similarities and differences. In the future, while strengthening urban and rural planning and public management, the government should optimize the spatial layout of development zones by adjusting industrial structure, layout, transportation and land use in combination with the trend of industrial transformation and upgrading.

15:00 - 15:15

## **Viewing the Form Change of the Chinese Third-Line Industrial City from the Planning Succession of Bata Factory, Zlin, Czech Republic**

Y. Zhang<sup>1</sup>

<sup>1</sup>Tongji University, College of Architecture and Urban Planning, No.1239, Siping Road, Yangpu District, China

Zlin is the birthplace of Bata Company, the largest shoemaking enterprise in the world. Up to now, Zlin has well preserved the Functionalism industrial city pattern and architectural heritage from 1920 to 1930s. The urbanization of Zilin is closely related to the planning of the factory, and the industrial cities of China also deeply affected by it . They attract young people to work in the factories through social welfare policies, for example, providing housing and building public infrastructure such as school, hospital for their workers. Constantly updating the size and functional layout of the city. From the perspective of time, Zlin is an advanced example. In Zlin's urban planning and design, there are also architectural masters like Corbusier. Although after a long period of construction activities, the characteristics of urban morphology in different historical stages have been preserved. With the expansion of Bata to the world, their urban planning model has been replicated all over the world. In the process of adapting to the social production and management system of various regions, it has also had a certain impact on the existing urban form of the local. Based on the analysis of the development and planning evolution of Bata Company, this paper explores the characteristics of this industrial and its impact on the urban morphology of various cities. By analogy, this paper further analyses the impact of such a planning and design based on industrial production on the urban morphology of the third-tier industrial cities in China.

15:15 - 15:30

## **Planning sustainable urban-industrial configurations: the influence of industrial complexes morphology on industrial placement**

D. Altafini<sup>1,2</sup>, A. Da Costa Braga<sup>2</sup>, V. Cutini<sup>3</sup>

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Forthcoming shifts towards network-integrated production models in capitalist economies, as illustrated by the Industry 4.0, may change urban spatial organization and productive patterns. As these transformations advance, rise the need for methods that allow to foresee its impacts regarding urban configuration. As morphological properties of road circulation networks can inform trends of the industrial activities' placement in urban areas, its analysis enable to plan and design efficient productive complexes in order to contribute to industrial agglomeration, development and sustainability inside urban systems. This paper assesses methods in order to to evaluate the internal road network configuration of urban industrial areas, using as empirical case, three Brazilian industrial complexes located in Porto Alegre's Metropolitan Region (PMAR) municipalities of Alvorada, Cachoeirinha Gravataí and Viamão. Hypothesis is that movement potentials and flow probabilities informed by urban road network centralities' hierarchies are have a direct correlation to industrial placement patterns, therefore, a higher distribution of these centralities can improve endogenous movement and flow, favouring inner complexes' industrial placement, interactions and clustering effects. This is verified using geostatistical correlations between the circulation networks centralities, constructed through space syntax methodologies, and the industrial structures placement, assessing industrial clustering and distribution. Results demonstrate that there are significant statistical correlations between industrial placement and urban networks centralities, also indicating a higher industrial clustering and development in complexes with greater network centralities distribution. Therefore, urban road networks configurational properties can inform trends of industrial processes, and its analyses may be employed as a planning tool for sustainable industrial environments.

15:30 - 15:45

## **Spatial game in urban fringe belt reconstruction in China: the case of the Eastern Suburb Industrial Zone in Chengdu**

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The formation and disappearance of urban fringe belt characterized by industry is a significant phenomenon in the process of urban form in China after 1949, which is closely related to institution. In the early days of PRC, under the planned economy system, in order to realize industrialization and develop productive forces, industrial zones have been centralized in many cities by state investment. After the Reform and Opening-up, the status of industrial zones dominated by state-owned factories was gradually declining along with the establishment of the Socialist Market Economy System as well as the systematically adjustment of the productivity structure of this country. In the process of rapid urbanization in recent years, some local governments have adopted urban planning, capital introduction and other means to rebuild industrial zones – this is undoubtedly a complex spatial process and what this article focuses on. The Eastern Suburb Industrial Zone of Chengdu was built in the 1950s and thoroughly reconstructed during the past decade, which has undergone a process of spatial construction and reconstruction associated with fringe belt from natural and agricultural landscapes to industrial landscapes to diversified urban landscapes, and have a tremendous impact on the urban structure. This paper studies and interprets the spatial game relationship among government, enterprises, capital, public and other participants in this process from a comprehensive perspective of planning, economy, society and even culture, and its impact on urban form, so as to demonstrating the particularity of the reconstruction process of urban fringe belt with current Chinese characteristics.



15:45 - 16:00

## **Morphological Comparison Study of Mainland Industrial Port Area of Island Cities: Marghera in Venice And Haicang District in Xiamen**

X. Liu<sup>1</sup>

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The paper studies Marghera and Haicang District, both are the industrial port areas on the mainland of Venice and Xiamen, two of which are both island cities. Venice is an important port city in the Mediterranean, and the city is mainly situated on an island. With the development of the city, the existing ports on Venice's main island are gradually incapable of servicing large modern ships. As a result, by 1917, the Italian government had decided to develop an industrial zone and state-of-the-art port at Marghera on the mainland opposite the main island of Venice. Xiamen is an important port city in China, and the main body of the city is also an island. With the construction of large numbers of infrastructure, since the mid-1990s, the urban space has shifted from basic saturation of the main island to spread to the mainland, gradually forming the urban spatial form of the gulf group. Haicang District has gradually developed as an important industrial area and port. In the history of development, both cities have a long history of development, and both of the development processes are from the main island to the inland expansion. The article makes a comparative and graphical analysis of the two port areas from four aspects: geographical environment, development history, urban morphology and urban format evolution. In conclusion, the author compares the impact of social factors on the two port areas in different historical stages, which provides guidance and reference for the development of island cities.

# Poster Presentations

Thursday, 04 Jul

12:00 - 13:30

Room: Zenon Kitieus

**Chair: Constantinos Kypris**

12:00 - 13:30

## **Research on Typology of Traditional Chinese Gated Community Sharing Space in Urban Design: Taking Beijing Huizhongli Community Redesign as Example**

H. Wang<sup>1</sup>, Z. Li<sup>1</sup>

<sup>1</sup>Tongji University, College of Architecture and Urban planning, 1239 Siping Road, Yang District, 200092, Shanghai, China

The traditional Chinese urban form tends to be huge, and the traditional urban planning model pursues a grand scale and exhibits dense spatial characteristics. Under the influence of modernism, urban forms are distorted and urban spatial scales are unbalanced. Under the influence of Chinese traditional urban spatial planning concept, many gated communities were built, and they were self-sufficient and formed a closed operating system. With the development of social economy, this closed system is gradually unable to adapt to the new urban spatial form. This paper conducts a typological analysis of traditional Chinese gated communities. Under the background of sharing architecture and urban morphology, it analyzes two types of closed community space to urban sharing: one is the internal space of the community to the city, and the other is the community's external space to the city. Moreover, the article takes the sharing concept design of the marginal space of Huizhongli community in Beijing as an example, and provides a reference for the open transformation design of traditional Chinese gated communities. It is proposed that in the existing urban form, sharing the traditional gated community with the city is a viable development direction.

12:00 - 13:30

## **Introducing building-typology in the decision-making process: a strategy of adaptive reuse for refugees in Turin**

Z. Tulumen<sup>1</sup>, S. Bovo<sup>2</sup>

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<sup>2</sup>Politecnico di Torino, DAD, Alessandria, Italy

This study puts the architect's technical knowledge within a great horizon, that of the 21st-century migrant crisis. Today, in the local Turinese dimension there are two defined "crisis" conditions. On the one hand, the continuous and growing flow of people coming from countries of international conflict creates a mass of "new inhabitants", with housing and welfare needs. On the other hand, the economic crisis and the change in production systems have left the city running real "urban voids".

The purpose is to detect the optimum typology of vacant building located in Turin which can best accommodate the refugees. By typological understanding, the study will explore the finest strategy to adopt, on the one hand for the newcomers, without orienting them in random structures, on the other hand for the Turin territory, through a holistic approach of regeneration and revitalization of discontinuous areas.

To be able to accomplish the purpose, the study introduces the functional and formal building-typology in decision-making through a scientific method. This method, based on a multi-criteria mathematical model, was extracted from an article written by scholars from the University of Lisbon. Through the results of the study, it is clear that not all the vacant buildings are favorable for the maximization of the inclusion of migrants in the urban context. Study of building type becomes important in order to meet the common requirements of immigrants. Certain typologies are more adequate than others to host refugees and to catalyze a regeneration process of the city.

12:00 - 13:30

## **Visualizing the Past of Luoyang Old Town within A Multi-layered Historic Environment : Diachronic Analysis Through Morphological Translation of Historical Information**

Y. Zeng<sup>1</sup>, C. Yuan<sup>2</sup>, W. Dong<sup>3</sup>

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In contemporary society, exploring the emergence and transformation of urban space, function, and culture under the influence of time is imperative for studying urban form. Hence in this research paper, the connection of physical components with social environment is built. In this regard, the ancient town's past is visualized through dominant spatial elements and their relatedly recessive functional and cultural context. For this purpose, historical information was morphologically translated, creating a significant contribution to the integrative visualization of the ancient space and function as well as the process of their transformation. This historical information had been obtained through archaeological excavation and immovable relics, studies of historical literature, and illustrations of historical maps and aerial photography. By taking the old town of Luoyang as an example, a typical Chinese ancient town that existed within a multi-layered historic environment, this research primarily utilized the spatial network model called "patch-corridor-matrix", which comes from the theory of landscape ecology, to map a spatial structure of the old town form. Based on the generated map, functional and cultural elements were marked according to both top-down domination and bottom-up autonomy mechanisms working on the urban form. The above-mentioned analysis regarding spatial, functional and cultural elements was then applied to different historical periods. By such diachronic analysis, a visualized network of the ancient town's past in a historically sequential order was eventually constructed. As a multidimensional information-based system of urban form, this study provides a spatially and functionally viable historic reference for potential urban restoration.

12:00 - 13:30

## **The morphogenesis of subtype and its urban backgrounds\_ A case study of Chinese traditional theater in Beijing**

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The difference between Conzenian and typological approaches is derived from the division of scales between architectural design and urban planning. As Karl (1993) suggests, the “plot” is a starting point for synthesis, which is the watershed between these two practicing fields. If the combining problem of different school becomes that of different scales, trans-scale study will be needed, but how? From a top-down perspective, Conzen emphasized the decisive role of street system as a morphological framework in the type of a plot, while Caniggia assured the influence of environment on a type, in his bottom-up hierarchy, especially in the concept of tissue. The interaction between a building type and its urban location transforms “type” from a fixed concept to an evolvable one. This paper attempts to achieve cross-scale study, through a comparative study of subtypes in different urban locations. A typical building type, such as the traditional Chinese theaters, Xitai or Xilou, may generate subtypes when it spreads in a city, such as the Beijing's municipal administrative area, including the central city, surrounding towns, and villages. Two scales of measurement in space syntax, of the street network and of the building, will be combined. It will be investigated, in statistical sense, whether there is correlation between the external location of plots and the internal syntactic character of the subtype features. Finally, social interpretation will be given as a specific level of publicity of a building is achieved through the synthesis of its external accessibility and its internal structure.

12:00 - 13:30

## **Rethinking “Invisible Elements” in Urban Morphology Theory based on Morphogenetic Types Research in Rural Area of China**

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Urban morphology aims at understanding spatial structure and characteristics of an area typologically, given the theory developed by M. R. G. Conzen in the mid-twentieth century mainly through studies of English cities. Related studies have focused on the application of urban morphology from spatial, economic, and cultural elements aspects; however, with rapid urban development, applicability of the existing theory could be changed. Given over 10-year urban morphology comparison study of rural area in China, we realized spatial typologies are influenced by a large amount of “invisible elements”. For example, landmarks with historical meaning are normally defined as characterized nodes. On the other hand, for the locals they may have different answers considering the psychogeography (discussed by Kevin Lynch in *The Image of the City*) in their minds. This study, based on the long-term rural morphology research, integrating the Chaos Theory and PRA method (Participatory Rural Assessment), focusses on identifying and bringing “invisible elements” to the urban morphology theory and re-building a dynamic typological system which is applicable internationally.

12:00 - 13:30

## **Analyzing morphological evolution in central Beijing after China's reform and opening up Based on Poi data and remote sensing imagery**

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After China's reform and opening up, Chinese cities have undergone large-scale spatial restructuring, which is reflected in urban renewal and urban expansion. Our study focuses on the morphological evolution in the central Beijing, where different competitive forces exist in the development of socialist market economic system. Hybridity is a key characteristic of the morphological evolution during this period. It is characterized by the different sizes of the land lots, the intertwined types and volume of buildings, and the interlaced agricultural land and urbanized area. Based on Poi data and remote sensing imagery, a series of indicators on urban hybridity are specified to classify urban blocks, from the perspectives of building types and functions as well as Planning and land use. Through the observation of the trend, extent and intensity of these hybridity indicators and category of blocks, the evolution of urban form is revealed. The results show that in the context of population agglomeration, land scarcity and immature regulation, the government has achieved urban transformation by relaxing capital controls and pursuing economic interests. However, this re-construction of the pursuit of economic interests has undermined social space justice and raised concerns about sustainable development.



12:00 - 13:30

## **The Overlapping Influence of Natural Terrain and Infrastructure on Urban Public Space Form**

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Under the background of rapid urbanization in China, the problem of coordination between artificial cities and natural terrain resources has always existed, and the impact of rapid infrastructure construction on urban space is also becoming increasingly significant, while the corresponding ecological landscape demands and functional efficiency demands restrict each other and have a comprehensive impact on urban public space. This makes the urban public space more diverse, complex, and open. The construction of urban physical space is also facing huge challenges. Improper handling can easily lead to a series of problems such as fragmented space, lack of vitality, and lack of features in urban construction. The research of corresponding design methods tends to focus on the role of single influencing factors, while ignoring systematic review and summary of the comprehensive mechanism of complex influencing factors.

An orderly and dynamic urban public space should be built under the framework of the overall physical space and behavioral activities, coordinating with various influencing factors. Among them, the natural terrain and infrastructure elements, which have a constraint and fusion relationship with each other, are crucial for influencing the urban physical space form and shaping urban spatial characteristics.

Based on the analysis of the relationship between material influence factors and public space, the paper discusses the mechanism of the overlapping influence of natural terrain and infrastructure on urban public space, tries to reveal the basic features, overlapping relationships, impact paths, and integration framework of natural terrain and infrastructure participation in urban physical space construction.

12:00 - 13:30

## **Transformation of Historical Block into Urban Consumption Space: Case study of Urban design of Sino-Ocean Taikoo Li, Chengdu**

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<sup>1</sup>Tongji University, College of architecture and urban planning, NO.1239 Siping Street Yangpu District, Shanghai. 200092, China

With the rise of consumption culture, a variety of consumption spaces are expanding in China. Making a historical block into a new type of consumption space has become an important means for the production of space in many cities. How can a historical block be transformed into urban consumption space? This paper will concentrate on the urban design of Sino-Ocean Taikoo Li in Chengdu, which transforms the Daci Temple Historical block successfully.

First, the paper would review the emergence and development of the consumption space in China. Second, the paper will analyse the Sino-Ocean Taikoo Li project from three aspects. From overall layout, based on the morphology research, this project retains the traditional street pattern of Chengdu- small streets with many lanes to create multiple public space and streamlines. From architecture design, based on the building typology of Sichuan, the projects transforms a traditional building style in a modern way. From distribution of trade state, based on multiple liner street space, this projects creates two complementary linear trade state : "Fast Lane" for shopping and "Slow Lane" for catering. Finally, by analysis of the Sino-Ocean Taikoo Li, this paper will conclude four strategies of transformation: research on the urban morphology and building typology of the block, retaining the traditional street patterns and historical buildings, transforming the traditional building style modernly and organizing the trade state based on the character of the street.

This paper is subsidized by NSFC project (No. 51678412).

# **Methods 1 : embedding different approaches into the study of urban morphology**

Friday, 05 Jul

10:00 - 11:30

Room: Elia

**Chair: Marco Trisciuglio**

10:00 - 10:15

## **Morphological Characteristics and Activation Strategies of Lost Public Space in High Density Urban Communities Based on the Emotional Health**

L. Wang<sup>1</sup>, S. Lu<sup>1</sup>

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Environmental psychology focuses on the interrelation between “physical space” and human perception, cognition, preference and behavior. Given that rich of indicators derived via urban morphology methods would definitely help environmental psychologist to understand, measure and classify the features of physical space which leads differences in people's perceptions and behavior. Taking Tianjin as an example, principal component analysis (PCA) was used to determine the variables affecting the environmental characteristics of urban community public space from three-dimension level: accessibility of community aging facilities, perception of spatial morphology, natural connectivity and social integration. Introducing the theory of psychophysics into the field of urban morphology based on field research. Taking consideration of "physical form-psychological perception" research model, this paper put forward the describing parameters of geometric morphology characteristics of lost public space in urban residential areas, as well as deduced the psychometric quantification algorithm of the parameters. Through the chart tool, 12 different types of neighborhood samples were quantitatively analyzed, and with the help of traditional typological analysis methods, the relationship between quantitative indicators of public space form types and spatial psychological cognitive connotation in high density cities was established.

10:15 - 10:30

## **A Quantitative Approach to Morphological Research Based on Public Space**

H. Ji<sup>1</sup>, W. Ding<sup>1</sup>

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Understanding urban form generation process could add a strong ability for architects and urban designers in urban design, especially in urban renewal projects. Morphological elements, such as block/streets, plots and buildings, play important roles in the form changing process, which are also the elements in urban design projects since they play the role for forming the urban space. Due to tightly integrated together, morphological changing process must cause changes in its spatial characteristics that urban designer cares. Therefore, it is worthwhile to study urban spatial characteristics based on its morphological changing process.

This paper aims to investigate urban spatial characteristics changing process in the urban center based on its morphological study. As the center of Nanjing, Xinjiekou area is selected as the case for morphological integrated study on the physical form of spatial characteristics. Based on deeply studied of its form changing process and social background, we introduced an analytical model to assess the spatial features of the public space within these blocks through the time line of form changing, some spatial characteristics judging indicators such as the area, elongation, openness and circularity have been developed. The results may provide urban designers and architects with not only the changing rules or trends of urban space, but also designing tools, and make them better understand the relationship between the urban form and urban space, and finally may put forward new ideas to morphological research.

10:30 - 10:45

## **Beyond Building Envelop: Urban Form of Cultural Public Space**

M.H.L. Yiu<sup>1</sup>

<sup>1</sup>The Chinese University of Hong Kong, School of Architecture, Rm 506, AIT Building, The Chinese University of Hong Kong, Shatin, Hong Kong

Cultural buildings are often the key-piece that gives character to urban form, yet it is usually read as the iconic landmark, an isolated object that is devoid of context. The significance of cultural buildings should be more than its visual impact, but to play a greater role in the making of urban form and life. Social life happens in the interior space and extends beyond the building envelop into urban open space, where the interior/exterior public space became a zone of the most vibrant interactions.

This paper explores the role of cultural buildings in the making of our cities, beyond nominal aesthetic or functional view. The architecture is then read as the container of social space, contributing to the formation of urban landscape at a physical, spatial, and more importantly, human scale. Grounded in the classic Nolli map figure-ground reading, architectural plan of contemporary cultural buildings is examined in multiple scale from building to site and districts, in order to review the situation of cultural buildings in response to urban form. Taking on a typological approach, the focus is placed on the abstracted notion of interior/exterior public space across building threshold, and its relationship and interaction with the urban fabric. The result of this study reveals a renewed perspective to view cultural buildings in the city, through their urban/social input of public space in the creation of urban form.

10:45 - 11:00

## **Social and Environmental Function of Urban Space**

D. Antonucci<sup>1</sup>, L. Bueno<sup>1,2</sup>

<sup>1</sup>Universidade Presbiteriana Mackenzie, Architecture and Urbanism, Rua da Consolação, 930, São Paulo, Brazil

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The city of Medellín, located at Aburrá Valley, Colombia had its growth process associated with orographic and hydrographic conditions, where planners and technicians made important plans and projects articulating the environmental and built systems. The valley, which despite having a high index of slope and areas of potential risk of landslides, has a high degree of human occupation, represented in different economic strata. In this scenario, planners and municipal administration, associated with academia and civil society, have made important advances in favor of Social Urbanism. The Plan de Ordenamiento Territorial - POT (1997) introduced the social and ecological function of property, the public function of urbanism, the equitable distribution of burdens and benefits, with the prevalence of the general interest over the particular; the Plan de Desarrollo de Medellín - PDM (2001) introduced elements such as civic culture, which sought to elaborate urban projects that integrated the physical, cultural and social components (2004); the Proyecto Urbano Integral (PUI), in turn, contributed to the decline of violence and quality of life rates, establishing an important step in the construction of the right to the city. The projects were oriented to active mobility and public transportation, and expanded the provision of collective equipment associated with public space, expanding community outreach and empowerment. Social participation has become a fundamental element for the success of the implementation of the project as well as its maintenance.

11:00 - 11:15

## **Design Patterns' Machine\_4 Dimensions, 253 Degrees of Freedom**

Y. Passia<sup>1</sup>, P. Roupas<sup>2</sup>

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<sup>2</sup>National Technical University of Athens, School of Architecture, 137, Andrea Papandreou str., Greece

While the continuous flow of events seems to be a given, we still cannot tell the exact nature of future events, prior to their emergence. The research aims to establish a code for the city as a semantic system that models cities and monitors their metabolism. The code we propose is the structure of spaces of possibilities within the city (DeLanda 2013), spaces which acquire their essential traits from morphogenetic processes that generated them.

The city is differentially defined by Ch.Alexander's 253 Design Patterns, as presented in his 1977 book, *A Pattern Language: Towns, Buildings, Construction* (Alexander et al. 1977). The city -as a system composed of fields of Design Patterns- is represented as a 4-dimensional manifold, where the dimensions are used to represent the four physical processes that generate the city: exteriority, integration, cohesion, and differentiation. At the same time, the manifold itself becomes the space of possible states that the city can have, a coding model of the city's physical processes that directly connects it to the city's material reality.

In modelling the city's dynamical behaviour, we have established the four relevant ways the city can change and have related those changes to one another. Each dimension of the city is populated by fields of Design Patterns, their number setting each degree of freedom respectively. Each dimensional surface or space is assigned four critical points of behaviour that are the changes of state for each physical process of the city, describing a trajectory. (Passia, 2017)



# **Methods 1 : embedding different approaches into the study of urban morphology**

Friday, 05 Jul

10:00 - 11:30

Room: Morphou

**Chair: Laura Pezzetti**

10:00 - 10:15

## **How Urban Form may shape Rio Olympics' Urban Legacy in Barra da Tijuca**

R.L.d.O. Sanchez<sup>1</sup>

<sup>1</sup>University of São Paulo, School of Architecture and Urban Planning, Brazil

Rio de Janeiro's 2016 Olympic Games have triggered a wide-range of urban transformations, including the creation of two new centralities: one located close to the consolidated city center, through the regeneration of a harbor area around a more traditional urban tissue; the other located on the west, modernist-based growth axis of Rio – an area known as Barra da Tijuca - mainly due to the conversion of the Olympic Park's vast open areas into a new neighborhood for the city. Based on an extensive literature in Urban Design that highlights the importance of planning cities for people, with mixed-use urban environments, urban sustainability and human scale – in which urban form plays a decisive role -, and on an in loco analysis of current urbanities within both centralities, this paper aims to discuss how spaces planned for the Olympics may integrate into daily urban life, revealing challenges and potentialities, almost 3 years later. In addition, by comparing the original, 2011's winning legacy masterplan for the Olympic Park and the approved alignment plan for the area in 2012, along with a morphological study of possible achievements on the area's private lands according to municipal land use legislation, this analysis discusses how urban form might impact the creation of lively and sustainable urban spaces. As conclusions, the paper emphasizes the challenges in creating legacies for two opposed centralities, and argues that spaces focused on a human scale and which urban grid integrates to its context have better prospects of leaving lasting legacies.

10:15 - 10:30

## **On the Relationship Between Walkability and Spatial Configuration in Berber Human Settlement**

L. Kacha<sup>1</sup>, I. Mekhnache<sup>1</sup>

<sup>1</sup>University of Batna 1, Institute of architecture and urbanism, Route de Biskra Batna, 05000, Algeria

This paper aims to understand the spatial logic of Berber human settlement, and its relationship with walkability in outdoor spaces. The study of the spatial identity starts by understanding the link between the spatial configuration of outdoor spaces and their attractiveness. This requires the use of a set of theories for the analysis, representation and quantification through space syntax method via DepthMap software. In the other hand, counting method is used for studying walkability, in order to extract the relationship between the spatial configuration and the use of outdoor spaces.

The results showed that Ichmoul agglomeration has a distinctive spatial logic resembling that of traditional Berber human settlements of east of Algeria, the Aures. The correlation between spatial morphology and walkability showed that: (A) the most connected, integrated and most likely to be chosen outdoor spaces have a significant value with pedestrian flow. (B) The movement of pedestrians in the agglomeration is strongly linked to axial connectivity and choice. (C) The outdoor space that has a significant value of pedestrian flow does not necessarily correspond to the most visually connected space. (D) Axially and visually integrated outdoor spaces are considered as a transition spaces from the outside to the inside of the agglomeration. The social logic behind the spatial configuration of Berber agglomerations is to maintain the social privacy by creating a distinctive hierarchy of outdoor spaces. This logic is translated by an increase in pedestrian flow from the outdoor space, the least integrated to the more integrated.

10:30 - 10:45

## **Decoding the pathway: mapping and measuring spatial connectivity within informal urban contexts**

H. Thai<sup>1</sup>, Q. Stevens<sup>1</sup>, J. Rogers<sup>1</sup>

<sup>1</sup>RMIT University, School of Architecture and Urban Design, GPO Box 2476, Melbourne VIC 3001, Australia

This paper presents a mixed methodology, adapted from Conzenian, typological, and Space Syntax methods, which seeks to overcome several identified limitations of these established morphological and movement-focused approaches in dealing with people's vertical movement patterns within highly- complex informal urban forms. The methods are used to map, measure and analyses the intricate pathways linking individual household locations to local main streets in Hanoi, a city dominated by informal urbanism. Pathway, which usually includes publicly-accessible street segments, semi-private lanes, alleys and stairs, is an important but understudied spatial entity that influences the possibilities of opening and operating income-generating activities within a home. Figure-ground maps are used to examine spatial conditions of such pathways on the ground level. In the many cases where vertical movements are involved and some segments of pathways are located inside buildings, new three-dimensional analytical diagrams have been developed. The distances along these pathways are measured following Space Syntax theories. On-site observations and interviews with home-based business owners are used to identify key spatial characteristics of these pathways that are critical to such businesses' operation. Applying this methodology to different morphological areas in Hanoi illustrates its potential effectiveness in revealing the spatial characteristics of the pathways that serve residents' daily movements, and in particular their home-based economic activities. The method is potentially useful for urban morphologists and urban designers in decoding the intricacies of informal urban physical form at a fine scale, and understanding its spatial affordances for home-based economic activities.

10:45 - 11:00

## **Cityzoom's Pragnanz Analysis: visibility analysis in urban environment**

R. do Couto Cardozo<sup>1</sup>, R. Silveira<sup>1</sup>, G. Kruger Dalcin<sup>2</sup>, B. Turkienicz<sup>1</sup>

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A visually preponderant element is one that expresses a strong feature to highlight or impose itself and be easily remembered. The visual preponderance of buildings in urban environments affects the observer, causing specific sensations and experiences. The design of buildings, especially in historical areas, do profit from predictive techniques supporting the impact assessment of new constructions from the street user's point of view. This article describes a computational tool, Cityzoom's Pragnanz, which simulates the user's cityscape experience and analyze the tool's human perception representation model. The model was tested in a case study for the city of Porto Alegre, Brazil, based on the comparison of computational results of the surface angles related to the simulated observer's viewing plane and the observer's field of vision declared perception. The study has led to the conclusion that the Pragnanz Model numerical output reproduces very closely the human perception of its surroundings allowing an informed discussion about the relation between new buildings and consolidated urban areas based upon quantitative results.

11:00 - 11:15

## **Assemblages of planned and unplanned urban structures in a city (based on the example of Vilnius city centre)**

D. Dijokiene<sup>1</sup>, I. Alistratovaite-Kurtinaitiene<sup>1</sup>, M. Cirtautas<sup>1</sup>

<sup>1</sup>Vilnius Gediminas Technical University, Department of Urban Design, Traku str. 1, 01132, Vilnius, Lithuania

Urban development is affected by various types of factors: political, economic, social, cultural, etc. During the past three decades, in the Eastern European towns the conflict between uncontrolled suburbanisation and the traditional concept of the classical or harmonious town development has become prominent. One of the consequences of this conflict is the emergence of new urban structures in city centres that are becoming particularly active in urban fabric but often have no targeted development strategy. The quality of the urban process is deteriorating: the full-fledged urban planning genre is vanishing and the liberal tolerance, in a broad sense, of unregulated development is becoming more established. The latter may be considered to be unplanned urban development, but it radically contradicts the principals of the planned urban development established in the urban development process in the second half of the 20th century. One thing is clear – the physical shape of a town is often the result of interaction between both planned and unplanned urban developments. This presentation is based on a study of ensembles in the centre of Vilnius city and highlights the most significant urban complex in this part of the city, which is the result of both planned and unplanned development. The aim of the concrete scientific research discussed in this presentation is to use professional tools of the urban planning and design genre to manage a potential impact of both planned and unplanned urban developments, caused by the globalisation era, on the central part of Lithuania's capital city

# **Methods 1 : embedding different approaches into the study of urban morphology**

Friday, 05 Jul

10:00 - 11:30

Room: Ammochostos

**Chair: Fei Chen**

10:00 - 10:15

## **An Inhabitant's Perspective on the Neighbourhood Assemblages of Precolumbian Chunchucmil**

B. Vis<sup>1,2</sup>, E. Jobbova<sup>3</sup>

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<sup>2</sup>University of Antwerp, Urban Studies Institute, Stadscampus Universiteit Antwerpen, Prinsstraat, Antwerpen, Flanders, 2000, Belgium

<sup>3</sup>British Museum, Africa, Oceania and the Americas, Great Russell Street, Bloomsbury, London, WC1B 3DG, United Kingdom

In recent years the term low-density urbanism has become applied to describe Maya agro-urban cities. The appropriateness of this term is contested. Chunchucmil is among the locations where dominant stone construction and environmental conditions have allowed highly detailed and extensive archaeological mapping of the ground plan. At least partly thanks to this, Chunchucmil ranks among the consistently densest Maya cities documented to date. Nonetheless, population estimates still highlight its distinctly dispersed urban nature.

Established methods of urban morphological analysis struggle with the irregular shape of Maya urban space. Boundary Line Type (BLT) Mapping was devised to overcome this challenge and allow any urban form to be considered in culturally inclusive comparisons to increase our understanding of alternative modes of urban life and developmental trajectories. Recognising key functional aspects of tropical agro-urban daily life, population estimates offer merely a single-dimensional perspective on density. The spatial characteristics and materiality of urban form are virtually discounted, disallowing a critical assessment and appreciation of the qualitative and experiential difference inhabiting a so-called low-density city makes. Based on the dendritic network of pathways through the city, Hutson and Welch (2016) hypothesised a neighbourhood structure for Chunchucmil. Applying BLT Mapping disaggregates spatial data on urban form in constituent socio-material elements of space. Using this we can reassess the characteristics of everyday urban life in Chunchucmil and analyse the differences and consistency in the assembled components making up Chunchucmil's hypothesised neighbourhoods.



10:15 - 10:30

## **Spatial Limbo, Landscape Narratives and Conflicts in Urban Development Plan: The Case Study on Taipei's Shezi Island**

C. Hung<sup>1</sup>

<sup>1</sup>National Taiwan University, Graduate Institute of Building and Planning, No. 1, Section 4, Roosevelt Rd, Da'an District, Taipei City, Taiwan

Taipei's Shezi Island is a case of suspension of development, visions (or fantasies) from authorities and alternative vision from residents. The region's development has been restricted since 1970 when it was designated as flood buffer zone of Taipei City. The restriction prohibited new buildings in the region. From 1980, Taipei City Government raised several urban development plans for the region. These development plans were all embedded in visions based on famous cities in western world, and most of them are famous with their relation to water, such as Venice and Manhattan. However, these visions neglected Shezi Island's urban morphology, and were all discarded due to conflicts of land expropriation and other issues. The suspension of future development makes Shezi Island into a spatial limbo. By discourse analysis on urban development plans and news release, I tried to figure out landscape narratives of Taipei City Government under different regimes after 1980. By field research and participatory design with local residents, several students from my institute and I inspire different possibilities of landscape narrative, and understand the conflicts between different actors in the development process. "Ecological Shezi Island," the latest version of development plan is also creating debates and conflicts in the region. Coalition of local residents, scholars and professionals are finding the alternative vision while resisting the newest fantasy from city government.

10:30 - 10:45

## **Logics of (re/de) assembling the city: scenarios of embedding parameters into a methodology of describing-and-designing in the relational city**

A. Stamatopoulou<sup>1</sup>

<sup>1</sup>National Technical University of Athens, School of Architecture, Stournari and Patision 42 35, Athens 106 82, Greece

The city is composed by relations among heterogeneous parameters. How analysis, description and design of/in the city could correspond to the challenges of such an approach? The paper is part of an ongoing PhD research, which deals with the construction of a methodology for describing-and-designing things in regard to their relationality. Its aim is to create a tool of a generative analysis of an object (the city) in regard to its parameters of relationality/ multiplicity/ complexity, which also enables multiple new re-organisations: a tool that can at the same time de-assemble and re-assemble. The methodology is composed of three levels of actions: in the first, data (different descriptions by different subjects) are gathered; in the second the translation parameters of (de/re) assemblages among the descriptions are defined, in order to cultivate potential paths of interactions/ synergies. In the third, the methodology is tested through different case-studies. After experimentations beginning from the third level, the current paper concentrates on the second. It selects different logics of thinking from the literature in order to experiment on how some of them can define specific schemes of parameters or relations of them: these parameters activate relations of physical locations and in turn relations among relationality and territoriality. Beyond the schematic level, the paper presents the application of the different logics into the same testing case-study (Athens public space) in order to show how the different experimentations of de/re-assembling affect the logics of networks created in the city's territory, beyond its physical contiguities.

10:45 - 11:00

## **Techniques of Architectural Rewriting for a Critical Transformation of the Urban Fabric**

D. Chizzoniti<sup>1</sup>, F. Menici<sup>1</sup>

<sup>1</sup>Politecnico di Milano, ABC, (Architectural, Built environment, Construction engineering), Via Giuseppe Ponzio, 31, 20133 Milano MI, Italy

In architecture, when the criterion of revitalization prevails over the conservative approach, one would wonder if it is possible to identify a series of design practices to be followed in the development of the architectural project. The research here displayed investigates these practices through the technique of rewriting. Specifically, the rewriting process is here conceived as a creative path, which aims at transforming an architectural or urban structure across a critical textual reworking of its formal elements. It is thus a generative technique that entails the recognition of the physical features of architecture, in order to reorganize them into a new narrative system, according to the evolutionary process of the city's urban settlement. The purpose of this study concerns the identification of a general set of operative procedures for a critical transformation of the morphological and figurative characters of the original architecture. Identification that occurs through a critical analysis of several case studies emblematic for architectural rewriting processes, such as, for instance, the reconstruction of Paganini Theatre of Parma by Carlo Aymonino, the Town Hall of Bensberg by Gottfried Bohm or the City of Culture of Galicia by Peter Eisenman. Developing such a critical analysis means to recognize the elements engaged in the architectural transformation processes, defining by comparison an admissible order of the employed design instruments. Through a systematic reorganization of these design tools, the result of this paper aims to define a set of good practices for a critical revitalization of mutilated or decommissioned architectural and urban structures.

11:00 - 11:15

## **Systemic Space – Integrating urban morphology, actors' networks and adaptive actions to understand changes in urban fabrics**

J. Polivka<sup>1</sup>

<sup>1</sup>ILS – Research Institute for Regional and Urban Development / RWTH Aachen University, Spatial Planning and Urban Design Research Division, Karmeliterstraße 6, D-52064 Aachen, Germany

The paper aims on contributing to the understanding of adaptability and transformation in settlement structures and their interdependence with the deliberate action of urban-related actors. On the theoretically conceptual level, it seeks to explore the key attributes of the evolutionary panarchy (Gunderson & Holling 2002) by implementing it on changes in urban structures. Such are conceptualized as complex systems (Portugali 2016) and characterized by multiple partially localized assemblages, which consist of heterogeneous networks, spaces, and practices (Bender 2011).

The paper introduces a pluralistic concept of path dependent evolution based on interdependence between three particular levels of physical space and its morphology, actors' networks, and their adaptive actions. On behalf of two empirical studies conducted in German residential areas, a concept of multi-leveled 'systemic space' as both interpretative and analytic tool for understanding development paths of physical and functional changes in urban structures is introduced. The application of such frame in the case studies shows how the built environment - while underlying its own different conditions in every case for change and adaptation at each of the three levels - adapts towards both morphological complexity and systemic resilience, or remains locked in its existing state. Hereby, it issues the actors' panarchy a central adaptation-steering potential, arguing its core role in structural changes of the built environment.

# **Theory 1 : emergence, relational theories, the social sciences and urban morphology**

Friday, 05 Jul

10:00 - 11:30

Room: Halkos

**Chair: Howard Davis**

10:00 - 10:15

## **Emergent Morphologies: The Spatial Structures of Informal Settlements**

H. Kamalipour<sup>1</sup>

<sup>1</sup>Cardiff University, School of Geography and Planning, Glamorgan Building, King Edward VII Avenue, Cardiff, CF10 3WA, United Kingdom

Informal settlements are one of the critical global challenges that arguably require the built environment professions to effectively engage with the processes of upgrading and formalisation. While these settlements cannot be simply wished away, they can be most effectively addressed through in-situ processes of incremental upgrading to avoid demolition and displacement. Incremental upgrading then relies on a sophisticated understanding of the spatial structures of informal settlements. One of the key characteristics of these settlements is about the ways in which their morphologies emerge through processes of self-organisation. This paper engages with the challenge of understanding the ways in which urban morphologies work in informal settlements. To address this challenge, the spatial structures of the built environment are investigated with a primary focus on the way in which building densities, functional and formal mixes, access networks, urban public/private interfaces, and loose parts play out in informal settlements. Two case studies of informal settlements in Pune (India) and Medellin (Colombia) are explored to identify both differences and similarities in terms of the ways in which urban morphologies work in different contexts. Direct observation, visual recordings and urban mapping are the key research methods. This paper provides a better understanding of the ways in which different forms of urban informality work in informal settlements.

10:15 - 10:30

## **Morphogenesis of Informal Settlements**

K. Dovey<sup>1</sup>, I. Chatterjee<sup>1</sup>, M. van Oostrum<sup>1</sup>, T. Shafique<sup>1</sup>

<sup>1</sup>University of Melbourne, Australia

Much is made of the pervasiveness of 'informal' settlements throughout cities of the global South, yet little is known in detail of how informal urban design and planning is practiced as a production of urban space. Using data from the Google Earth archive (plus ancillary sources) we map the emergence and transformation of street/laneway networks and buildings in 43 settlements from 27 cities. We analyse these morphogenic patterns for global differences and similarities based broadly in location, climate, context, topography and politics. While such data cannot reveal the social, economic and political complexity of individual cases, we demonstrate the range of informal morphologies and different intersections of informal/formal practices that produce them. We analyse the building types, plots, blocks, streets and lanes to extract the informal codes or heuristics – the informal logics – that are embedded within such morphologies. This is a nascent study with a limited database but it begins to reveal the ways in which informal settlement works to produce habitable land, affordable housing and public space. It also offers the prospect of a better knowledge base for understanding how such practices may or may not produce 'slums', and how upgrading practices may be improved.

10:30 - 10:45

## **Sociospatial reading of favela: a comparative analysis from organic Portuguese cities**

V. Loureiro<sup>1</sup>, V. Medeiros<sup>2</sup>, M. Guerreiro<sup>3</sup>

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<sup>3</sup>IUL, CRIA ISCTE IUL, Lisboa, Portugal

This paper aims to decodify the spatial system of favela by studying its configuration in comparison to historical organic structures. The purpose was to observe favelas in contemporary urban areas and its spontaneous processes as similar to other self-organized settlements. The Theory of The Social Logic of Space (HILLIER & HANSON, 1984) was the theoretical, methodological and technical approach for this research, allowing to read such phenomena by its spatial complexity. The study compared 120 settlements around the world explored according to a set of 26 configurational variables (among qualitative and quantitative, geometric and topologic). The results were compared with a sample of 45 Portuguese medieval towns (representative of organic cities).

The research intended to observe in which way the configuration of favelas, read through its spatial patterns, affected its sociospatial dynamics and how it approximates to common ways of organizing urban space: in which way favela reproduces historically consolidated spatial patterns inherent to organic cities? Despite being disregarded by its informality and the difficulty to apprehend its syntax this inherent spontaneity might work as a catalyser of spatial quality once its complexity is understood and decodified.

Findings show that recognized spatial patterns are mostly common to organic structures. And despite favelas being much denser structures, its internal dynamics reveal good global relations. It behaves similarly to consolidated urban systems and share common spatial logics throughout world regions and distinct cultures. This highlights the importance of self-organization as essential to favelas development reinforcing its spatial qualities through the process.



10:45 - 11:00

## **A Different Kind of Regularity**

K. Moretti<sup>1</sup>

<sup>1</sup>NTUA Phd Candidate, School of Architecture, Patission Avenue 42, Greece

In the beginning of the 21st century the Athens Metropolitan area has already become one of the largest in Europe with its population already exceeding 3.700.000. With the building environment of many urban areas "emerging" without the "elaboration" of an actual plan, Athens is fundamentally considered an informal City. Between the years 1988-1991 a study conducted by urban sociologists is provided for the Greek Capital. The research seems quite revealing, illustrating the unique processes of urban development that have been occurring within the city since during the early days of the new born state. The researchers stress the importance of "informal processes" in the configuration of urban space. While the city has been struggling to form its new cultural identity following the modern aspirations of a contemporary European Capital, at the same time, an unorthodox and heterogeneous expansion of the urban structure seems to have been effectively developing a spatial environment that embraces individuality and cultural differentiation. As the formal planning seems to always "come after", the city's landscape exhibits self-regulatory characteristics that often have an amending impact towards urban change. Contrary to other European Cities, this kind of "irregularity" that defines the City's development, generates a different kind of "regularity" that reflects directly on the city's urban form, illustrating contemporary Athens as a place of specific identity that relates to the rest of the Western Capitals not only by stating its similarities, but also by accentuating its "differences".

11:00 - 11:15

## **On the similarities between self-organised settlements and historic urban centres**

A. Venerandi<sup>1</sup>, M. Iovene<sup>2</sup>, G. Fusco<sup>1</sup>

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Medieval centres (MCs) of European cities are widely praised for their positive urban qualities (e.g., human scale, ease of movement by foot, mixed use). Such qualities are the result of a largely self-organised urban growth that has developed around the central role of the pedestrian. In the 20th century, these processes of spontaneous growth have been jeopardised by over bureaucratisation and a strict functionalist planning, stemming from the modernist movement. Nowadays, the processes of self-organisation that led to the construction of appreciated urban centres can only be found in informal settlements in developing countries, which, however, are strongly opposed by local officials and administrators. In the authors' view, this opposition fails to recognise that such settlements are structurally very similar to esteemed medieval centres and should thus be retained and upgraded rather than torn down. To validate such hypothesis and thus ascertain such similarity, we propose a quantitative methodology, based on a non-parametric test and correlation analysis. We applied the proposed methodology to compare 3 recently built self-organised settlements (SOSs) and 3 MCs of Italian cities. Results confirm that similarities are indeed present, especially for what concerns basic properties of the street network and the spatial distribution of commerce and services.

# **Urban Design : urban morphology, building typology and design A**

Friday, 05 Jul

10:00 - 11:30

Room: Meeting Room 1

**Chair: Wendy McClure**

10:00 - 10:15

## **New typologies for urban commercial settlements as drivers for urban regeneration processes**

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The exponential growth of the e-commerce phenomenon seems to suggest an onward dematerialization of retail's settlements, but paradoxically this is not the case. E-commerce is determining substantial changes in the ways of trade: commercial malls and shops are getting smaller, retail centers are more and more focused services and experiences more than on merchandise and prices and the importance of the proximity is constantly growing. Therefore retailers are not going to disappear but to evolve and adapt to become complementary to e-commerce services.

Even if commerce is often considered the origin of urban settlements, from the Sixties of the last century, together with development of transportations, the most important commercial settlements were developed outside of the city. While those commercial centers tried to mimicking urban typologies such as squares and alleys, city centers were struggling to save their commercial activities that were suffering for the competition with the always bigger shopping malls.

Nowadays the trend seems to invert. People get low prices and standard merchandises trough the e-commerce and look at urban retailers to get this feeling of urban life, collective vitality and community that it is not possible to get online.

Trough the analyses of three case studies in Northern Italy, this paper will show the role of typological approach in designing commercial settlements able to be effective drivers of regeneration for deprived or dismantled urban areas looking for regeneration processes, increasing interaction with urban fabric, mixed functions, high accessibility all day long and urban identity.

10:15 - 10:30

## Architectural Design and Urban Regeneration

P. Carlotti<sup>1</sup>

<sup>1</sup>Università di Roma "Sapienza", Dip. DIAP, Rome, Italy

The school building has always had to confront itself with the urban context in that it has been inserted. It has sometimes influenced the urban space by the form of a compact building, another time transforming it in a new open spaces that have interrupted the continuity of the historical or historicised tissue.

Contemporary instances of the city and the present society requires new roles for the school building. A continuous use that goes beyond the traditional teaching time, but also beyond its educational function dedicated to children only.

Today to school building is required new function, devoted to the city and to all age social groups. For a continuous training, but also for a continuous use of the spaces that, open to the people of the neighborhood, have to represent, in the Urban organism, a new centrality.

The goal of this paper is that to show the preliminary outcome of an international research, carry on, in parallel, from 'Sapienza' University of Rome and 'Laval' University of Quebec: "School and Community. New urban knots, tectonic and social for the regeneration of the building fabric and the town".

I mean to present herein some Architectural proposals,selected for the Rome area,in continuity to the historical process of the urban fabric,analysed through the behavior (Strappa, Carlotti, Camiz, 2016) of the Urban plots and block in the land register maps. Three Roman schools,in central and semi-central position,various building types into different urban fabric,analysed by the regressive method and the diachronic sequence of urban knots.

10:30 - 10:45

## **Research on the Catalytic Effect in the Urban Regeneration from the Perspective of Urban Morphology: Case study and Practice**

Z. Qu<sup>1</sup>, Y. Zhu<sup>1</sup>

<sup>1</sup>Tongji University, College of Architecture and Urban Planning, No.1239 Siping Rd. Shanghai, 200092, China

Since the rapid urbanization in many cities around the world, it is required more urban space for the further development. Thus, the inner cities are regenerated to take full use of the existing urban space. In the regeneration process, introduction of cultural facilities plays a crucial role. Based on the urban catalyst study by Wayne Attoe and Ernst Sternberg, the regeneration process could be regarded as a chemical reaction. The cultural facilities could increase the activities and attract economic investment.

This thesis takes two regeneration projects, Hackesche Market in Berlin and Canary Wharf in London, by cultural catalysts as examples, to analyze the constantly changing in urban morphology. The study concentrates on the interrelationship between new projects and various urban elements, which both make influence on the emerging urban form. According to the case study, the thesis would like to discuss two issues: how to observe the catalytic effect from the perspective of urban morphology, and how the cultural catalyst could be more effective to spur the surrounding development.

With the urban catalyst theory, the thesis provides a new respect to study urban morphology issue. It extends the potentialities of relational theories for urban studies as well. Moreover, at the end of the study, there is a conceptual urban design practice in Sijiqing District, Beijing, which illustrates the possible changing of the urban morphology by cultural catalyst. The research is subsidized by the National Science Foundation, China (No: 51808390).

10:45 - 11:00

## **Smart Plot Division, A Plot-based Strategy for the Refurbishment of Chinese historic Urban Areas**

P. Liu<sup>1</sup>

<sup>1</sup>Karlsruhe Institute of Technology, Architecture department, Durlacher Allee 43.  
76131, Germany

Chinese historic cities have experienced drastic transformations since the socialist revolution of 1949, in which an essential change is the reconstruction of the plot pattern. The historic plot pattern in a majority of Chinese cities was heavily damaged by constant urban renewals, while the renewed plot pattern lost its historically morphological identity. The transformation of plot pattern is directly influenced by plot division which serves as not only a planning apparatus but also a key link in the land development system. The damage of historic plot pattern has shown that the current plot division mechanism is not necessarily in favor of the conservation and continuation of historic cities. Taking Nanjing Old South area as an example, this research analyzes the plot division mechanism which is widely applied in the renewal of Chinese historic urban areas. The current plot division mechanism, established under the land banking system is in favor of generating megaplot. In many cases, plot division is made based on specific projects, typically accompanied with deficient control on urban form. In this sense, it is necessary to establish a set of smart plot division strategy to promote the refurbishment of the historic urban area. Smart plot division aims at not only protecting and continuing the historically morphological characteristics, but also fulfilling diversified land development needs in the historic urban area. The essence of the strategy is five patterns of plot division, corresponding to different land development intensity and morphological characteristics.

11:00 - 11:15

## **The importance of recognising the basic types when reconstructing areas devastated by disaster**

M. Teixeira<sup>1</sup>, S. Pereira Costa<sup>2</sup>, A. Pereira<sup>3</sup>, M. Medeiros<sup>3</sup>

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<sup>3</sup>UFMG, PACPS, R. Paraíba, 697 - Savassi, Belo Horizonte - MG, 30130-140, Brazil

This work aims to analyze and evaluate the existing types in the Bento Rodrigues sub-district of the town of Mariana, Minas Gerais, Brazil, so as to offer guidelines on the most efficacious form of reconstruction, taking into consideration the needs of the local population. The sub-district was recently devastated by the rupture of a mining dam in its immediate proximity. Bento Rodrigues was founded during the colonial period, in the eighteenth century, with the discovery and exploitation of gold. After the stagnation and gradual extinction of the gold mines, development was resumed with the implantation of iron ore mining from the 1970s. In 2015, a dam rupture led to the destruction of the village, incalculable environmental damage and the loss of 19 people. The compulsory requirement to construct a new village, made by the state organs, stipulated that the new settlement should be located close to the former. Thus, it was necessary that the project should encapsulate a study of the formation of the hamlet, considering the preexisting types. As such, an analysis of the village's phases of evolution was carried out and the most recurrent typologies, in each of these periods, were identified. Analysis of types and the mapping out of their respective transformations over time, it is hoped, can contribute to the new housing scheme and therefore better mitigate the losses of the residents, whilst at the same time, reflect the historical and cultural aspects of the population.



# **Urban Design : urban morphology, building typology and design B**

Friday, 05 Jul

10:00 - 11:30

Room: Meeting Room 7

**Chair: Chrystala Psathite**

10:00 - 10:15

## **Optimization of building density and road network density: in terms of the variation of building lot sizes and shapes**

H. Usui<sup>1</sup>

<sup>1</sup>The University of Tokyo, Department of Urban Engineering, 7-3-1, Hongo, Tokyo, Japan

Urban form at a district scale is defined as a unique combination of the following basic spatial objects: road networks, building lot patterns, and building configurations (Berghauer Pont & Haupt 2009; Oliveira 2016). In particular, a building lot represents one of the most important basic spatial objects of urban form. In recent theoretical and empirical works of downtown districts in Tokyo, it was found that (1) building lot sizes and frontages approximately follow a log-normal distribution; and (2) the parameters can be primarily estimated by building density (the number of buildings per unit area) and road network density (total length of road networks per unit area) (Usui 2018; Usui & Asami 2018). In my research, the rationale for the present building density and road network density will be discussed by taking the variation of building lot sizes and frontages into consideration based on a stochastic approach. Given the allowance for smaller building lot size than the minimum building lot size regulation and that for narrower building lot frontage than the minimum building lot frontage regulation (these minimum criterion are defined by Japanese building codes), the maximum building density and optimal road network density can be obtained. These findings are expected to provide urban planners with a theoretical basis to discuss the validity of these two density values (based on the deterministic approach that assumes uniform urban form) in terms of evaluating the policy effect (such as minimum building lot size and frontage regulation).

10:15 - 10:30

## **What formed the urban density: the relationship between human activity agglomeration and urban density distribution**

K. Liu<sup>1</sup>

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The significant imbalance in urban spatial distribution is an important feature of modern cities, especially those large cities. This paper interpreted the city as a massive and complex data processing system, focusing on the relationship between human activity agglomeration and urban density distribution.

The research took urban space within the inner ring of Shanghai as the main case, which was divided into 143 cells and each cell was 1 square kilometer. For each cell, three variables, floor area ratio, building coverage ratio and average storeys, were calculated to describe the character of urban density distribution. Furthermore, seven urban context elements (such as people density, residential price, urban trunk network density, subway station density and so on) were selected to analyze the multi-factor impact on spatial density, and to explore the differentiation characteristics and formation mechanism of Shanghai's urban spatial density on a large scale.

This paper proved that the spatial structure of Shanghai inner ring was still based on motor vehicle transportation, and the density was distributed very uneven between Pudong and Puxi. However, subway traffic showed an increasingly important impact on future urban spatial density. For the large cities such as Shanghai that had completed the preliminary urbanization based on the scale expansion, this paper proposed that density differentiation could be regarded as the core framework of spatial structural optimization.

10:30 - 10:45

## **Searching for the Balance between Public Realm and Built Density – a Resilient Planning Paradigm**

M. Hanzl<sup>1</sup>, L.M. Bezerra<sup>2</sup>

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Compact and mixed city paradigm has been proposed as a sort of universal solution to climate and resilient planning, that reduces travels, facilitates mass forms of transportation, decreases carbon emissions and energy consumption. Many questions arise, however, such as the desired densities, correct proportions of open spaces including green areas, the role and extent of transportation networks. Another topic is the integration of ecosystem services, and how to achieve this, considering the respect for local heritage and forms of past morphological structures.

This paper looks at some of these challenges, illustrated by the case study of the city of Lodz, Poland. This 19th-century textile industry town has been shrinking after the collapse of the industrial production. Its centre goes through large-scale transformations adapting to the challenges of a resilient town. We focus on the role of open - and especially green - spaces, notice their strengths and weaknesses, as well as the opportunities and threats that we encounter as planners. Analyses enable us to emphasise the necessity to balance the need for proper development densities and the requirement of open space.

The actual picture is joined by the presence of open spaces related to transportation land uses. We analyse the actual potentials behind the presence of these large open spaces and try to define future paths for their reuse in this paper. The discussion refers to the optimal model of a mixed-use development of a central part of the town, indicating at the possible alternative paths of its redevelopment.

10:45 - 11:00

## **The frontage: Uncovering the Public-private interface through sampling and categorization of micro-morphological solutions at street level**

E. Børrud<sup>1</sup>, A. Standal<sup>2</sup>

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This paper addresses the problem of realizing the potential of the urban experience through urban form. Urban experience comprises the detail of what we perceive as urban in the city; the relationship between buildings and cityscape, private and the public urban space and inside and outside; through the public-private interface of street frontage. It asks how we can develop a random sampling and categorization of micro-morphological solutions at street level into fundamental knowledge of a particular urban typology, which can work as a tool to produce urban form.

The paper describes a method of categorisation of types and discusses the value of this as process. Our approach (directed content analysis) develops existing theories to provide predictions about variables into an initial coding scheme and explores the relationships between the defined categories. This process of coding, type and pattern identification uses our survey of photographic examples from different cities, as a basis for refining and extending existing theories of interface typology.

The research shows that interface relationship occurs in two main dimensions, depth and spatial interaction of the threshold and visual and physical permeability of the façade each including 4 main categories with numerous morphological variations. We define this as façade-threshold through the matrix of interdependent relations and categories in a catalogue of interface types. The catalogue provides a defined knowledge of this relationship, which can contribute to the development of better design solutions and the understanding of how urban micro-morphology influences our urban experience.

11:00 - 11:15

## **Implementing the 'Small Blocks, Dense Streets' Principle in the Design of China's New Town: Problems and Strategies**

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In recent years, the urban design principle 'small blocks, dense street' which is originated from the New Urbanism in the US since the 1990s has been introduced into China's urban planning practice. The purpose is to deal with China's urgent urban problems related to the out of scale streets and blocks, vehicular traffic domination and congestion in cities. This shift in planning measures reflects a change from valuing the car to people in urban spaces. This design principle has been implemented in many of China's new town centers with vary success, such as Tianjin Yujiaobao Financial District, Beijing Central Business District's eastward expansion area and so forth. This article investigates the implementation of the 'small blocks, dense streets' principle in the planning and design of the central area of Nanjing Jiangbei New District. Problems and conflicts are observed between this urban design principle and the existing urban policies, technical standards, building functional requirements, government department regulations etc. The research offers suggestions to solve these problems: First, relevant policies and technical standards in China's current planning system need adjustment to be compatible with this new principle. Second, the resulted dense street network needs appropriate adaption within the project context to accommodate city functions and technical conditions in construction. Third, the implementation of the principle requires collaboration and coordination among different government departments, to establish an integrated management system in urban planning to deliver the expected outcome.

# **Methods 1 : embedding different approaches into the study of urban morphology**

Friday, 05 Jul

12:00 - 13:30

Room: Morphou

**Chair: Vincente Colomer**

12:00 - 12:15

## **Frontage rules: How societal ideas of legal regulation affect micro-morphological solutions at street-level**

A. Standal<sup>1</sup>

<sup>1</sup>Norwegian University of Life Sciences (NMBU), Department of Urban and Regional Planning, Universitetsstunet 3, Post Box 5003, N-1432 Aas, Norway, Norway

The production of the urban frontage reflects and is a result of societal ideas of its time. Rules, codes and regulations are social constructs derived from the dynamic relation between society (*civitas*) and built environment (*urbs*), forming one of the highest levels of societal consensus in the organization of city society. They represent collective societal ideas embodied in a legal framework, which determines the production of the physical public-private interface, the façade-threshold.

This paper explores how the regulatory description of public-private interface has developed over time and the nature of interaction/relation between society, built-form and the regulatory development of public-private interface.

Investigation is based on the development of the Norwegian regulatory system, from 1924 to the present day, through the Planning and Building Act and related technical regulations. A selection of eleven core documents are analysed using the lenses of assemblage theory and conventional content analysis through a procedure of coding, sorting, refining and defining. In particular this explores two dimensions, the frontage/façade-threshold and modality (or strength) of recommendation in the legal text (to what degree it is enforced). Chronological development of the changing regulation and morphological development of the urban frontage form a basis for analysis. This indicates a clear early focus on the urban frontage, as a priority, which reduces over time as both a regulatory and societal concern. The relationship between changing regulation and the morphology of frontage informs on the societal ideas and concerns which determine today's urban form.



12:15 - 12:30

## **Case study on the transitional boundary between public and private space in a Chinese traditional block**

L. Bao<sup>1</sup>, F. Hua<sup>1</sup>

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Studying on a typical traditional residential block, Xiao-xi-hu in Nanjing, we found that the boundary between the public and private space determined by ownership does not coincide with the one in actual functional reality and has shifted in various ways. Taking Xiao-xi-hu as the study case, this paper attempts to analyze the phenomenon and determination of the transitional boundaries between public and private space in terms of morphological typological approach. Traditionally, the courtyard buildings is the dominant building type in this block, which is clearly defined the boundaries between public and private. Since 1949, the private ownership was changed, the multiple families moved into some single-family courtyard houses. Thus, the inner courtyards also changed from completely private spaces to common space shared by several families. This study focuses on the above open space and divided it into three spatial levels according to ownership: the street space of public property, the entrance road space between property units, and the courtyard space between households according to the property rights. The actual land parcel in each spatial level have been chosen to be examined its ownership change, plane scale, layout, and use status, etc. Besides, it speculates these districts' diachronic evolution based on historical research, household interviews, and typological analysis. Based on the above research, the transition is mainly reflected in the three aspects: boundary movement; boundary blurring; boundary vanishing. Furthermore, the study has revealed the determination on the boundaries' transition, and their effects on spatial vitality, which can be the reference of the design and the vitality promotion for residential blocks.

12:30 - 12:45

## **Study on Urban Morphological Changes in Hangzhou from the 1950s to the 1990s: an Approach Integrating Oral History**

S. Fu<sup>1,2</sup>, P. Jin<sup>3</sup>

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<sup>2</sup>Seoul National University, Gyujanggak Institute, Gwanak 1, Gwanak ro, Seoul, South Korea

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Systematic interviews to compile an oral history of urban planning since the 1950s were first carried out as an extension of research into industrial city planning and construction during the first five-year plan (LI 2017). Although most current statements about 1950s Chinese cities have highlighted prominent socialist features (WU 2015), the oral interviews show more diverse development and localized paths. They repeatedly mention Hangzhou, one of the first cities to receive urban planning direction from Soviet experts, despite having no national industrial projects constructed during the 1950s. Hangzhou is often regarded as representing an ancient urban form typical of the Song Dynasty transition period (SHIBA 2002), and there have been recent studies on Hangzhou in the modern era and the 1950s (WANG 2000, FU 2016, QIAN 2015). However, it has not yet been studied for its potential in clarifying the overall nature and development path of China's urban planning since the 1950s, even though, as interviews show, Hangzhou was chosen to represent New China's urban construction achievements at the Moscow UIA congress (1958) and had a pioneering role in China's urban planning in each period since then. Based on this new understanding and new materials from studying oral history, this paper re-examines the process of morphological changes in Hangzhou from the 1950s to the 1990s to make a case for a better, more complete understanding of the overall characteristics of China's urban modernization transformation, and also verify the feasibility of an approach combining oral history with urban morphology studies.

12:45 - 13:00

## **Socioeconomic change and morphological transformations: the case of Yeniseysk**

E. Logunova<sup>1</sup>

<sup>1</sup>Siberian Federal University, School of Architecture and Design, Department of Urban Design and Planning, 79 Svobodny pr., 660041 Krasnoyarsk, Russian Federation, Russia

Yeniseysk was founded in 1619 during the period of Siberian land expansion and became the first Russian city in Central Siberia.

Over several centuries Yeniseysk played a leading role as the administrative, economic and cultural center of the Yenisei province due to geographical location. In the 19th century the loss of status of the administrative center had a fundamental impact to the city's socioeconomic development and determined the urban morphological structure.

The aim of the study is to analyze a historical process of spatial transformations the Yeniseysk urban fabric under an influence of socioeconomic factors. The morphological transformation of the city layout occurred and the morphotypes of built form were formed at different stages of city growth.

There are several phases in the historical and geographical development of Yeniseysk: from the consolidation of buildings around the urban core till the end of the 18th century to the period of stagnation in the early of 20th century.

The inner fringe belt is identified as a significant element of the city morphological structure. The considerable part of the historical-architectural ensembles is important for the Yeniseysk and Siberia architecture and concentrated within the boundaries of the inner fringe belt.

The historical city core has been entered onto UNESCO World Heritage Tentative List and undergoing a new stage of transformations. It needs to take into account features of formation periods of the Yeniseysk morphological structure and originated historical ties that can be useful for city reconstruction projects and the preservation of cultural heritage.

13:00 - 13:15

## **Space and Society: Changes of Spatial Form of Jiang-nan Towns and River Systems by the Influence of Socialist Granaries**

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During the first three decades of People's Republic of China, it seemed no other architecture more powerful than granary groups that can intervene in the traditional space form of some ancient Jiang-nan towns (distributed in the South of the Yangtze River near to the Lake Taihu). With a large area of land development and different architectural forms, the granaries were not only a formation of new kinds of space but also a making of new social fields for public events—delivering grain to granaries as the agricultural tax through river and canal systems. With the natural water network in the Jiang-nan area and the artificial waterway of the Grand Canal, a systematic and institutionalized grain depot network was established, and the relationship between the state, the local and individuals started to be established within the space of this systematic network. By applying Conzenian method of urban morphology and Space Syntax to analyze urban form and river systems connected cities, towns and villages, I would like to discuss the architectural, urban and political implications of the spatial changes and to argue how the socialist political economics influence had changed traditional Jiang-nan cities and towns in China.

# **Theory 1 : emergence, relational theories, the social sciences and urban morphology**

Friday, 05 Jul

12:00 - 13:30

Room: Ammochostos

**Chair: Paolo Carlotti**

12:00 - 12:15

## **New theoretical models and governance for territorial complexity**

C.B. Bellone<sup>1</sup>, J. Georgi<sup>2,3</sup>, R.C. Musacchio<sup>4</sup>

<sup>1</sup>Università Guglielmo Marconi, DIS, Rome, Italy

<sup>2</sup>Neapolis University, Landscape Architecture, Paphos, Cyprus

<sup>3</sup>Politecnico di Milano, Landscape Architecture, Italy

<sup>4</sup>Neapolis University of Pafos, Landscape Architecture, Cyprus

Today's cities, metropolitan areas, are "complex urban regions", where varied episodes and dissonant experiences reach a very high intensity; an intensity that clearly shows us that the traditional identification and planning criteria are today strongly under discussion.

The new settlement models assume the appearance of "nebulas". The new way of "functioning" of the city, the new form that urban form is taking, produces deep changes in the social and spatial configuration of the material and immaterial relations of the community.

It is necessary to research theoretical scientific and pragmatic, political and cultural models, to govern the complexity of the territorial reality.

The aim of the research lies in investigating the potentialities inherent in the transport infrastructure system and in the settlement-functional system both in representing paradigms for the reading and interpretation of metropolitan areas, and at the same time in becoming tools through which to direct their development.

The research has the task of verifying the possibilities and methods through which the infrastructures and mobility services and the qualitative and quantitative consistency of activities and innovative functions can be assumed as indicators of the degree of "metropolitan". of a territory and, consequently, be identified as "strategic levers" by which to guide the government and the urban transformations.

12:15 - 12:30

## **A relational thought on the traditional rural settlements in China Taking Dawan village as a case study**

Q. MU<sup>1</sup>

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The debate on the social-spatial turn have influenced the understanding of space in a dominant way in the past decades (Lefebvre, 1991), thus the absolute conception of space as a container for objects and processes shifted towards inclusive and multifaceted knowledge (Löw, 2016). The relations between spaces and social processes have been unprecedented recognized, and this shift requires a more complex and scientific methodology for analysis (Heley & Jones, 2012).

Urban morphology has been first considered as a methodology to address the urban design practices in order to reproduce organically space, then it attempted to understand the built environment in an analogical way in social, historical and physical terms (Oliveira, 2019).

We try to testify the above-mentioned notions in rural settlements because they are born to be "relational" due to their independence on geographical conditions, the intrinsic relationship with the social forms, and the cultural and social practices occurred in everyday life (Rapoport, 1969; Peng, 1992). Thus, we focus on a traditional village in China, Dawan, as a singular case study for its representativeness and generality, adopting the urban morphology approaches as an instrumental device to create the linkages between social form and space.

We trace firstly its morphological formation and social forms produced historically, then look at the current dynamics of the power relation in the social and political arena from which the social and spatial inequality have been generated in a transitional society.

12:30 - 12:45

## **Rituals, Stories, and Confucian Classics: the Construction of Eastern Capital Luo in Zhou Dynasty**

R. HU<sup>1</sup>

<sup>1</sup>Tongji University, College of Architecture and Urban Planning, 1239 Siping Road, Shanghai, P.R. China, China

Although many cities had already emerged and existed, the Eastern Capital City Luo (洛邑, built in the 11th century B.C.) of Western Zhou Dynasty (c.11th century- 771 B.C) in ancient China was one of the earliest cities with detailed historical writings of its emergence and construction. However, archaeological findings of Zhou Dynasty never coincide with the text of the ideal urban form, which was attached to the capital Luo in the Confucian Classics. This article will explain this ideal urban morphology of a foursquare city, city location of the "center" of the world, and urban systems of numerous rank orders not only by the planning ideology, but by analyzing the "scientific" and "technological" rituals and stories written and explained repeatedly by later Confucian scholars with their progressive knowledge of geography, astronomy, technologies, economics and politics. With archaeology of knowledge, I would argue that numerous Confucian exegesis had reconstituted the history and urban morphology ideal about traditional Chinese urban morphology of the capital city and I would distinguish the ideologies, discourses, and history of the original urban forms in this article.



12:45 - 13:00

## **Theoretical concept of morphological changes of Polish city centres after World War II**

T. Figlus<sup>1</sup>, Ł. Musiaka<sup>2</sup>, R. Szmytkie<sup>3</sup>

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The spatial structure of Polish cities has been formed over centuries and has been subject to various changes. In the second half of the twentieth century, these processes have been most pronounced in old, historic centres. They faced enormous morphological and functional changes due to the scale of WWII damage and urgent need to rebuild in a new political and economic realities of communism era. The aim of the paper is to present the model of different directions of urban changes in the centres of examined cities after 1945. A comparative analysis of the scale of spatial transformation was presented on seven examples of biggest Polish cities (Warsaw, Cracow, Lodz, Wroclaw, Poznan, Gdansk, Szczecin). The starting point of the analysis was the scale of war destruction and discussed model is based on different directions of morphological transformation, depending on the influence of external and internal factors. The proposed theoretical concept of changes of the city centres, based on empirical research is deeply rooted in Conzenian tradition of urban morphology. Town centres were divided into almost completely preserved initial spatial layouts with minimal modifications, those being mainly additive and non-destructive to the morphogenetic core; partially preserved layouts with considerable, but not total, spatial reorganisation that saved clear initial relics; and totally transformed spatial layouts, where morphological features have been completely erased.

13:00 - 13:15

## **The influence of urban design theories in the transformation of urban morphology : Montreal from 1956 to 2018**

F. Racine<sup>1</sup>

<sup>1</sup>UQAM, Urban Studies and Tourism, Case postale 8888, Succursale Centre-ville, Canada

Research on Canadian urban design, despite some notable exceptions, is relatively limited. This paper explains from an urban form perspective the practice of urban design in Montreal by studying representative projects built during the past six decades. Through the analysis of these projects, our principal aim is to understand how urban design approaches have evolved over time, and how they have influenced the morphology of the city. This research is important to develop a critical awareness of the impact of the action of urban designers on historical fabrics. To understand how planned built environments are structured and to study their relationship to urban form we need to bridge the gap between research in urban morphology and the practice of urban design. The research theoretical framework borrows concepts from linguistic studies that have influenced the discipline of urban morphology as a structural approach to urban form. To carry out the analysis of the case studies, we have developed from the literature of the discipline an organizational diagram that highlights the cognitive operations to design planned built environments. Our subject matter is the morphological system of relationship 'contained' in the material and spatial form of planned environments. This system gives way directly to the ideas that have shaped the practice of urban design throughout history. The main findings of the research show that the schools of thought that have nurtured urban design practices over time have especially influenced the link between planned built environments and city forms.

## **Focus 2 : Mediterranean port cities in a global context**

Friday, 05 Jul

12:00 - 13:30

Room: Halkos

**Chair: Stephen Marshall**

12:00 - 12:15

## **The seashore thickness. An assemblage of city and sea.**

S. Barreiros Proença<sup>1</sup>, F. Dal Cin<sup>1</sup>

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Numerous coastal settlements dot the Portuguese Atlantic shoreline. This line defines and limits one of the edges of the coastal strip where about 80% of the Portuguese population lives. On these coastal urban tissues, there is an acknowledged lead role and morphological diversity of streets, avenues and seashore roads on the conformation of the mediation between city and sea.

Contemporary global climate change promotes a gradual but inevitable sea-level rise. Therefore it is essential to build a solid knowledge of this type of urban element - the seashore street - as well as to develop extreme flood models in order to define adaptation measures to climate change. These are the main goals of the ongoing research on The Portuguese Atlantic Seashore Streets.

Nevertheless, the urban seashore is a complex system that should not be reduced to a line or a single urban element. In much the same way the Sahara desert edge has a thickness - the Sahel - a mutable space of mediation, the assemblage space of city and sea has a thickness where land and water coexist and overlap, defining a specific identitary place.

The paper addresses the comparative interpretation of different assemblage spaces in Portuguese coastal urban tissues. Combining morphological de-layering and elementary decomposition renders possible to address the complexity of elements and factors involved. Furthermore, highlights the multiple edges that juxtapose and overlap on this assemblage space, acknowledging specific, topical thicknesses of studied urban seashores, useful for the definition of the adaptation space in each context.

12:15 - 12:30

## **From hospitality to urban conflict: the transformation of morphologies in the Mediterranean ports**

R. Belibani<sup>1</sup>, D. Lefosse<sup>1</sup>

<sup>1</sup>Sapienza University of Rome, Italy

A port is a complex non-place to analyze, it narrates the history of the Mediterranean, expresses the ethos of its populations, their deep sense of hospitality. It often coincides with the founding nucleus or the door of a city, the economic pole, the favourite place for meetings and discussions. It also represents a limited and closed perimeter that excludes the view and the presence of the inhabitant. Thus, a port is often conceived only as an operational area, taking typical forms that are difficult to integrate into the urban pattern, and often becoming abandoned and after a degraded area. Increasing migratory flows make the waterfront a very topical issue for social and design disciplines: issues of segregation and cohabitation are associated with problems related to the use of the public space.

The aim of the research is to understand the mutual interactions between city and port, the morphological dynamics that have transformed the landscape into territory, the role of design as a vehicle for spatial regeneration and social integration.

With an integrated approach between morphology and design experimentation, some case studies applied aimed to reconstruct aspects of the historical evolution of the Mediterranean ports, recognizing port heritage and enhancing it with inclusion strategies. Regenerating the city from the waterfront means rediscovering spaces and habits, expanding economic and cultural horizons and creating a new community identity.

12:30 - 12:45

## **Cities of collages: a comparative study of urban morphology evolution between Macao and Monaco**

Y. Wang<sup>1</sup>, Z. Tan<sup>2</sup>

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Macao and Monaco share similarities in topography, climate and colonial history as two entrepôts at the two ends of the Euro-Asian Continent. Both of them have evolved into a unique urban construct as a “collage” reflecting the urban development traditions of their respective cultures. This paper conducts a comparative study of the urban morphology and its evolution process between Macao and Monaco, and explores the underlying determinants and mechanisms of the formation of their fine-grained urban fabric. By historicizing the developmental process of the two port cities, the paper analyzes the general spatial structure and typical features of them based on Conzen's analytic framework of Plan Unit, which includes the typology of buildings, streets and open spaces. Macao's Chinese residential area “Wei” is integrated with Portuguese planning “Parish”, while Monaco develops a “Mont Carlo Mode” on the base of “Quartier,” due to topographic, ethnographic, socio-economic and political settings. The land pattern of Macao and Monaco presents a hybrid of vernacular quarter and international quarter corresponding to the historical context and economic vision respectively. It is a result of reciprocal renewal, expansion and redevelopment in Macao's participatory planning and Monaco's authoritarian planning in the late and post-colonial period. By summarizing the morphological development models of Macao and Monaco, the paper profiles a vision of future coexistence of historical and cultural conservation and modern urban development of small and medium-sized port cities in the context of globalization.

12:45 - 13:00

## **Morphological Characteristics of Traditional Residential Districts in Chinese and Southeast Asian Port Cities**

H. Wang<sup>1</sup>

<sup>1</sup>Donghua University, Department of Environmental Art Design, Shanghai, China

From the rise of the ancient Maritime Silk Road via the Age of Discovery to today's globalized era, the development of maritime trade has transformed human lives and culture, and accordingly intensified changes in urban morphology, which would otherwise have remained relatively stable over the ages. The theoretical and methodological systems underpinning urban morphological analysis of Western traditional cities are relatively complete and mature; however, research on Chinese and Southeast Asian port cities, in which maritime trade began much earlier and had a more profound influence, is still scattered and unmethodical. In this paper, four typical port cities in China and Southeast Asia including Quanzhou, Guangzhou, Hanoi and Malacca are selected as case examples, and the morphological characteristics of traditional residential districts are expounded at two levels: street-block and plot. Comparative analysis is conducted at both of the two levels to explore important similarities and differences. This not only casts light on the motivation to transform traditional residential districts to adapt to commercial development, but also promotes the protection and renewal of traditional port cities in China and Southeast Asia, as well as providing inspiration and assistance in the future adaptive development of these port cities.

# **Urban Design : urban morphology, building typology and design A**

Friday, 05 Jul

12:00 - 13:30

Room: Meeting Room 1

**Chair: Elin Børrud**



12:00 - 12:15

## **"Human Component" in Urban and Architectural Heritage Management: Russian context**

D. Belova<sup>1</sup>, L.V. Gaikova<sup>1</sup>

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The overall history of approaches to urban architectural heritage and the understanding of the notion fluctuates significantly in terms of attached meanings, justification and reasoning. Apparently, each of the approaches reflects the value system along with the socio-cultural situation of its period. (Choay and O'Connell, 2001) The history of attitudes in Soviet Russia illustrates this statement brightly. (Deschepper, 2018; Ahmad, 2015) Currently, the human-values-oriented discourse dominates many scopes of academic and professional debates, and debates around "heritage management" are not an exclusion. (Watson and Waterton, 2010) Stating heritage as a process, D. Harvey among many other researchers shifts the focus from problem-solving paradigm to the identity-building potential of heritage. (Harvey, 2010) Supposedly, the definition of such controversial issue as an identity of the city through social narratives and connotations makes the notion more measurable and adds the degree of predictability to any operation within it. Following this logic, historical layers, embodied in the urban and architectural heritage of modern cities, include the certain "human component", both consciously and unintentionally, through the history of decision-making. In this case, the certain "democratization" of the decision-making process within heritage management may ultimately lead to the positive feeling of attachment of people and their environments. The article examines the development and the state of the notion of "human component" in heritage management, focusing on Russian context, questioning the potential applicability of more "democratic" approach to heritage management, in particular case of Siberia, Krasnoyarsk.

12:15 - 12:30

## **A typological study in urban historic preservation area in Nanjing**

W. He<sup>1</sup>, L. Tang<sup>1</sup>, W. Ding<sup>1</sup>

<sup>1</sup>Nanjing University, School of Architecture and Urban Planning, No.22 Hankou Rd, Nanjing 210093, Jiangsu, China

Building typology has played a rather important role in urban morphological research. Since typological process leading to morphological generation, understanding typological process is not only a part of morphological study, but also a part of work in urban design, especially in urban historic area preservation. Over the past 40 years, with the expansion of the city, many historic areas of cities in China have been gradually updated under the idea of protecting the types of historic fabric. It is valuable to evaluate how strongly related between urban fabric and building typology, and whether building types kept unchanging under the idea of urban fabric protection.

Firstly, based on the historic district at the south of Nanjing, this paper represents a morphological development during 1984-2017 to see its generation process, the idea, the policies and the dilemma in updating. Secondly, taking three areas developed in different periods as the cases, this paper has analyzed typological process by focusing on the building types, the geometrical dimension, function, spatial structures as well as the usage pattern. The results have shown the definition of typological process is important to clarify the urban morphological changing: in one hand for protecting the type of historic urban fabric, designers had to develop new building types to replace the old one, and in the other hand, using old building type has the value to protect historic urban fabric, however, these houses have been changed afterwards in order to fit the contemporary functions.

12:30 - 12:45

## **Territorial Model for the Management of Riverfront Areas as Public Spaces in Cities with Historical Centers of Monumental Value**

C. Zeballos-Velarde<sup>1,2</sup>, A. Burbano-Arroyo<sup>3</sup>

<sup>1</sup>Universidad Nacional de San Agustín, Faculty of Architecture and Urbanism, Av. Venezuela 400, Peru

<sup>2</sup>Universidad Católica San Pablo, Faculty of Engineering and Computing, Quinta Vivanco s/n, Arequipa, Peru

<sup>3</sup>Universidad Pedagógica Nacional, Grupo de investigación Pedagogía Urbana y Ambiental, Bogota, Colombia

As part of the AQParq Research Project, this paper discusses the proposal of a model for the management of riverfront areas as public spaces in cities with historic centers of monumental value, taking as a case study the Chili River in Arequipa, Peru. The study proposes a model of territorial analysis and a methodological approach that allows to understand the way in which the riverscape, as a territory, is conceived, used and managed. The theoretical framework on which the model is based is the conception of the city as a system of interfaces in which the river basin and the public space coexist and interact. The methodological strategy is mixed, starting from a documentary review, the analysis of interfaces and the field visit to several initiatives in Latin American cities which have developed or are in the process of developing riverfront recovery projects in areas of monumental, landscape or physical-spatial value. From a more specific point of view, it was possible to deepen in the analysis of urban heritage, the functions and relations of the institutions that intervene in the management of the watersheds; as well as to know the social and cultural characteristics of the inhabitants that interact in these areas. From this basis, we propose guidelines that contribute to enhance the river's identity and formulate criteria for the incorporation of public space in riverfront urban areas of monumental historical value. Finally, various models of management are proposed in order to suggest the development and sustainability of these strategies.

12:45 - 13:00

## **Urban Heritage Metamorphosis. A continuous reinvention.**

J.M. Silva<sup>1</sup>

<sup>1</sup>Universidade de Lisboa, Lisbon School of Architecture, Urbanism / FORMAURBIS lab, Rua Sá Nogueira, Pólo Universitário, Alto da Ajuda 1349-063 Lisboa, Portugal

The theme addresses the issue of the morphological evolution of the urban fabric in particular its relationship with the monumental buildings. As a hypothesis it is stated that the urban heritage is a product resulting from a creative process of invention. That is, it is a man-made physical and cultural identity that results from a constructive process, settled and never stagnant.

The main goal of this study is to understand how the urban heritage was systematically transformed, created and occasionally invented over time to identify and define the production process within the design project: addition, superposition or reproduction.

Methodologically, the study seeks to establish a reconstructive and morphological analysis of the urban heritage documenting its successive composition stages until our days. The result is the construction of a database possible to be used as a support in project planning, physical and social space. The phases identified are represented by analysis drawings organized in two scales: the urban context (1:2000) and the public space (1:500). Complementarily, intends to create a critique to the present heritage intervention process based on cross-cultural analysis considering the concepts applied in Portugal and in the Japanese heritage context.

In this way, add to the theme of conservation of the urban fabric the idea of a continues intervention in the production of the heritage sites, demonstrating that it is possible to add new steps, forms and identity values, to the evolutionary process of urban space.

# **Urban Design : urban morphology, building typology and design B**

Friday, 05 Jul

12:00 - 13:30

Room: Meeting Room 7

**Chair: Laura Vaughan**

12:00 - 12:15

## **Assemblages and Built Form: The case of secondary school buildings in Cyprus**

C. Psathiti<sup>1</sup>

<sup>1</sup>University of Cyprus, Cyprus

Traditional approaches to understanding built form tend to consider “space mainly as a shell or container, focusing on its morphological structures and functional uses” (Tornaghi & Knierbein, 2015, p. xv). Such consideration, however, ignores the complexity of physical form since it considers space as a container of action and a mere homogenous system. Thus, a more relational approach to space which embraces the embeddedness of various actions in the formal composition is required.

Thus, the aim of this paper is to examine one of the most important ordinary building types in the urban landscape – school building through a more relational approach to the consideration of urban form. In this research school building typologies are treated as socio-spatial constructs by conceptualizing the underlying social logic behind their formal composition. In that sense, this paper aims at addressing the extent to which school building's formal configuration is related with the specific site's characteristics (i.e. dimensions, shape and size of the plot), programmatic articulation of functions as well as with certain actors' actions, processes and conceptions that occur behind the apparent physical form of this archetypical building type.

All secondary schools built in Cyprus after 2000 by different architects will serve as case studies. This selection is based on the fact that educational environments are approached by this study as socio-spatial structures thus in order to compare and contrast schools, sample should be embedded within the same socio-educational period. The methodology implemented for this study examines spatial and social processes through formal, typological, spatial and functional analysis of the school unit and data from on-site observations of space usage. The analysis of the school building is extended over scales and explores: school formal composition and social agency, school's plot and adjacent street network, school plot and the overall school spatial, formal and functional composition, social agency within school and space usage behaviours.

The contribution of this study lays on the introduction of a consistent way of approaching architectural morphology through a multi-layered and multi-scale methodological approach that offers a starting point for incorporating a framework of analysis able to capture complex socio-spatial relations and the role of agency in urban form emergence.

12:15 - 12:30

## **Space syntax, urban transformation and liveability: a campus case study**

P. Osmond<sup>1</sup>, F. Forghani Fard<sup>1</sup>

<sup>1</sup>University of New South Wales, Faculty of Built Environment, Sydney 2052, Australia

University campuses frequently occupy the leading edge of urban development, with sustainability as an increasing driver (Leal Filho, 2012). A university campus thus represents a useful 'living laboratory' to understand the formation and transformation of built form, towards more sustainable outcomes. The main campus of the University of New South Wales (UNSW) in Sydney, Australia was the focus of a space syntax study in 2007, during a wider project which examined landscape, microclimate and other quantitative and qualitative properties from an environmental and liveability perspective (Osmond, 2010). The following decade saw significant changes to the campus fabric, affecting both buildings and public realm. This paper discusses the reapplication of space syntax to the 2017 UNSW campus, using the accessibility metrics of connectivity, integration and choice (Xia, 2013). The University's central mall was found to retain its status as the core 'people place', easily accessible from all parts of the campus. However, connectivity and integration values suggest that the post-2007 development of student housing has activated what was a poorly resolved area of the University, with potential for further revitalisation. Also after a decade, the campus boundaries have become less integrated, implying a more inward-looking focus. The research results suggest that the longitudinal application of space syntax methods can shed light on the interaction between urban development and liveability (social sustainability), at least for the microcosm that is a university campus. As well as prompting further research, this project has provided a practical knowledge base to help inform future campus development.

12:30 - 12:45

## **The Morphological Side of University-City Interaction**

H. Razavivand fard<sup>1</sup>, M. Trisciuglio<sup>1</sup>

<sup>1</sup>Politecnico di Torino, Department of Architecture and Design (DAD), Torino, Italy

University campuses are place-based large institutions which create a direct interaction with their surrounding urban setting. Universities are shaping and being shaped by their urban context. They are influential actors in urban dynamics of their territories. Considering universities' third mission, they are key urban development elements in terms of social, cultural, economic, environmental, and physical aspects. The spatial organization and morphological characteristics of universities demonstrate the extent and type of their interaction. Within a long course of the history of higher education institutions, they have expressed various types of integration or separation regarding their adjacent urban space. The kind of this relationship influences their mission, function, form, and character and have an impact on their internal organization. This paper focuses on the university-city interaction. It explores the physical features and morphological characteristics of university campuses and urban form of their surrounding context. It examines the fundamental architectural and urban elements as the bases of this interaction and analyzes various types of university insertion within the urban fabric. For this purpose, a comparative analysis of the identified six typologies of university campuses is carried out. The methodology encompasses a spatial analysis of selected university campus plans, morphological analysis of the urban form of their hosting urban space, and critical reading of their morphological characteristics. It will be attempted to demonstrate the morphological side of the relationship that the identified university campus typologies shape with their residing cities.



12:45 - 13:00

## **Ducal Temple of Santissima Annunziata, Camerino: Urban Morphology and Design**

S. Khalil<sup>1</sup>, A. Camiz<sup>2</sup>, G. Verdiani<sup>3</sup>

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<sup>2</sup>Ozyegin University, Department of Architecture, Nisantep Mah, Orman ok 34794, Istanbul, Turkey

<sup>3</sup>Universita degli Studi di Firenze, Department of Architecture, Piazza di San Marco, 4, Firenze, Italy

Bridging the divide between urban morphology and design, the aim of this study is to analyse and bring into practice, design derived from morphological data. Amidst the post-seismic conditions and need for reconstruction, an emerge of essential questions; How does the discipline of urban morphology determine the design outcome? What happens with the old and what about the new? Through a contrastive analysis and close investigation of the church in its current condition, the paper proposes to undertake a reconstructive study of the extant remains using a variety of digital tools in the context of a strictly geometric approach to arrive at a complete 3D digital reconstruction for further intervention. Expanding a concept of urban morphology as urban heritage, the paper argues the morphological growth of the Tempio Ducale della Santissima Annunziata and a future post-seismic reconstruction proposal.

13:00 - 13:15

## **The interactive relationship between spatial conditions and visitors' behaviour within the large and small-sized museums**

M. Kim<sup>1</sup>

<sup>1</sup>UCL, Spatial Design: Architecture and Cities, 22 Gordon St, Kings Cross, London WC1H 0QB, United Kingdom

Museums primarily aim to convey social knowledge through their social conditions. The interpretation of knowledge amongst Museum visitors varies depending on spatial use and layouts designed to reflect contemporary social circumstances. Our study investigates the relationship between visual-spatial conditions (spatial size, use and layouts) and visitors' behaviour within a museum, from a social-spatial standpoint. During the study, two London museums (The Victoria & Albert Museum and The Design Museum) with differing the spatial conditions were subject to the linear and multiple regression tests using Visual Graph Analysis from Depthmap and by monitoring Visitors' viewing behaviour. The results are as follow; It was found that the size of a museum, in relation to its complexity and centrality, affected the pattern of visitors' circulation and spatial distribution in terms of spatial information and knowledge cognition. Consequently, the behaviour exhibited by visitors changed in relation to spatial use and layouts of the museums. Furthermore, the linear and multiple tests revealed this relationship creates different patterns within the behavioural-spatial network of visitors in relation to the spatial-information system within the museums. In light of the study, it's plausible that museums create fixed and deterministic network in a rational way or interrelated and probable network in a natural way based on the aforementioned relationship from the social perspective. In other words, a Museum achieves varying levels of social education in a closed or opened way, is determined by its spatial-behavioural network with visitors reflecting the shape of the public's social experiences in a modern society.

## Poster Presentations

Friday, 05 Jul

12:00 - 13:30

Room: Zenon Kitieus

**Chair: Elena Konstantinidou**

12:00 - 13:30

## **Study on the Optimization Design Strategy of Urban Fragmented Space from the Perspective of Architectural Typology**

S. Xie<sup>1</sup>, Z. Li<sup>2</sup>

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In the relational theories and researches, it is widely recognized that the urban space should be valued while the urban fragmented space, also as a part of the public space, which is closely and inseparably related to people's daily life, got very little attention in the process of rapid modernization. Such space is often ignored both by users and designers.

This paper takes the fragmented space in Shanghai as an example, applying the theory of architectural typology and urban morphology to define the urban fragmented space and analyse the formation cause, spatial forms and elements. Through the field investigation and theory research, it concludes the existing problems of urban fragmented space such as the low spatial utilization efficiency, environmental pollution and poor spatial quality.

It proposes the optimization design strategy from the aspects of function definition, interface and detail design, scale control and the application of new technology. It hopes to have a positive effect on the design and development of the contemporary urban public space, improving the quality of urban space and providing a more comfortable and energetic space for citizens.

This paper is subsidized by NSFC project which is named as Research on Technical System of "Downtown Factory" Community-oriented Regeneration in Yangtze River Delta Region, NO.51678412.

12:00 - 13:30

## **Study on the Evolution Strategy of Urban-morphology under Ecological Framework: Take Sowolro 20-gil Street Design in Seoul as Example**

W. Wu<sup>1</sup>

<sup>1</sup>Tongji University, College of Architecture and Urban Planning, (No.1239, Siping Road, 200092, Shanghai), China

As an international metropolis, Seoul has the same problems as any other cities. Rapid urbanization has caused severe problems such as population expansion, traffic congestion, environmental degradation and water shortages. Human's encroachment on habitat has caused serious damage to biodiversity.

Sowolro 20-gil street is on the ridge of Namsan, which is located in the core area of Seoul. There was a large area of green land, but it is gradually disappearing due to people's occupation. This paper takes it as the object, through the methods of literature research and field investigation, explores the evolution process of its space form, and analyzes the reasons for the disappearance of natural landscape of Namsan.

Based on the original urban texture and sponge city theory, the author designed 6 different ecological landscapes in an attempt to regenerate Sowolro 20-gil street : waterfall landscape, oxygen pool, grassed wetland, waterfront church, ecological baths and community exhibition wall. In this way, the water circulation on the ridge can be achieved. On the other hand, the living conditions of residents will be improved and the space form of Namsan will gain regeneration. Under the ecological framework, the author provides a possibility for the evolution of future urban-morphology, and the paper plays a reference role in the future research and practice of urban-morphology.

This paper is subsidized by NSFC project which is named as Research on Technical System of "Downtown Factory" Community-oriented Regeneration in Yangtze River Delta Region, NO.51678412.

12:00 - 13:30

## **The inner fringe belt of Alcalá de Henares, Spain**

M. Palomar-Anguas<sup>1</sup>

<sup>1</sup>URJC, Human Geography Area/ Education Sciences, Language, Arts and Culture, Legal History and Humanistic sciences and Modern Languages Departament, Calle Tulipán s/n, Móstoles, Madrid. CP: 28933, Spain

### Abstract

This paper is focusing on the study of the inner fringe belt of Alcalá de Henares, Spain, which delimits the area declared World Heritage by UNESCO but is also inserted in the medieval old town. In order to analyze the evolution of the inner fringe belt in different historical periods, we have used a sketch made by Lecanda at the end of the 19th century in which he locates the university colleges, convents, religious buildings and the houses of Cervantes according to their location in the 16th and 17th centuries.

On the other hand, the city map published by the Geographical and Cadastral Institute in 1870 has been used to include the modifications experienced by the city after the "Desamortización of Mendizabal", which meant a change of use of many of its religious and university buildings.

Finally, the inner fringe belt of the current city will be mapped based on the 2018 cadastral map and the fieldwork. This map is used also as the base to dump the information of all the periods and draw the inner fringe belts.

The historical evolution of the city has generated a complex distribution of fringe belts which are represented and described in this paper.

12:00 - 13:30

## **Reshaping space by Power and Capital in Urban Renewal: Case study of XinTianDi, Shanghai**

Y. Gan<sup>1</sup>, Z. Li<sup>1</sup>

<sup>1</sup>Tongji University, College of architecture and urban planning, NO.1239 Siping Street Yangpu District, Shanghai. 200092, China

Urban Renewal is a popular theme regarding city development nowadays in China. How power and capital can influence the urban renewal? Based on the theory of Space Production, the paper will analyze the Shanghai XinTianDi project by a political economy approach.

First, the paper will review the emergency and the development of the theory of Space Production and the situation of urban renewal in China. Second, the paper will analyze the influence of power and capital on the urban form by taking Shanghai XiTianDi project as an example. It will reveal that in the urban renewal, the government uses the administrative power to make sure: the establishment of the historical building protection units, the focus on the transformation of the Lilong Neighbourhood and the cooperation of the government and enterprise. Meanwhile, the developer will transform the space into a consumption space regarding economic interest from three strategies: replacing the function from dwelling to commerce based on the protection of the historical building units, reshaping the inner space structure by adding the main street into the traditional Lilong system and organizing the trade state separately in South Li comprised of modern architecture and North Li comprised of traditional Lilong housing. Last, based on the above analysis, a few problems will be raised: the lack of the public participation, the strong exclusiveness of commercial space and the alternative representation of the nostalgic space.

This paper is subsidized by NSFC project (No. 51678412).

12:00 - 13:30

## **Study on the Spatial Form of Suzhou Historic District Based on Conzenian——Taking Pingjiang Road in Suzhou as an Example**

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<sup>1</sup>Tongji University, College of Architecture and Urban Planning, Tongji University, No.1239, Siping Road, Yangpu District, Shanghai, China

Based on the Conzenian, this paper focuses on the urban morphology by doing a research on historic district in Suzhou, a famous historical city in China with a history of 2,500 years. And proposing the urban development strategy about protection and renewal of Suzhou. Suzhou is known as the 'Oriental Venice' for its unique city texture, a complex water system. However, in the past two decades, China's urbanization construction has developed rapidly. While pursuing speed and economic benefits, the destruction of urban historical and cultural heritage and the disappearance of urban characteristics are one of the most serious costs.

This paper will introduce the conceptions of urban spatial form and texture, and summarize the urban texture characteristics of Suzhou ancient city. Taking the Pingjiang Road of Suzhou as the research object, and analyzing the edge space, river and road structure, courtyard space conformation and features of street and alley. Meanwhile, combining with the whole structure of Suzhou's historic district, the urban typological and space syntax approaches of Suzhou ancient city is summarized.

The study of the spatial form of the historic district in Suzhou is conducive to the protection of urban texture, shaping urban characteristics, and proposing development strategies for urban construction correspondingly.

This paper is subsidized by NSFC project which is named as <Research on Technical System of "Downtown Factory" Community-oriented Regeneration in Yangtze River Delta Region>, NO.51678412.



12:00 - 13:30

## DE LA PARCELLE A UNE VIE DE VILLE Cas du quartier "centre ville" de Béchar

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Plusieurs chercheurs jugent que la ville est en situation de crise à travers son éclatement, sa fragmentation, sa discontinuité, la perte de son unité et par conséquent de son identité. Nos villes en Algérie n'ont pas échappé à ce sort, il est impératif d'ouvrir le débat sur la question des "formes urbaines" et "modes de production de la ville"; des recherches approfondies nous aideront de mieux comprendre la réalité de nos villes, et de se réapproprier les outils et savoirs faire pour y intervenir.

A travers les différents travaux que j'ai effectué sur le quartier nommé "centre ville" à Bechar, à commencer par une approche typo morphologique, puis juridique et actuellement une herméneutique des formes urbaines de ce quartier, je peux dire que le processus est long mais le quartier évolue, change tout en gardant sa forme urbaine originelle qu'elle soit typologique formelle ou significative, mais en même temps il s'acquiert de nouvelles formes urbaines. Ce quartier se présente comme un réceptacle et un palimpseste de l'expérience humaine où s'accumulent et se stratifient différentes planifications, productions et représentations de formes urbaines. En comparant avec d'autres quartiers avec d'autres logiques de division du sol autres que le parcellaire (bâtiments), mon questionnement est que la ville commence par une division du sol, évolue et devient un phénomène complexe (une morphologie, une image, une vie) et s'acquiert une personnalité, est-ce que cette première division a une influence sur cette personnalité? ou lui donne certaines qualités?

12:00 - 13:30

## Spatial configuration of the vernacular tissue. Cross look and multidimensional vision.

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From the morphological point of view, depending on the parcel geometries, the organic spatial configuration singles the ksour of southern Algeria. The complexity of the tissue, the continuity and the opening of the spaces, the great topological and morphological variety of the external space, the difficulty of the spatial representation put more emphasis on the confusion in the Ksourian spatial ensemble. This paper aims to question the spatial configuration through a transversal hybrid approach that takes into account both the physical (spatial) and non-physical (social and sensitive) approach. This reading will not lose sight of the "existential hold" as the foundation of the relation man milieu and its different spatial declensions as responses to concrete situations. Indeed, two levels of reading are envisaged.

- The paradigm of the physical environment and social behavior will be studied according to the method of spatial syntax (B. Hillier, 1987) by the Depthmap software. It is a relational approach to identify the syntactic properties of the spatial configuration manipulating relational and topological parameters. These settings help us to read some social-cultural codes of control, filtering, privacy, ... etc.
- The reading of the space is not limited only to its built and visible aspect but it gives a frame to the vitality of the body. It is an ambient approach to identify the sensible qualities of the spatial configuration, calling on various analysis registers (sensitive forms, sound effects, lighting effects). These qualities aim to interrogate places in order to determine their ambient impregnations.

This approach will be applied to the ksour of southwestern Algeria and particularly to ksar of Kenadsa.