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PhD Summer School 2016

# DESIGN+ TECTONICS:

Working in the Space  
Between Theory  
and Practice

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**Monday 4 July – Wednesday 6 July 2016**

Organised by the Architecture, Culture and Tectonics Research Group



# Summer School Programme

## Monday 4 July

Room A30 - Arts Lecture Theatre,  
South Entrance to University Park Campus

- 4.30pm – 4.45pm Introduction  
4.45pm – 6pm **Keynote lecture:**  
**Professor Manfred Grohmann,**  
Bollinger and Grohmann  
6pm – 7pm Drinks reception at Lakeside  
Arts Centre, University Park

## Tuesday 5 July

Room C10, Sustainable Research Building,  
Department of Architecture and Built Environment

- 9.30am – 10am Tea and coffee  
10am – 11.30am **3 PhD students from Nottingham  
ACT Group:**
- **Mr Xin JIN**  
“Re-appropriation of material  
(physical, textual and typological)  
in the architecture of Wang Shu”
  - **Ms Jing YANG**  
“Tectonics of ‘Weak Architecture’  
in 3 projects by SANAA”
  - **Dr Nils JAEGER**  
“Bodily interactions with adaptive  
architecture”
- Discussion led by **Jonathan Hale**  
11.30am – 12pm Tea and coffee  
12pm – 1pm **2 PhD students from Kassel  
University:**
- **Mr Moritz RUMPF**  
“Informed Form Generation:  
Embedding multi parameter  
optimization into architectural  
design”
  - **Mr Phillipp EISENBACH**  
“Processing of Slender  
Concrete Shells: Fabrication and  
installation”
- Discussion led by **Professor  
Manfred Grohmann**

- 1.30pm – 2.30pm Break  
2.30pm – 3.30pm **2 PhD students from KADK CINARK Group:**
- **Mr Torben THYREGOD**  
“Daylight, Health and Better Well-being: Glass as a catalyst for sustainable transformation of existing housing”
  - **Ms Henriette EJSTRUP**  
“The tectonics of reuse: Learning sustainable energy optimizations from the past”
- Discussion led by **Professor Anne Beim/Ulrik Stylsvig Madsen**  
3.30pm – 4.00pm Tea and coffee  
4.00pm – 5.30pm **3 PhD students from AHO, Oslo and KTH, Stockholm:**
- **Ute GROBE (AHO)**  
“Making a Case: The potential of horizontally densified housing as a contemporary timber typology for Norwegian cities”
  - **Jan STRUMILO (AHO)**  
“Ten Propositions for Urban Timber: Developing guidelines for the multi-storey timber city”
  - **Marja LUNDGREN (KTH)**  
“Nearly Zero Energy as a Design Parameter: A study in tectonics and morphology for nearly zero energy architecture”
- Discussion led by **Tim Anstey**

## Wednesday 6 July

Invitation Only

- 8.15am – 10.00am Site visit: Sustainable Chemistry Building, Jubilee campus  
12pm – 1pm Lunch - Room C10, Sustainable Research Building,  
Department of Architecture and Built Environment

Room C10, Sustainable Research Building,  
Department of Architecture and Built Environment

- 1pm – 2pm **2 PhD students from Newcastle University:**
- **Mr Kieran CONNOLLY**  
“Default in Architecture: the history, design and logic of the suspended ceiling”
  - **Mr Thomas KERN**  
“Introvert Monoliths: the narrative, the memory and the future of Brutalist churches in Central Europe”
- Discussion led by **Jonathan Hale (on behalf of Professor Adam Sharr)**  
2pm – 3pm Wrap-up/closing discussion:
- The links between research and practice
  - The role of tectonics in the age of digital design

# Supervisors

## Professor Manfred Grohmann

Principal of engineers Bollinger and Grohmann, Frankfurt, and Honorary Professor at The University of Nottingham.



Manfred Grohmann is a founding principal with Klaus Bollinger of the international engineering company Bollinger Grohmann Engineers. Based in Frankfurt am Main, they are also present in Berlin, Munich, Vienna, Paris, Oslo and Melbourne. With these teams they are active in 20 countries outside Germany.

Over thirty years Manfred Grohmann and his team have been working with a large number of internationally recognized architects on structurally challenging projects including Peter Cook, Coop Himmelb(l)au, Frank Gehry, LAVA, Dominique Perrault, SANAA, Snøhetta, Zaha Hadid and scores of others.

Manfred Grohmann has been a Professor for Structural Design at Kassel University since 1996, Guest Professor at the Städelschule, Frankfurt since 2000 and at the ESA – École d'Architecture, Paris since 2007 and has taught at Darmstadt Technical University.

He is involved in research partnerships with several international Universities.

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## Professor Anne Beim

Director of CINARK, Centre for Industrialized Architecture, The Royal Danish Academy of Fine Arts - Schools of Architecture, Design and Conservation (KADK), Copenhagen.



Anne Beim received her M.Arch. in 1990 and her PhD in Architecture in 2000 from the Royal Danish Academy of Fine Arts School of Architecture (KADK). Part of her PhD studies has been conducted under Professor Marco Frascari and Professor David Leatherbarrow as a visiting scholar at PennDesign, University of Pennsylvania.

Since 2004 she has chaired the research center CINARK - Centre for Industrialized Architecture, which serves to bridge the gap between the architectural education, the construction industry, and the architectural profession. In 2008 she was appointed professor of Architectural Technology at KADK and from 2014 she has co-chaired the Graduate Program; Settlement, Ecology and Tectonics. <https://kadk.dk/en/programme/settlement-ecology-and-tectonics>

From 2008-2010 she was the Chair of the Architecture Committee of the Danish Arts Foundation and since 2013 - the Chair of the Admission Board of the Architects Association in Denmark.

Her research focuses at how architectural ideas translate into the world of constructions; defined as building culture and tectonics.

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## Professor Tim Anstey

Chair of PhD Programme in Architecture, The Oslo School of Architecture and Design.



Tim Anstey is an architect, and joined AHO as Chair of the PhD Programme in 2013. He is affiliated to the institute of Form, Theory and History and a member of OCCAS. Until 2013 he was Director of Research at KTH School of Architecture, Stockholm in which role he worked with developing research culture and research-driven Masters Education. He has a strong interest in the history of the disciplines around architecture and design, with a focus on how ideas about the role of the architect have been inscribed into discourse. From 2011–2013 he was co-director of the Swedish National Strong Research Environment "Architecture in the Making". He is on the editorial board of SITE Magazine.

His current research project, "Things that move" received funding from the Swedish Research Council 2014–2016. The project makes a revisionist reading of canonical texts in architectural history to uncover open up a discussion about the architectural work – whether it is to be constituted through the design of objects or processes.

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## Dr Ulrik Stylsvig Madsen

Associate Professor, Architect MAA / PhD, The Royal Danish Academy of Fine Arts - Schools of Architecture, Design and Conservation (KADK), Copenhagen.



Ulrik Stylsvig Madsen is an associate professor at the Royal Danish Academy of Fine Arts, School of Architecture and a part of the research centre CINARK Centre for Industrialised Architecture.

In 2009 he defended his PhD thesis, which focused on architecture as an important part of the creation of identity, both for organisations and individuals. Since he became an associate professor in 2015 his research and teaching has focused on ecology, industrialised architecture and tectonics.

He is the author of several articles and books on these subjects and the co-editor of the anthology Towards and Ecology of Tectonics – The need for rethinking construction in architecture published in 2014.

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## Dr Jonathan Hale

Associate Professor and Reader in Architectural Theory, Department of Architecture and Built Environment, Faculty of Engineering, The University of Nottingham.



Dr Jonathan Hale is an architect, Associate Professor and Reader in Architectural Theory. He is Head of the Architecture, Culture and Tectonics research group (ACT) and Convenor for Architectural Humanities II, and Design, Culture and Context modules.

Research interests include: architectural theory and criticism; phenomenology and the philosophy of technology; the relationship between architecture and the body; museums and architectural exhibitions. He has published books, chapters, refereed articles and conference papers in these areas and has obtained grants from the EPSRC, the Leverhulme Trust, British Academy, and the Arts Council.

He is founder and current steering group member of the international subject network: Architectural Humanities Research Association (AHRA); a member of the interdisciplinary Science, Technology and Culture research group, hosted by the Department of French, and the Sense of Space group, a collaboration with the Departments of Philosophy and Sociology; and a Management Board member for the University's Research Priority Area in Creative and Cultural Industries.

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## Professor Adam Sharr

School of Architecture, Planning and Landscape, Newcastle University.



Adam Sharr researches how architecture illustrates the values of the cultures and individuals that have produced it.

His books include Heidegger's Hut (MIT Press, 2006), Reading Architecture and Culture (Routledge, 2012) and Demolishing Whitehall: Leslie Martin, Harold Wilson and the Architecture of White Heat (Ashgate, 2013, co-written with Stephen Thornton and commended in the RIBA Presidents' Awards for Research).

He is Professor of Architecture at Newcastle University, UK, where he will become Head of Architecture, Planning and Landscape in August 2016. Adam is also Editor-in-Chief of *arq: Architectural Research Quarterly* (Cambridge University Press) and Series Editor of *Thinkers for Architects* (Routledge).

He practices through Adam Sharr Architects and Design Office, both based in Newcastle, and his practice expertise is in houses and housing, architectural conservation, and libraries and learning spaces.

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# The University of Nottingham presenters

## Mr Xin Jin



### PhD Architecture, The University of Nottingham

Xin Jin is a Chinese architect and researcher in architecture theory. He receives his bachelor degree in Sichuan University, and master degree in Chongqing University, China. He is now the Ph. D candidate in The Department of Architecture and Built Environment of The University of Nottingham, UK.

His research interests include: architecture design theory and criticism, text theory and structuralism, the relationship between typological writing and building, labyrinth in contemporary architecture.

He has published papers on the American architect Louis I. Kahn's Capital Complex in Bangladesh, critical pieces about the Japanese architect Tadao Ando's work, and formal analysis on the Chinese architect Wang Shu's writing and building.

His current research project Passing through Labyrinth: Three Readings on Wang Shu's Fictionalizing Cities and Xiangshan Campus of China Academy of Art abandons the history interpretative approach and aims to establish the generative relation between architecture treatise and building forms.

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### Title: *Passing Through the Labyrinth: A Diachronic Reading of Wang Shu's Fictionalizing Cities*

**Abstract:** This presentation describes the analytical approach applied in my PhD research about the contemporary Chinese architect Wang Shu, winner of the prestigious Pritzker Architecture Prize in 2012. The research focusses on his doctoral thesis Fictionalizing Cities, completed in 2000 at Tongji University in Shanghai, which is commonly taken to be the architect's definitive statement of his architectural theory and design approach.

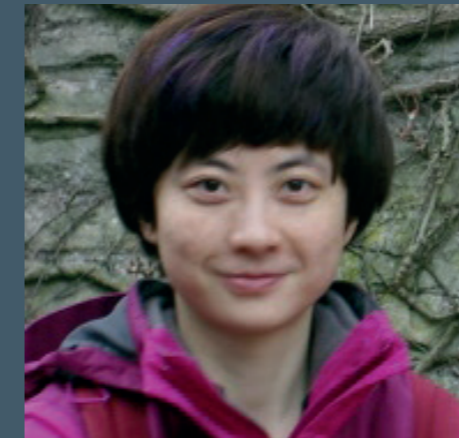
Rather treating an architect's writing as simply an explanation and interpretation of his or her practice, the reading approach introduced here tries to experiment with a textual analysis which makes a constructive parallel with the analysis of building forms. Taking typological writing as the point of departure, my reading of Wang Shu's work focuses on the synchronic similarity instead of the diachronic unity in the text, and turns its attention from the one-dimensional semantic chain to the two dimensional temporal-spatial experience. This shifting of research interest allows various contradictions within the text to emerge, such as: continuity and discontinuity, plurality and unity, symbolism and logic, medium and fragments,

analogy and alienation, dialogue and monologue, message and experience – all of which can then be discussed in a more precise manner. Finally, this research demonstrates the interaction of two genres of writing: literary novel and academic dissertation.

#### Key Words:

- Contemporary architecture
- China
- Wang Shu
- Fictionalizing cities
- Typological writing
- Textual analysis

## Ms Jing Yang



### PhD Architecture

Jing Yang is currently a third year PhD student in architecture at The University of Nottingham.

She obtained her bachelor degree in Southwest Jiaotong University and holds a MArch degree from Southeast University in China.

She worked in China Southwest Architectural Design and Research Institute Corp. Ltd in 2009, and participated in many projects in her supervisor's practice in China from 2010 to 2012.

She also was a tutor in Year 1 Architecture Design Studio in The University of Nottingham in 2015.

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### Title: *Weak Architecture: The Ambiguous Role of Materiality in the Work of Contemporary Japanese Architects SANAA*

**Abstract:** There is a confrontation between the necessarily material dimension of architecture and the increasingly immaterial nature of the information age. A new strand of Japanese architects is pushing the limit of dematerialization of architecture, which Kengo Kuma uses the term "weak architecture" to describe. One of the distinctive features of this weak architecture is simplicity, transparency, and formal austerity of the expression of materiality and tectonic articulation. However, what such materiality implies to space and user, and what it offers to the future of architecture remain obscure.

Taking the work of SANAA – an internationally significant and prize-winning architects whose work exemplify this kind of weak architecture – as an example, the study aims to find out the meaning of "weak" in architecture and the role of materiality to realize such weakness, focusing mainly on three key material features that have been identified in their work: Transparency, Thinness, and Whiteness.

The project draws on Gianni Vattimo's theory of weak thought, weakness in Taoism, and Gilles Deleuze's concept of smooth space to develop a new framework in which three themes of SANAA's weak architecture are developed (based on case studies: Rolex Learning Centre and Louvre Lens Museum):

- Diagram architecture (physical condition of building);
- Architecture as landscape (the relationship with the environment);
- Smooth space (the relationship with the user).

The preliminary conclusion is that the materiality in SANAA's work is in the service of creating ambiguous boundaries between different categories in architecture: conceptual version and physical manifestation of architecture (theme 1); building and landscape (theme 2); different functions/spaces (theme 3).

The meaning that their architectural sensibility and ambiguity try to convey by the fugitive materiality might be a reflection of the ambiguity and paradoxes of informational society, in which our perception of materiality and space are increasingly effected by virtual spaces.

## Dr Nils Jaeger



### Research Fellow

Nils Jäger is a Research Fellow at the Mixed Reality Laboratory, University of Nottingham, where he investigates the inhabitation of adaptive architecture.

He uses experimental research as well as “in the wild” studies to examine embodiment, actual and perceived control, and agency through bodily interactions with adaptive environments. This research has cross-disciplinary implications for our understanding of how the human body relates to and interacts with architectural space. It also points towards the emerging interactions with architecture made possible by the rapidly growing Internet of Things, which underpins the concepts of the smart home and smart cities and communities.

Nils has studied Architecture at Technische Universität Berlin (BA) and Ball State University, Muncie, IN, USA (M.Arch.) and holds a PhD in Computer Science from The University of Nottingham. He has gained professional experience in Dallas, TX, USA (Staffelbach Design Associates).

His teaching experience includes the supervision of M.Sc. students in Computer Science, teaching assistance in Architectural Humanities, and the teaching of architectural design studios, all at The University of Nottingham.

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### Title: Bodily Interactions with Adaptive Architecture

**Abstract:** The increasing number of behaviour-responsive adaptive architecture enables inhabitants to interact with architectural space using their body. Investigations into these interactions between human and adaptive architecture require a cross-disciplinary approach in terms of theory, (research + design) methodology, and design and fabrication. Accordingly, such research advances architectural technology, has implications for (future) architectural design, and provides (findings and) new perspectives for the architectural humanities.

This talk shows my multi-disciplinary approach using examples from my doctoral research for which I used the lens of embodiment to investigate bodily relationships between inhabitants and adaptive architecture. Part of this research has focussed on architecture as the potential initiator and mediator of bodily interactions. Taking my lab-based experimental research further, we are now exploring applications of bodily interactions with Adaptive Architecture in specific real-world contexts, including elderly care and leisure activities.



# Kassel University presenters

## Mr Moritz Rumpf



### Research Assistant and PhD Candidate

Moritz Rumpf is a research assistant and PhD-candidate at the department for structural systems since 2013. His interest in research and education lies in digital simulation- and optimisation strategies and their relevance for the design process.

From 2011 till 2013 he studied at the Städelschule Architecture Class in Frankfurt am Main where he graduated with a Master of Arts in Architecture. He has been teaching at the school in the specialisation Architecture and Performative Design, led by Prof. Mirco Becker, as a tutor for computation.

Previously he studied architecture at the University of Kassel, where he graduated in 2009 with his academic diploma I. During his studies, as well as from 2009 till 2011 Moritz worked for the architectural practice foundation 5+ architekten BDA in Kassel, where gained experience working on various projects – school buildings, residential buildings, urban design as well as redevelopment – in all service phases.

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**Title: Informed Form Generation – Embedding multi criteria optimization into architectural design**

**Abstract:** Over the past decades we witnessed a tremendous shift in the principles of architectural design based on the advancement of digital aided design and manufacturing (CAD and CAM). Computation in architecture came with a whole new set of techniques as well as theories that did change the way we build and design today. Of particular interest to my research are those approaches that take computation as an integral part of the design process.

A key term is optimization, which is facilitated only through simulation and evaluation – whereby optimization is not meant as a post-design strategy to improve one or multiple aspects of a given design but rather as a design strategy by itself. Procedures that incorporate optimization of one or multiple criteria tend to be iterative and non-linear and therefore favour parametric or associative design processes. The field of parametric tools is growing rapidly right now with new software tools being released continuously. Furthermore the combination of tools for structural analysis and other applications allows integrating multi parameter optimization into design at an early stage. With respect to the scope of tools, my research will focus

on structural analysis and optimization and its combination with tools from the domains of energy, light, sound, user behaviour, fabrication, etc. With regard to morphology there is a strong interest in surface structures. In particular concrete shell-structures will serve as case studies.

Since the discipline of design research lies between theory and practice, the employed methodology will be based on the examination of relevant theoretical discussions complemented with the actual testing of the respective techniques in an academic context and furthermore backed up with the analysis of real scale, architectural references.

This research aims to identify the relevant theories and techniques within computational design. They shall be discussed in regard to the benefits of, and the opportunities for embedding multi parameter optimization into architectural design at an early, conceptual stage. Eventually this shall lead to the development of strategies that promote an informed form generation. They are characterized by not favouring form finding above form generation, or the other way round.

## Mr Philipp Eisenbach



### Research Assistant and PhD Candidate

Philipp Eisenbach is research assistant at the University of Kassel since 2012 with focus on structural systems. His education and research is focused on the processing and realization of innovative structures.

From 2006 he worked for Bollinger+Grohmann Ingenieure in Frankfurt and prior for osd-Office for Structural Design in Frankfurt. He teamed up in national and international projects scaling from art installations to multi-story buildings. He taught at the Städelschule Architectural Class (SAC).

He received his diploma from the Technical University of Darmstadt (TUD) in 2006. Prior his academic education at the TUD, the University of New South Wales (UNSW) in Sydney and the École Polytechnique Fédérale de Lausanne (EPFL) he was trained as a skilled concrete builder.

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He is member of the Chamber of Engineers (IngKH), the Council on Tall Buildings and Urban Habitat (CTBUH) and Working Group Concrete Shells of the International Association for Shell and Spatial Structures (IASS).

**Title: Thin walled concrete structures – Implementation features**

**Abstract:** For many reasons lightweight concrete structures and structurally optimized systems are in focus of several research efforts. This is not only due to esthetical reasons derived from architecture and design but also in order to use material in a resource conserving way. A significant portion of the required energy during the live cycle of our buildings is covered within the grey energy. Increasing speed of changes of user demands of the built environment results in an increase of this part of required energy.

Beside an efficient material input gained by the design of form active structures and the use of high performance materials, construction processes and individual situations on site have to be considered resulting in the demand of enabling a quick and precise assembly and a simple de-assembly and eventually re-assembly of structural elements.

With the application of high and ultra-high performance concrete it becomes a necessity to cast concrete under

laboratory conditions, because of its sensitivity on mixing conditions. To reach a specific slump size, distinct climate conditions, water temperature and mixing devices need to be predefined. The time between mixing and casting process needs to be in a specific frame to guarantee the necessary fluidity of the concrete. These facts complicate an application of slender concrete elements on site and the application of prefabricated elements is often the appropriate decision, and a design driving focus is on the constructive composition of construction joints and seams.

In built research examples realized within the architectural education of the University of Kassel, typologies of load bearing joints have been investigated. The demonstrators presented verify a load bearing seamless connection jointed on site as well as a dry-fit connection method that allows not only a quick installation but also a de- and re-assembly in a non-destructive retreat working.



# KADK CINARK Group presenters

## Mr Torben Thyregod



### Architect MAA, PhD Student

The Royal Danish Academy of Fine Arts, School of Architecture, Design and Conservation - School of Architecture.

Educated at the Royal Danish Academy of Fine Arts, School of Architecture, graduating in 1996. Has been the concept developer and spearhead for sustainable transformation in the VELUX Group. Co-inventor of concepts such as SOLTAG, Solar Solutions/Solar Prism and "The Penthouse Concept", present at COP15 in Copenhagen. Started the Nordic magazine DAYLIGHT in 2003 and has been a member of editorial team of D/A magazine and overall responsible for the complete layout 2005-2013, now editorial and creative advisor ([www.velux.com/da](http://www.velux.com/da)).

Has also been the driving force behind prize-winning and thought-provoking films about people and their dependency on light. Started own company, TT Consultancy, in 2013, and has been a PhD fellow at CINARK since August 2015.

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**Title:** Daylight, Health and better Well-being: Glass as a catalyst for sustainable transformation of existing housing

**Abstract:** Only if one believes in something for real one can act purposefully.

I believe in a united awareness of a more holistic and human-oriented focus when renovating existing housing. I believe in a united effort by all players in the building sector, in focussing on the real effect of our actions, in asking the right questions before acting. A new focus towards a more genuine understanding of the importance of people's health and well-being, living much of their lives indoors, inevitably involves the design and processing of the building skin. How to channel the benefits of daylight, in terms of both quality and quantity, into the lives of people is a central question. Evolutionary people belong to nature, attuned to the sun via the circadian rhythm, and we are meant to be exposed to daylight far more extensively than we are nowadays. However, since we spend most of our lives indoors, we need to find new ways to receive and harvest natural light. We need to put people before buildings.

By combining empirical analysis of significant window and facade solutions in the history of north European

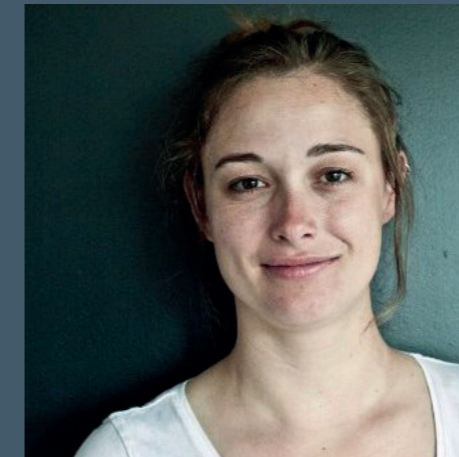
architecture, qualitative research among residents in three characteristic dwellings in 2-3 European countries and related philosophical writings, the thesis will look into various potentials, and try to define theses for future scenarios.

The following questions are posed: to what extent can a smarter use of glass create better living conditions in existing housing? What does transparencies imply – simplicity or complexity? Are present references, practices and vocabulary incomplete? Can the facade be regarded as a double-faced, multifaceted surface, with the capacity to receive from nature and give in return to inhabitants and to the city, thereby creating a new culture? Can glass become the most vital material in renovation of existing buildings, replacing traditional insulation materials? Can indoors and outdoors be inseparable twins, aiming for the best liveability factors in both places?

#### Key Words:

- Awareness
- Daylight
- Transformation
- Building skin
- Potential
- Well-being

## Ms Henriette Ejstrup



### Architect, PhD Candidate, School of Architecture, Institute of Architecture and Technology

Henriette Ejstrup is a PhD Candidate at The Royal Danish Academy of Fine Arts Schools of Architecture since August 2015. Her project focuses on the tectonics of insulation in the vernacular architecture and reuse and if it can provide 'new' knowledge to the tectonics of industrialized architecture.

From 2013 she worked as a caseworker at the Danish Cultural Agency handling legislation and decisions on building projects within listed buildings. Furthermore she provided the Minister of Culture with relevant notes, covers and statements regarding the architectural heritage of Denmark.

Henriette received her diploma from the Aarhus School of Architecture in 2011 with a master in restoration, transformation and infill. During her studies she also was an exchange student at Politecnico di Milano, where she took part in lectures, supervised bachelor students and worked as a research assistant at the Centre of Building Environment Science and Technology (BEST) specialized in non-destructive tests on cultural heritage.

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**Title:** The Tectonics of Reuse – Learning sustainable insulation methods from the vernacular architecture

**Abstract:** Material and energy overuse of the 19th and 20th centuries has created a need for an energy sufficient and sustainable building culture. This has put existing buildings under pressure from both users and regulations. Unfortunately common interventions such as energy renovations often strip the building of its original materials and/or constructions. The result is wasteful procedures and loss of distinctive architecture and historical information. Due to the accessible components and certification systems for energy renovations, which mostly are developed in the perspective of new buildings, the intervention in the existing building often neglects its qualities, embedded energy and latent knowledge.

If we look to the field of building conservation when restoring a listed building, its specific historic architecture, materials and tectonics are always the foundation of the intervention. In other words the building defines how an energy optimization can be executed and not the accessible components. As an example, the listed building Bremerstente on Funen, Denmark, was restored and

energy optimized by the Danish Cultural Agency in 2005-2009. Today the building is label energy class B without compromising its distinct architecture or its historical materials and tectonics. As another example Realdanias MiniCO2 houses in Nyborg had positive results with historic materials and construction methods. Thus build without many modern building techniques and materials such as vapour barriers and mineral wool insulation. This indicates that the historical techniques and materials have a tacit knowledge.

This study is a phenomenological approach into a positivistic governed field. It investigates how energy optimizing interventions in existing single-family housing can be informed by the tectonics of insulation practice in the vernacular architecture with a focus on recyclability. It takes point of departure in a floated study of the Danish vernacular architecture and a theoretical discussion on how a tectonic investigation and understanding of existing buildings can provide a new perspective on conventional insulation practice (and legislation) in existing buildings.

# AHO, Oslo and KTH Stockholm presenters

## Marja Lundgren



M. Arch, PhD Candidate, Partner at White arkitekter AB

Marja Lundgren is partner in the Scandinavian architecture firm White Arkitekter AB and PhD candidate at KTH Royal Institute of Technology in Stockholm, Sweden.

Graduated in Master of Architecture at Chalmers University of Technology and with additional training in building physics and environmental impact of buildings and a post graduate in Architecture from Royal University College of Fine Arts. Marja has been working since 1999 at White as an advisor on sustainable design. Lundgren works in all phases of architectural design as well as in Research and Development (RandD), from developing new building integrated solar thermal products to participating in sustainable building design and project managing RandD.

She is the editor and co-author of two books in Swedish on 'Active solar energy in building construction and urban development – contemporary perspectives and future potential' and 'Solar protection in architectural design, indoor environment and energy use'. She is also involved in International Energy Agency Task 41 and 51 on Solar energy in architecture and urban planning. Her PhD thesis is about 'Tectonics and Morphology for Nearly Zero Energy Architecture'. Marja is doing her half-PhD part time and is planned to finish during 2017.

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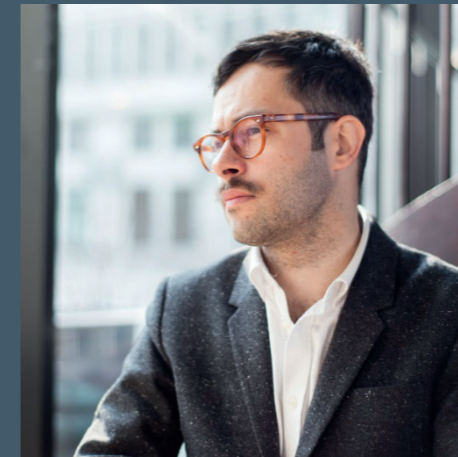
**Title: Nearly Zero Energy as a Design Parameter – A Study in Tectonics and Morphology for Nearly Zero Energy Architecture**

**Abstract:** One of the great societal challenges we face are the global consequences of the climate emissions caused by the vast use of fossil energy in the world. To mitigate the consequences and change the course of energy use a new EU directive issue that in 2020, the normal production of the buildings to be nearly zero energy buildings. The legislators will formulate the demands on a national level. This goal is a challenge for today's architectural practice. Knowledge on energy efficiency is closely linked to knowledge of building physics, an area of which Swedish architects traditionally have less expertise in, than in for example statics and construction.

The focus in this licentiate is twofold and relates to consequences set by both regulatory frameworks and by knowledge production within praxis in relation to nearly-

zero energy architecture. The driver is to strengthen the prerequisites (through regulatory guidance as well as knowledge production) in making energy efficient architecture contribute to rather than limiting the architectural design, organization, formal expression and creativity. The focus in this licentiate is on offices, and uses alike offices, that meet other challenges than dwellings and on operational energy. The first article out of two, since it is a half-PhD, has 2016 been accepted by the Emerald Journal Smart and Sustainable Built Environment and analyses the architectural and energy consequences of the Swedish interpretation of the EU Directive on Nearly Zero Energy Buildings and proposes a new comprehensive energy section for the Swedish Building Code. The article also compares the Swedish interpretation with that of the Nordic countries (except Island).

## Jan Strumillo



PhD Fellow, Institute of Architecture

Jan Strumillo has held a research fellowship at the Oslo School of Architecture and Design since 2012. He joined Wood Be Better – a research project focused on increasing the use of wood in urban context. His education and research is focused on multi-story timber buildings.

He set up an architectural practice in Warsaw at the beginning of 2010. Prior to 2010 he worked as architect for Baumschlager Eberle in Switzerland and Austria. He received his MAS diploma from the Federal Institute of Technology in Zurich (ETH) in 2008. After graduating from Warsaw University of Technology in 2005, he worked for JEMS in Warsaw. Małgorzata Baczkó and Piotra Zakrzewski prize laureate in 2006. He was appointed resident fellow in architecture at the Akademie Schloss Solitude in Stuttgart in 2013. He is a licensed architect and an active member of the Polish Chamber of Architects (IARP). In 2015 he published "Hidden Modernism: a tour of Warsaw with Christian Kerez". (Karakter, Warsaw; 2015).

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**Title: Ten Propositions for Urban Timber: Developing Guidelines for the Multi-Story Timber City**

**Abstract:** Much hope is associated with wood in the context of civilization's impact on the environment. This also creates new concerns. Multi-story timber buildings (MSTBs for short) are a new concept that has been gaining significance in recent years. The technology is still developing but it is already visible, that if a shift towards a sustainable economy should occur, the building industry has a part to play. Replacing a share of steel and concrete with timber could be its crucial contribution.

MSTBs currently get built to stick out rather than to blend in. In order to fulfil the hopes associated with them, they must become generic. The aim of this research is to improve the practice of design of MSTBs through the development of a design tool - a guideline set, applicable in the early stages of the design phase, when the potential influence is at its peak. The guidelines result from the review of the current state of the art in MSTBs.

They address three MSTB types - basic units of dense neighbourhoods: the infill, the block and the superstructure - catering to a vision of a dense timber city.

The development of guidelines follows a long-standing tradition of navigating complexity. Le Corbusier's five principles of modern architecture are an exemplary instrument of transformation of design practice. In following research stages the guidelines are refined in collaboration with the Scandinavian practitioners of MSTB. In a series of interviews they reorganize and contribute to the guideline set. In a further stage students test the guidelines in action within the framework of diploma course at AHO. The students' uses the tool to design three types of MSTBs. Results of the exercise are then assessed to again refine the guideline set. A discussion emerges and further research options open up.

## Ute Groba



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### PhD Research Fellow, Institute of Architecture

After having been involved in the WoodBeBetter research project at AHO for 1.5 years as a master studio course teacher and research collaborator, Ute Groba started working on her PhD thesis on urban timber architecture at higher densities and medium building heights in September 2015.

Previously, she worked as an architect for HelenandHard in Stavanger and Oslo for five years. Her working experience from Germany includes teaching at RWTH Aachen at the same time as working as an architect at Kadawittfeldarchitektur for three years.

Ute studied in Germany (RWTH Aachen) and in Spain (ETSA Madrid). She holds a diploma in architecture and is a member of the German architectural association AKNW.

**Title: Making a case:** The potential of horizontally densified housing as a contemporary timber typology for Norwegian cities

**Abstract:** In the context of increasing focus on the environmental impact of buildings, this thesis investigates the potential of horizontally densified housing as a relevant contemporary urban timber typology for Norwegian cities.

It builds upon existing research showing that timber is a suitable building material for sustainable architecture, and takes current Norwegian land use planning based on urban densification as a starting point. The biggest part of all Norwegian building activities forms housing construction. In order to bring timber construction and housing at an increased density together in a meaningful way, architectural quality is of crucial importance. A positive experience of higher density depends considerably on it. However, an objective and universal definition of architectural quality is not possible. In this thesis, the notion of quality is therefore decomposed into preferable properties of density, housing and timber construction that are researchable. Several quality aspects are seemingly contradictory, and prioritized differently among stakeholders.

As part of this research, master studio pedagogy as well as a competition entry explore the potential of horizontally

densified timber housing to consolidate aforementioned quality aspects into a project in a Norwegian context. These design works are informed by a study of literature on timber, density and related architectural qualities, the assessment of European reference projects from the 1920s until the present and by the students' design experiments. This architectural research links theory to practice through design work in order to produce applicable results that are relevant for practice. The students' projects and the competition entry are used as a testing ground for general theory in a Norwegian context, acknowledging the importance of a consolidation of all relevant aspects into one design responding to a specific context. The method "grab bag" for this research by design accommodates for a broad exploration of the topic. A concluding reflection will, rather than defending the actual design outcomes, assess how the suggested timber typology is received and discussed by municipalities, developers and architects, and thereby address the relevance of it in relation to other building types and materials.



# Newcastle University presenters

## Mr Kieran Connolly



PhD Candidate, School of Architecture, Planning and Landscape

Currently in third year of a PhD by Creative Practice at the School of Architecture, Planning and Landscape, Newcastle University.

The research explores the idea of default and architecture, arguing that a range of default constructional systems exist and are embedded within the complex processes, which contributes to the production of architectural space. The theories and writings of Henri Lefebvre, Fredric Jameson, Reinhold Martin and Norbert Wiener are crucial references, as is the post-war development of "systems thinking", emerging from the principles of Cybernetics. The effects of globalisation fostered by the instrumental social, political and cultural reach of capitalism are understood as key factors in the adoption of mass computerisation and the advent of the so called "digital age".

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**Title:** *Architecture by Default: Reading the accessible suspended ceiling as the "default" ceiling solution of the twentieth century*

**Abstract:** The accessible suspended ceiling, first patented in 1961 by American inventor and businessman, Donald A. Brown, neatly resolves the architectural problem of how to conceal the plethora of services required in the design and construction of modern buildings. Set-out on a standard grid of 600mm x 600mm, using aluminium sections supporting lightweight, fire-rated and acoustic tiles; the suspended ceiling has proliferated across a wide variety of building types. Its efficient design, simplicity to construct and the speed with which it can be erected have seemingly made it a ubiquitous element of contemporary space, produced and consumed on a global scale. It is architecture by default.

A default is a condition that prevails in the absence of intervention. It has pragmatic qualities, providing a workable platform when no other outcome is feasible. Defaults are well established, creating a sense of the familiar and the standard, the normal and the automatic. Despite such benignant qualities, defaults can be considered as hugely influential, structuring our relationships with the physical environment and with each other. We regularly come into contact with a wide variety of defaults in a number of differing forms and contexts. Our reliance on digital devices and computer applications

creates frequent encounters with the default values they are programmed with. In a period shaped by financial uncertainty, toxic debt and bad credit we have become accustomed to banks, businesses and even countries defaulting on monetary obligations.

The conditions for which an architectural object can be considered "default" shift over time. This paper examines one such example, appreciating the accessible suspended ceiling as the "default ceiling" of the twentieth century through a rigorous account of its history. Utilising patents archived by the US Patents service, advertisements found in architectural journals and relevant building regulations; the technological, intellectual, cultural and bureaucratic qualities embedded in the design and production of the accessible suspended ceiling are made visible. In doing so the research highlights the multiple elements which imbue the accessible suspended ceiling with its default properties. This allows a wider investigation into the value of the default as strategic component critical to the procurement of contemporary architecture. It opens up possibilities for speculating on the notion of the default as an ideological proposition and the consequences of its application to aspects of the architectural field at large.

## Mr Thomas Kern



Dipl.-Ing. Architect, Programme Manager, PhD Candidate, School of Architecture, Planning and Landscape

Thomas is an architect and teacher, specialised on architectural education for internationals and international relations in architecture at INTO Newcastle University. During his career as practicing architect he contributed to a wide range of projects in Germany and United Kingdom, which provided him with the opportunity to accumulate deeper insights and a rich expertise in particular in educational architecture. Over the past seven years Thomas diverted gradually into teaching.

Thomas graduated under Walter Maria Förderer at Stuttgart University in 1993. Förderer was one of the most prolific church architects in Switzerland in the 1960s and 70s. The experience as a student under Förderer combined with a prolonged experience within in church live, and a long standing interest in modern church architecture as well as exposed concrete created the basis for Thomas' research interest.

Currently he is leading the INTO Newcastle Architecture Programme with three pathways and eighty international students. He maintains regular contacts to a range of universities in Russia and China.

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**Title:** *Introvert Monoliths: the narrative, the memory and the future of Brutalist Churches in Central Europe*

**Abstract:** Nowadays the era of "New Brutalism" draws much attention among architects and researches. One obvious reason of this still recent rediscovery has to do with the fact that these structures reached a phase in their live span which requires reconsideration, cumulating in the question whether to demolish or to overhaul. "Bunker Gottes" the title of an essay by Frank Seehausen, seems a very applicable title for many of these structures, in particular in Germany, Austria and Switzerland. After the devastation of the World War II, it seems paradox that these heavy, monolithic and introvert bunker-like structures were the chosen language to communicate the modern post-war church. Remarkably, the difference between catholic and protestant churches became marginalised, signalling approximation between these two major denominations echoing the spirit of the 2nd Vatican

Council. Architects enjoyed an unrivalled freedom in church design, which led indeed to a wide range of unique designs, a celebration of the monolithic and sculptural qualities of the eternal material of concrete, and spatial qualities never seen in sacral architecture before.

The research project focusses mainly on an exemplary selection of designs by the Swiss architect Walter Maria Förderer the German architects Rainer Disse and Helmut Striffler and intends to investigate the phenomenological contexts, the relation between design, theology and the socio-cultural background, the reception and perception of these architectures then and today, the architectural qualities and material-iconography, furthermore the more practical issue of adaptability and reuse.