

Trial lecture and disputation: Architect Johan Bettum

*The Material Geometry of Fibre-Reinforced Polymer Matrix
Composites and Architectural Tectonics.
Towards a New Paradigm of Synthesis in Architectural Design.*



Time: 4. December 2009
Place: Main auditorium,
The Oslo School of Architecture and design,
Maridalsveien 29

Programme

kl. 10.00 Trial lecture

Welcome

Introduction to today's programme by Master of ceremony,
Director of Academic affairs, PhD Hilde Haslum.

The candidate gives a lecture on the topic:

*Composites vs 'Skin and Bones': Tectonic deliberations
(45 min)*

*** break ***

kl. 13.30 Doctoral disputation

The adjudication committee presents their
evaluation of the trial lecture

The candidate presents his thesis:

*The Material Geometry of Fibre-Reinforced Polymer Matrix
Composites and Architectural Tectonics.
Towards a New Paradigm of Synthesis in Architectural Design
(max. 20 min)*

First opponent

Professor Ignaas Verpoest
disputes with the candidate.

*** break (30 min) ***

Questions ex auditorio

(Questions are handed in to Master of
Ceremony during the break).

Second opponent

PhD Lotte Marianne Bjerregaard Jensen
disputes with the candidate.

break

Assessment

The adjudication committee presents their final assessment
of the candidate's defense.

The candidate

Johan Bettum is a professor of architecture and the programme director of the Architecture Class in the Städelschule, Frankfurt am Main. His main interests reside in the intersection between materials, geometry and advanced digital modelling. He is widely published on topics related to his doctoral research which also form the basis of the architectural projects in his practice Archi|Globe.

Summary

This research concerns architecture and fibrous and textile reinforcement systems in polymer composites. It examines the material geometry of the fibrous systems and relates this to the design process as well as the theory of tectonics.

The research is based on a broad range of thematic considerations and argues that with the scalar complexity of the textile geometry and the power of contemporary computational techniques, architects are currently in the position to tap into an enormous material reservoir that the material systems offer for architecture. Both the structure and the aesthetic expression of architectural form can be affected by the make-up of the fibrous, textile systems. This would have a significant theoretical as well as a practical impact on architecture.

The co-ordination of designing at different scales with the material systems transforms the conventional design process. This is discussed theoretically and practically within the paradigm of synthesis and contributes to a new definition of the theory of tectonic since its traditional version cannot account for how fibre-reinforced polymer matrix composites can be used in architecture. The thesis concludes with a discussion of this theory and a reformulation of how it must be articulated were it to have any relevance for contemporary architecture.

Adjudication committee

Professor Ignaas Verpoest, Katholieke Universiteit, Leuven

PhD Lotte Marianne Bjerregaard Jensen, Technical University of Denmark, Copenhagen

Associate professor Mari Hvattum, AHO (coordinator)

