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Conference Report

Nexus 2010: Relationships between Architecture and Mathematics

Abstract. The eighth edition of the international, interdisciplinary Nexus conference on architecture and mathematics took place from Sunday 13 June through Tuesday 15 June 2010, in Porto, Portugal.

Introduction

The 2010 edition of the international, interdisciplinary conference on architecture and mathematics took place from Sunday 13 June through Tuesday 15 June, in Porto (Portugal). The conference was directed by Kim Williams, founder of the Nexus conferences and editor in chief of the Nexus Network Journal, Prof. João Nuno Tavares of the Centro de Matemática da Universidade do Porto, and João Pedro Xavier of the Faculdade de Arquitectura da Universidade do Porto (FAUP). The conference presentations were given in the Auditório Fernando Távora of the FAUP, designed by Álvaro Siza.

This year's conference offered a program that was rich and varied. Each of the three days of the meeting featured morning and afternoon sessions dedicated to specific themes, and closed with the presentation of a keynote speaker. One of the new developments of the Nexus conference is that the papers presented will no longer be published in a conference proceedings book, but will be published in the *Nexus Network Journal*, where they will be more widely available for consultation and will enjoy a greater distribution. The papers from the 2010 conference are all scheduled for publication in the 3 issues of vol. 13 (2011), grouped according to theme as they were at the conference.

The morning session of Sunday 11 June was entitled "From Mediaeval Stonecutting to Projective Geometry" and was moderated by José Calvo Lopez of the Universidad Politécnica de Cartagena. Four presentations were given by Giuseppe Fallacara and Luc Tamboréro, Miguel Alonso, Elena Pliego and Alberto Sanjurjo, Snezana Lawrence, and Enrique Rabasa. These papers are scheduled for publication in the *Nexus Network Journal* vol. 13 no. 3 (Winter 2011). The afternoon session of 11 June was dedicated to a round table presentation entitled "Generative Architecture Codeness", moderated by Celestino Soddu of the Politecnico di Milano, with the participation of Marie-Pascale Corcuff, Philip van Loocke, Enrica Colabella, and Gabriel Maldonado.

The opening session of Nexus 2010 in Porto

Sponsors of Nexus 2010 in Porto

The morning session of Monday 12 June was entitled "Architecture, Systems Research and Computational Sciences", and was moderated by Gonçalo Furtado of the FAUP. Speakers were Pau Solá-Morales, Lora Dikova, Suzanne Strum, and Maycon Sedrez. These papers are also scheduled for publication in the *Nexus Network Journal* vol. 13 no. 3 (Winter 2011).

The afternoon session of 12 June and the morning session of 13 June featured the kind of wide panorama of studies of architecture and mathematics that have characterized the Nexus conferences since the very beginning. Moderated respectively by Kim Williams and Sylvie Duvernoy, presentations were made by Matthew Landrus, Vasco Zara, António Nunes Pereira, Eliseu Gonçalves, Teresa Marat-Mendes, Mafalda Teixeira de Sampayo and David Rodrigues, Jong-Jin Park, Marco Giorgio Bevilacqua, João Paulo Cabeleira, and Juergen Bokowski. These studies ranged from the historical to the contemporary, and dealt with themes as varied as urban design, design theory, architecture and music, proportional systems, optics and perspective, and morphology. This group of papers is scheduled for publication in the *Nexus Network Journal* vol. 13 no. 2 (Summer 2011).

The afternoon session of 13 June was dedicated to "Shape and Shape Grammars" and was moderated by Lionel March. Papers were presented by Sara Eloy and José Pinto Duarte, José Nuno Beirão, José Pinto Duarte and Rudi Stouffs, and by Mine Özkar. Unfortunately, George Stiny was prevented from presenting his paper in person by the untimely death of William (Bill) Mitchell, a well known and well liked authority on shape grammars. Prof. Stiny's paper was presented by Lionel March. This group of papers is scheduled for publication in the *Nexus Network Journal* vol. 13 no. 1 (Spring 2011).

The outstanding keynote presentations that concluded each day of the conference were given by Chris Williams, Lino Cabezas and Eduardo Souto de Moura. Chris Williams is a structural engineer who worked for Ove Arup and Partners prior to joining the Department of Structural Engineering at the University of Bath. His keynote talk was entitled "Patterns on a surface: the reconciliation of the circle and the square". Lino Cabezas teaches in the Departamento de Dibujo of the Facultad de Bellas Artes of the Universidad de Barcelona. His keynote talk was entitled "Ornament and structure in the representation of Renaissance architecture in Spain". Portuguese architect Eduardo Souto de Moura is originally from Porto, and worked in the offices of Álvaro Siza before opening his own practice. He is the designer of the Braga Municipal Football Stadium, among other internationally acclaimed works. His keynote talk discussed how materials convey certain kind of geometries in the construction of architectural space. The papers of Chris Williams and Lino Cabezas are scheduled for publication in the *Nexus Network Journal* vol. 13 no. 2 (Summer 2011).

The conference was enlivened by the many beautiful posters that lined the room where coffee breaks and lunches were served. Conference participants were free to chat with the creators of posters during the breaks.

Nexus conference participants who arrived the day before the conference began were offered the chance to attend the seminar entitled "Open Source" held at Porto's Casa da Música (designed by designed by the Dutch architect Rem Koolhaas with Office for Metropolitan Architecture and Arup-AFA), which featured engineer Cecil Balmond and others.

The conference concluded with a post-conference tour to seventh-century S. Frutuoso Chapel in Montélios and the Braga Municipal Stadium designed by Eduardo Souto de Moura. The post-conference tour was led by João Pedro Xavier.