

Events

Nexus 2023. Relationships Between Architecture and Mathematics

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From 12 to 15 June 2023, the castello del Valentino, an UNESCO World Heritage Site and the elegant venue of the Department of Architecture and Design (DAD) of the Politecnico di Torino, together with the prestigious independent publisher of books on architecture and mathematics *Kim Williams books*, hosted the fourteenth edition of the international and interdisciplinary conference entitled *Nexus 2023: Relationships Between Architecture and Mathematics*. After the Covid-19 pandemic, which in 2020 precluded the conference from being held in presence in Kaiserlautern (Germany), 2023 represented a return to normality by allowing scholars and young researchers to meet again in presence and engage in exchanges that could fuel scientific debate and stimulate new ideas and collaborations for future research.

In the beautiful and frescoed setting of the *Salone d'Onore* at the castello del Valentino, the 14th conference was opened by the Rector's Delegate for International with China and Asian Countries, the Director of the Department of Architecture of the Politecnico di Torino, the President of the *Unione Italiana Disegno* (UID), Francesca Fatta, and the founder of

the prestigious *Nexus Network Journal*, Kim Williams. In particular, Kim Williams reminded those in the audience that the event was promoted by a scientific committee directed with Roberta Spallone (Politecnico di Torino) to continue, ever since the first Nexus conference (1996 in Fucecchio, in the province of Florence), an interrupted tradition of multifaceted and high quality research through the dissemination of numerous studies and applications of mathematical principles (e.g., descriptive and projective geometry, symmetry, proportion, statics, grammar, computer science, topology, algebra, fractals etc.). Related to the broader theme of architectural design, these focuses have over time aimed to present analytical and critical reflections on the countless aspects that inextricably link this pair to landscape, urban design, statics and/or building science.

On the basis of this cultural orientation and the usual topics (*Design theory, Geometry, Representation of architecture, Didactics, Rule-based Design, Structures*), during the three days of plenary sessions (morning and afternoon), about 40 papers were presented, selected according to double blind review, whose contributions on architectural projects,

either 'on paper' or actually existing, stimulated in the participants fruitful reflections mainly oriented towards the role of geometric thought as a *mèdia* for Design Analysis, which has always made use of geometric sciences to represent 'forms' in the plane and in space as well as to investigate their mutual relationships. The use of graphical transposition of complex mathematical equations with the aid of drawing on two and/or three-dimensional supports (analogical and/or digital) has led various authors to address the theme of the representation of complex projects through the use of emerging disciplines and technologies (artificial intelligence, integrated digital survey, BIM and H-BIM, parametric and algorithmic modeling), which show their versatility in becoming together a tool for the investigation, interpretation and design of architecture in its multiple relationships with mathematics.

On 15 June, the last day of the conference, a section was dedicated to the research carried out by PhD students with the aim to disseminate new lines of research and promoting new horizons of interest and directions to investigate. The synthesis of this objective was expressed to the

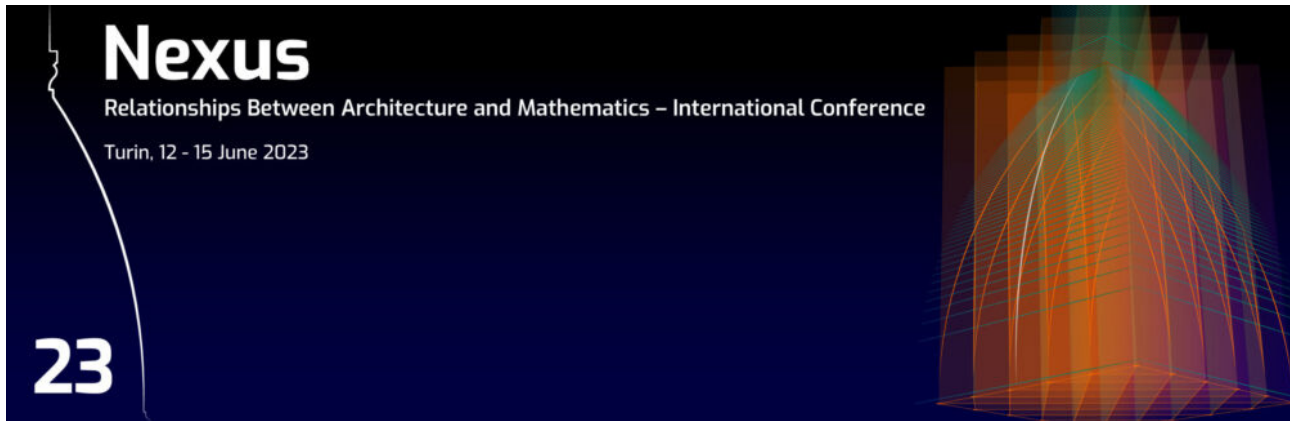


Fig. 1. Banner of the event. Nexus 2023. Relationships Between Architecture and Mathematics, 12-15 June 2023, Turin.

audience by Roberta Spallone, who commented as follows: “the Ph.D. Day takes on the significance of an intergenerational discussion and is intended to provide suggestions and viewpoints useful for the maturation of young scholars” [1].

The research presented, of varied interest and high quality in terms of content and methodologies of investigation, once again represented the strong point of this conference, the outcomes of which were published in June 2023 in a supplementary volume of the *Nexus*

Network Journal [2]. In conclusion, it may be said to have taken part in a stimulating scientific-cultural event, full of ideas and suggestions for a future of new research that, in the next *Nexus* edition (2025), will certainly find new blood of expression and comparison.

Notes

[1] Spallone, R. (2023). *Nexus Conference 2023 Turin*. In *Nexus Network Journal*, No. 25 (Suppl. 1), pp. 1-3.

<<https://link.springer.com/article/10.1007/s00004-023-00734-z>> (accessed 21 November 2023).

[2] <<https://link.springer.com/journal/4/volumes-and-issues/25-1/supplement>> (accessed 21 November 2023).

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