EUTOPIA European University

EUTOPIA Learning Community 'Additive Manufacturing of Construction Material'

Lectures will be taking place in-person (at the host institution), and online for students from partner universities. Interested to attend?

Please register to a lecture/s here!

LECTURE SERIES 2022-2023

EUTOPIA
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Overview of additive manufacturing in the construction sector

Associate Professor Alexandre Pierre (CY Cergy Paris Université)

Tuesday November 22nd, 14:30-15:30 CET (ON & OFFLINE)

The European construction sector produces almost 2 billion tons of waste per year. Many projects that use digital or automated processing of concrete emerged during the last decade. This layer-by-layer production allows high complex structures without the need of formwork. This could lead to a high material saving potential at same load bearing capacity. However, the digital fabrication has not been fully transferred to concrete construction industry although additive manufacturing (3D printing) processes of concrete and cement-based materials could bring architectural and structural innovation. We propose in this guest-lecture an overview of the additive manufacturing of construction materials.

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LECTURE SERIES 2022-2023

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Textile Reinforced Concrete: An introduction to material innovations enhancing novel structures

Prof. Tine Tysmans (Vrije Universiteit Brussel)

Monday December 5th, 13:00-14:00 CET (ON & OFFLINE)

As the most-used manmade material across the globe, concrete is everywhere, but this popular building material presents significant challenges related to its huge environmental impact and limited durability properties. Textile Reinforced Concrete (TRC) could provide a solution to these challenges, and hence could potentially revolutionize the way concrete is currently being used as a construction material.

In TRC, the traditional steel reinforcement is fully replaced by fibre textiles. The use of this innovative reinforcement has two important advantages: (i) the concrete cover, traditionally required to prevent the steel reinforcement from corroding, can be omitted and hence the thickness of concrete elements can be drastically reduced, and (ii) the flexibility of the fibre textile reinforcement allows to easily manufacture cutting-edge concrete structures with complex shapes. This introductory lecture situates Textile reinforced concrete as a structural material compared to polymer-matrix composites and steel-reinforced concrete. It discusses also several interesting novel structural concepts in which the material is used at its best.

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LECTURE SERIES 2022-2023

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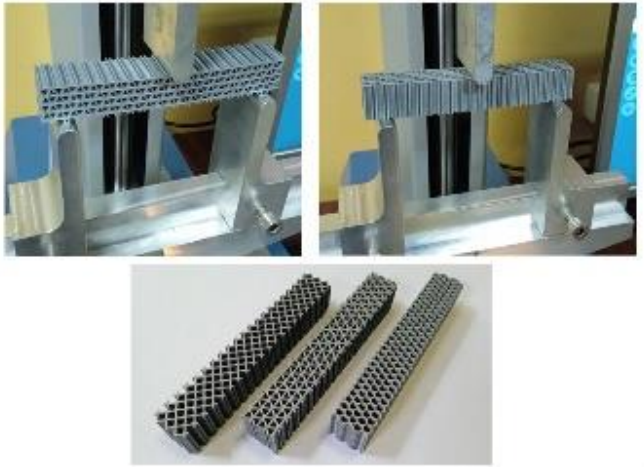
On the mechanical behaviour of 3D printed honeycomb structures

Lect.dr.eng. Vasile Cojocaru (Babeș-Bolyai University)

Thursday May 11th, 13:00-14:00 CET (ON & OFFLINE)



The additive manufacturing technologies facilitates the development of components with a cellular core structure. These structures reduce the weight of parts and the material consumption. The presentation focuses on the analysis of the mechanical behavior of some structures with cellular core. Case studies of loading along the principal axes of inertia and asymmetric loading are analyzed.

Please register to a lecture/s here!