PhD DISG

Director
Patrizia Trovalusci

Sapienza Università di Roma
PhD Program in
Structural and Geotechnical Engineering

April 27, 2023 – 11:00am-1:00pm

Prof. Katherine A. Liapi

Department of Architecture, University of Patras, Greece

Tensegrity structures: Geometric configuration and design algorithms

Tensegrities are a special type of tensile structures that offer a viable alternative to conventional and temporary space covering or space enclosure structures. The morphology of tensegrity structures is uniquely and directly related to their structural and mechanical properties. However, their geometric and topological complexity accounts for significant difficulties in their study and for their limited application in building design. This seminar will introduce a geometric method, algorithms, and computational processes that generate digital models of double-layer tensegrity networks that occur from the assembly of identical tensegrity prismatic units of a square base. We will also discuss a modular technology that makes possible the construction of tensegrity structures by reusing the same tensegrity units. The principal geometries addressed are domical, vaulted, and slab configurations. In addition, we will discuss the structural performance of various configurations. Finally, we will present design algorithms that are used to generate tensegrity structures of ellipsoidal and helicoidal shape.

Program:
https://phd.uniroma1.it/web/seminar---tensegrity-structures-geometric-configuration-and-design-algorithms_ns5125EN_EN.aspx

Registration form:
https://docs.google.com/forms/d/e/1FAIpQLScbXRNLDKrof6-FnxLMmBCngfviyi62PfDC1sgggr7ZGqSHyw/viewform?usp=sf_link

Virtual room:
https://uniroma1.zoom.us/j/98271276509

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