



Risk and Sustainability
*in Civil, Architectural and Environmental
Engineering Systems*



PHD WEBINAR

BIO-INSPIRED HIERARCHICAL METAMATERIALS

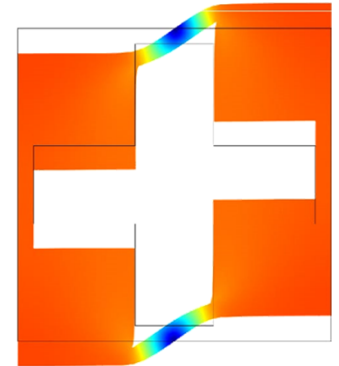
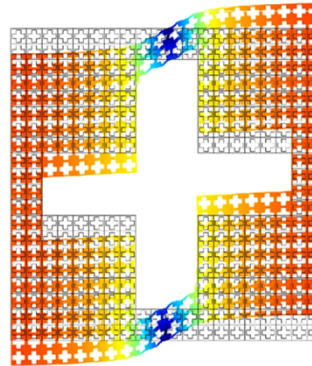
Seminar organized within the Course of Mathematical and Mechanical Models
in Engineering and Architecture

21 JULY 2020 | 9.30

With:

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To join **zoom meeting** click on the link below:

<https://zoom.us/j/99410963264?pwd=eFZpYlB3c0RLVetNeDVldTdnaGkwQT09>

Nature has engineered complex designs to achieve advanced properties and functionalities over hundreds of thousands of years. For instance, a hierarchical organization over multiple length scales allows enhanced quasistatic mechanical properties (such as high specific strength, stiffness, and toughness). While largely investigated in the quasistatic domain, the role of hierarchy in the dynamic behaviour of metamaterials remains largely unexplored. In this webinar a numerical and experimental investigation of the influence of bio-inspired hierarchical organization on the wave dispersion diagram in metamaterials with self-similar structures at various spatial scales is presented. The advantages (and limitations) that the hierarchical architectures provide for the dynamic performance with respect to conventional metamaterials will be discussed.