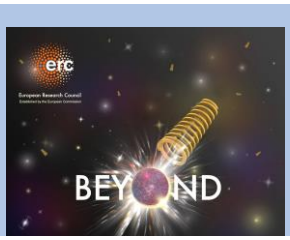

UNIVERSITÀ DI TRENTO

Modeling Finite-sized Metamaterials with Enriched Continua

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Date	**May 11, 2026**
Time	**10:30**
Room	**T3, DICAM, Mesiano**

This talk addresses the enriched continuum modeling of finite-sized mechanical metamaterials. While architectured metamaterials are typically characterized through their bulk dynamic response: capturing phenomena such as dispersion and band-gaps, this perspective neglects the significant influence of boundaries in finite-sized specimens. Each can be constructed from a different "cut" of the unit cell, which has a significant impact on the material's behavior.

Building on classical Bloch-Floquet analysis for the reduced relaxed micromorphic model (RRMM), we propose an extended framework that incorporates boundary effects through the introduction of Null-Lagrangians and the method of interface forces. This approach enables a consistent treatment of different unit-cell cuts and their associated boundary conditions, providing improved predictive capability for finite-sized metamaterial samples.

The seminar is organized by the Solid and Structural Mechanics Group [D. Bigoni, F. Dal Corso, L. Deseri, D. Misseroni, M.F. Pantano, A. Piccolroaz, N.Pugno, R. Springhetti]