

## **Mechanics of architected materials: a journey towards sustainable future materials**

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**Abstract:** Materials-by-design is a potential solution for the challenges in sustainable development. In this perspective, thanks to additive manufacturing (AM), the internal architecture complements the chemical composition to broaden the library of materials for industry. The so-called architected materials, once designed efficiently, can contribute to more resource-efficient material use with improved recyclability. In this talk, we will look into the mechanics of architected materials. The AM-related aspects regarding manufacturing of such materials will also be addressed. The discussion will include examples regarding failure, fatigue, and energy dissipation in such materials.