

Séminaire du laboratoire PIMM

Mercredi 31 mars 2021 à 13h30 sur Teams

Prof. Thomas H. SIEGMUND

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présentera dans le cadre du séminaire ses travaux intitulés :

Stereotomic Material Systems – Material Architecture to Expand the Toughness-Strength Space

By endowing homogeneous materials with architecture, the material property space can be expanded. In this talk I will focus on dense architecture materials obtained by segmentation of the monolithic system into topologically interlocking building blocks. First, I will demonstrate the conceptual advantages of such an approach using a canonical model, which I will also use to show the underlying mechanics principles. I then proceed to investigate stereotomic material systems with architectures derived from Archimedean and Laves tessellation, as well as from distorted square tessellation. I will discuss and analyze the relationships between architecture and mechanical properties. I will conclude with a discussion on potential applications to technology relevant problems.

Bio:

Thomas Siegmund is Professor of Mechanical Engineering at Purdue University. His research group investigates the fundamental question on strength and toughness. He applies finding to technologically relevant problems in wide array of applications. Thomas Siegmund served as the President of the Society of Engineering Science, 2017, and as the NSF Program Director for Mechanics of Materials and Structures (2013-2015). He is a Fellow of ASME and SES.