IUTAM

Symposium on Architectured Material Mechanics

Architectured materials are an emerging and exciting class of materials with the promise of advantageous performance and multifunctional properties. These materials are characterized by specific and periodic structural features which are larger than what is typically considered a microstructural length scale (such as a grain size) but smaller than the size of the final component made of the architectured material. This class of materials includes but is not limited to lattice materials and cellular material systems, dense material systems composed of building blocks of well-defined size and shape.

The key characteristic distinguishing architectured materials from other materials is their very high morphological control, and architectured materials can therefore be considered high information materials. The tight control of the morphological characteristics allows to predefine and control specific mechanisms of local stress transfer, elastic/plastic buckling, gliding of building blocks or propagation of cracks along predefined paths. Well-designed architectured materials can generate new and attractive combinations of properties which can be programmed in the material. In particular, the empty spaces and gliding interfaces contained in architectured materials can be exploited to overcome the theoretical bounds that apply to monolithic materials.

This IUTAM symposium will provide a state of the art on the engineering science of architectured materials and focus on the mechanics, design, fabrication and mechanical performance of all categories of architectured materials including but not limited to lattice materials, metamaterials and topologically interlocked materials.

Symposium: Sept. 17-19, 2018

Location: The Gleacher Center, Downtown Chicago, IL, USA

Conference Chairs:

- Thomas Siegmund, Purdue University, **siegmund@purdue.edu (mailto:siegmund@purdue.edu)**
- Francois Barthelat, McGill University, **francois.barthelat@mcgill.ca (mailto:francois.barthelat@mcgill.ca)**

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Program:

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Scientific Committee

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UK - University of Cambridge

Yuri Estrin
AUS - Monash University

David Embury
CAN - McMaster University

Otmar Kolednik
AT - Austrian Academy of Sciences

Viggo Tvergaard
DK - IUTAM Representative

List of Confirmed Keynote Speakers (A-Z)

Zdenek Bazant
USA - Northwestern University

Katia Bertoldi
USA - Harvard University

Yves Brechet
FR - Grenoble-INP

Greg Frederickson
USA - Purdue University

Yonggang Huang
USA - Northwestern University

Heinrich Jaeger
USA - University of Chicago

Rod Lakes
USA - University of Wisconsin

Stephan Rudykh
IL - Technion

Ole Sigmund
DK - Technical University of Denmark

Andre Studart
CH - ETH Zurich

Oliver Tessmann
DE - Technische Universität Darmstadt

Daniel Wagner
IL - Weizmann Institute

Pablo Zavattieri
USA - Purdue University

Frank Zok
USA - UCSB

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