



**SUBMIT AN ABSTRACT BY JULY 1**

**FEBRUARY 27-MARCH 3, 2022**  
**ANAHEIM CONVENTION CENTER & ANAHEIM MARRIOTT**  
**ANAHEIM, CALIFORNIA, USA**  
**#TMSAnnualMeeting**

**SUBMIT AN ABSTRACT FOR THE FOLLOWING TMS2022 SYMPOSIUM:**

## **NANOSTRUCTURED MATERIALS**

### **Self-organizing Nano-architected Materials**

Nano-architected materials are solids comprising features smaller than ~100 nm. The continued development of new synthesis and processing methods are pushing the state-of-art on achievable morphologies, microstructures, and functionalities of these materials. Often, these novel materials present very high surface to volume ratios, geometric features of dimensions at the same scale of microstructural elements, and high populations of bulk and interfacial defects, all of which present challenges to the understanding and prediction of the governing processing-structure-property relationships.

This symposium thus aims to provide a platform for the presentation of new results and dynamic discussions regarding nano-architected materials, including materials with nanopores, nano-composites, nano-crystalline, nano-laminates, and hierarchical structures. A joint session has been planned together with the "2022 Symposium on Functional Nanomaterials: Functional Low-Dimensional (0D, 1D, 2D) Materials."

Topics of interests include, but are not limited to:

- New routes for synthesis and processing, e.g., dealloying, 3D printing, freeze-casting, templating, self-assembling
- Theoretical (thermodynamics and kinetics) and computational methods to understand and predict the processing-structure-property relationships in these materials, e.g., their morphological evolutions and their mechanical properties
- Advanced characterization methods, e.g., tomography, diffraction/scattering, spectroscopy, micromechanical testing, in situ approaches, advanced electron microscopy and X-ray analysis
- Data-science driven materials design and processing-structure-property prediction
- Applications of nano-architected materials, such as catalysis, energy storage-conversion, sensors, actuators, and biotechnology

#### **ORGANIZERS**

**Yu-chen Karen Chen-Wiegart**, Stony Brook University / Brookhaven National Laboratory

**Ian McCue**, Northwestern University

**Erica Thea Lilleodden**, Helmholtz-Zentrum Geesthacht

**Pierre-Antoine Geslin**, Institut National des Sciences Appliquées - Lyon

**Qing Chen**, Hong Kong University of Science & Technology

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