

MECHANICAL BEHAVIOR AND DESIGN OF MICRO/NANO STRUCTURAL MATERIALS

1100 - ATOMISTIC, NANO AND MICRO MECHANICS OF MATERIALS

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ABSTRACT

Micro/nano-structural materials are constructed using microscopic building blocks and the characteristic length scale of which is on the order of 1 nm to several microns. Traditional structural materials are primarily studied for their mechanical properties. Yet the progress in recent years has greatly expanded the investigation to a highly diverse and strongly multidisciplinary area. Micro/nano structural materials can extensively take advantage of the physical, chemical and mechanical properties of micro/nanoscale units. Precise regulation of material properties can be achieved through the design of micro/nano structures and interfaces. Bottlenecks in structural design and performance of traditional structural materials are expected to be broken through soon. It offers strategic opportunities to design new structural and functional materials for irreplaceable applications under extreme conditions.

This minisymposia aims to joint researches working in the related areas, to exchange the latest developments in the mechanical behavior and design of micro/nano structural materials and to explore their future prospects. The main topics include, but are not limited to:

- . Computational mechanics of various micro/nano structures, including nanoparticles, nanowires, nanotubes, nanoporous materials, 2D materials, bio-inspired systems;
- . Analysis of mechanisms using theoretical modelling and molecular simulation;
- . Mechanical behaviors and performance under extreme conditions with multi-field effects;
- . Applications of micro/nano structural materials in energy, environment, health, etc.;
- . Other related research progress.

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