Special Issue

Mechanics of Micro- and Nano-Structured Materials

Message from the Guest Editor

With a continuous trend towards miniaturization, micro- and nano-structural features are gaining importance in the analysis of the effective behavior of the materials constituting the building blocks of everyday life devices. Continuum approaches for polycrystalline or composite materials have been typically centered around a phenomenological description of the processes taking place at small length-scales; in this way, tuning parameters (with a limited physical meaning) have to be quantified through sometimes expensive experimental tests and, if possible, post-mortem analyses. The main risk of these approaches is a loss of generalization or a reduced capability to match the actual materials' response under different loading conditions, in case different mechanisms are triggered at the micro-scale. The goal of the present Special Issue is to collect contributions regarding microstructure-informed approaches, able to account (even in a simplified way) for the possible phenomena taking place at length-scales comparable, or even smaller than the microstructural one.

Guest Editor

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Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

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