# Special Issue

# Nano-Chemical Mechanics in Deformation and Fracture

### Message from the Guest Editor

The issue of mechanical and chemical couplings on a nanoscale and their influence on deformation and fracture is an emerging topic in engineering science. Typical problems are chemomechanical damage and associated capacity fade in Li-ion rechargeable batteries, hydrogen damage in advanced energy storage components, as well as nanoscale phenomena in drilling and energy generation from the earth's crust. Multiscale theoretical modeling and novel mutiprobe experimental tests are necessary to capture the underlying physical processes at the nanoscale and assess their effect at the micro, meso and macro scales. Generalized continuum mechanics. The results will be of use for material/component design and protocol development in energy storage, automotive/aerospace industry, as well as in the manufacturing, chemical and energy sectors. Moreover, this will be of interest to biomedical technology, including treatments of bone degradation/fracture, cancer metastasis and Alzheimer's disease progression.

### Guest Editor

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### Deadline for manuscript submissions

closed (28 February 2022)

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### Message from the Editor-in-Chief

*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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