

2023



Nanomechanics:

surface/interface, composite nanomaterials, hybrid nanomaterials

(Last update: November 4th, 2022)

Description

This « Nanomechanics » session aims at bring together researchers working on the mechanical properties of nanometric-sized objects, whose deformation mechanisms are specific due to their significant surface/volume ratio. The investigations from the micron-scale down to individual atoms require the development of new experimental and simulation tools and techniques. At such a scale, the physical and/or chemical phenomena may be strongly modified/affected, revealing new material laws that can be tuned to exploit these original properties.

The issues are double 1- fundamental on mechanisms (elasticity, plasticity, fracture) and 2- applicative since the strain fields are often coupled to functionalities (electrical, magnetic, optical, ...). The targeted field of study concerns nanoparticles/nanostructures and nanometric thin films as well as the development of their mechanical characterization and/or the simulation of their mechanical properties.

The main points addressed in this session are the following:

- Nanoparticles, vibration, elasticity
- Nano/micro-pillars, plasticity, and fracture
- Nanostructured/nanocomposite thin films, hybrid materials
- Couplings between deformation mechanisms and functional properties
- Atomistic and multi-scale simulations
- Experimental developments: electron microscopy, synchrotron, near field microscopy, vibrational spectroscopy.

Keywords

Nano-objects, thin films, small-scale mechanics, experimental techniques, simulations

Scientific committee

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