

CONTACT AND INTERFACE MECHANICS: MODELING AND COMPUTATION

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MINISYMPOSIUM

In structural mechanics, the role of interfaces plays a fundamental in many problems. These interfaces may be physical in form, such as contact/impact and fracture/crack interfaces, or numerical in form, such as immersed boundary/embedded and domain decomposition. Although a lot of progress has been achieved, the research field is still growing and diversifies in many directions.

This session is devoted to recent developments on the various aspects of contact mechanics:

- Interface behaviour: unilateral contact, friction, adhesion, viscosity, fretting, wear, peeling, rolling contact, contact in biomechanics, fluid flow in contact interface.
- Computational models: multilevel approaches (molecular and nano-micro-macro models), multi-physics (thermo-piezo- ...), coupled multi-field formulations, fractal surface characterization, homogenization, bi-potential.
- Computational methods: fast solvers, multi-grid, isogeometric analysis, NURBS, virtual elements.
- Dynamics of structures and of rigid bodies, instabilities.
- Discretization methods for overlapping immersed and embedded meshes.
- Mathematical progresses.
- Industrial applications involving interface and contact conditions.

Besides presentations of new results and new contributions to the understanding of contact mechanics, this session will provide an opportunity to discuss and exchange ideas on the various topics related to contact mechanics in science and engineering.