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Minisymposium on **COMPUTATIONAL CONTACT MECHANICS**

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Abstract

Contact Mechanics is one of the most growing research fields in Mechanics. This is due to the refinement of modeling engineering structures and processes where the complexity of contact constraints is now often taken into account in order to obtain accurate simulation results. The area of research in contact mechanics has many facets and directions. Hence the scientific community working in the field has started to meet at events devoted to specific topics. One of the most active areas is related to computational approaches denoted Computational Contact Mechanics.

Within this area different aspects have to be considered. Among them are new discretization techniques, multiscale approaches ranging from the macro to the nanoscale, robust and innovative solution schemes. Also, the interest has been deeply extended to the wide areas of multifield problems that couple different partial differential equations, like e.g. thermo-electro-mechanical contact problems. Furthermore interface problems for rigid bodies, failure processes in heterogeneous materials, textile and laminated composites, bio-mechanics as well as thermo-electro-mechanical contact problems are of growing interest.

Special interest conferences and special thematic events, like this minisymposium, are the natural meeting points of the computational contact community. The topics of interest are wide ranging. The basic list of the main pertinent subjects includes:

- Discretization techniques;
- Constraints enforcement methods;
- Contact detection algorithms;
- Multi-scale approaches;
- Rolling contact;
- Friction and wear;
- Adhesion, debonding, delamination and failure processes;
- Contact constitutive laws;
- Discrete elements techniques;
- Coupled multifield problems;
- Computational efficiency of the solution procedures;
- Contact at the nanoscales;
- Bio-mechanical contact problems.

The aim of the minisymposium is to provide a special forum for active scientists and for young researchers, just entering the field, for discussing the most recent advances and the perspectives for future developments in contact mechanics.