MULTI-SCALE MODELS OF INTERFACIAL LAYERS

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ABSTRACT

The presence of interfacial layers has a significant effect on the mechanical properties and the durability of materials used in civil, mechanical, biomechanical and electronic engineering. The development of reliable models for materials whose properties are interface controlled plays a crucial role in the optimization of currently used materials and in the design of new classes of advanced materials.

The goal of the mini-symposium is to give the state of the art and to present some advances and applications of interphases modeling in interface controlled materials. The mini-symposium is intended to bring together diverse interdisciplinary groups of researchers and to promote a fruitful exchange of ideas and information among engineers, mathematicians, scientists and physicists.

Topics to be covered include, but are not limited to, the following:

- multi-scale modeling of interphases, thin films and surfaces;

- mathematical models and analysis of contact;

- models of imperfect, sliding, debonding or cohesive interfaces in composite materials;

- deformation, damage, fracture and other dissipative processes at interfaces;

- advanced finite element methods for the computational modeling of interfaces and surfaces;

- industrial applications.

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