

ADVANCED MATERIALS: COMPUTATIONAL ANALYSIS OF PROPERTIES AND PERFORMANCE

VADIM V. SILBERSCHMIDT* AND VALERY P. MATVEENKO[†]

* Loughborough University
Ashby Road, Loughborough, Leics., LE11 3TU, UK
E-mail address: V.Silberschmidt@lboro.ac.uk

[†] Institute of Continuous Media Mechanics, Russian Academy of Sciences
614013 Perm, street Academ. Koroleva, 1, Russia
E-mail address:.mvp@icmm.ru

Key words: Advanced Materials; Properties and Performance; Microstructure; Biomaterials

ABSTRACT

The aim of this long-standing Mini-Symposium is to bring together specialists in computational mechanics, mechanics and micromechanics of materials, applied mathematics, continuum mechanics, materials science, physics as well as mechanical, automotive and aerospace engineering to discuss advances in computational analysis of relationships between the microstructural features of advanced materials and their local and global behaviour as well as the effect of microstructure on performance of components and structures.

The topics of the Mini-Symposium include, but are not limited to, the following:

- mechanics of advanced materials and structures;
- effect of microstructure on properties and performance of advanced materials;
- prediction of deformational behaviour and life-in-service of structures and components made of advanced materials;
- computational models of biomaterials and biomedical materials;
- simulation of deformation, damage and fracture processes in materials at the small scale;
- computational methods for analysis of modern visco-elastic composite and nanocomposites materials;
- mechanics of composite materials with relaxation and phase transitions;
- simulation of failure mechanisms and damage accumulation processes in advanced materials;
- computational analysis of cutting of advanced materials;
- optimization problems in mechanics of advanced materials and structures.