

S12 Plasticity, damage and fracture mechanics

Organizers:

M. Basista (IPPT PAN, Warsaw, Poland)

J. Hohe (Fraunhofer IWM, Freiburg, Germany)

A. Menzel (TU Dortmund, Germany & Lund University, Sweden)

J. Pamin (Cracow University of Technology, Poland)

The theories and applications of plasticity remain in the focus of interest in mechanics of materials and structures. This includes the microstructural background of plasticity, representation of anisotropy and unstable material response, coupling with other constitutive theories. Alternative mathematical frameworks and algorithmic aspects of plasticity are also considered. Moreover, new plastic models are developed for multiscale phenomena and multi-physics research, in particular for thermo-plasticity. Papers related to any of the above aspects of plasticity are invited for submission. Within the damage and fracture mechanics part of the session, research communications are sought on the influence of defects at different scales on the mechanical response of materials and structural components. Contributions which provide better understanding of the mechanisms of crack nucleation and growth along with their impact on engineering applications are welcome. Phenomenological, micromechanical, multiscale, and atomistic models of damage and fracture fall within the scope of this session.