Multiscale analysis of composite materials

Michal Sejnoha (sejnom@fsv.cvut.cz) – Prague, Czech
Eric Martin (martin@lcts.u-bordeaux1.fr) – Bordeaux, France

Composite materials are attractive materials for load bearing structures but the development of accurate mechanical models is challenging due to the complex microstructure exhibited by such systems. Multi-scale modelling of the mechanisms of deformation and fracture provides the key to a successful design. The session will focus on the main following points :
i) the fundamental understanding of the material at the various scales of interest (micro, meso, and macroscopic scales,
ii) the design of micro-structural features that control the properties of material,
iii) how to build a predictive framework for the thermo-mechanical behaviour of a large structure
Contributions are encouraged dealing both with basic modelling, computational problems and dedicated experimental approaches. Special emphasis will be put on challenging materials like woven composites.