MS11: Fracture and damage of composites and laminates

Pedro P. Camanho¹, Stephen Hallett², Joris J. C. Remmers³, Olivier Allix⁴

¹ DEMec, Faculade de Engenharia, Universidade do Porto
4200-465 Porto (PORTUGAL) (pcamanho@fe.up.pt)

² Advanced Composites Ctre for Innovation & Science,
(ACCIS), University of Bristol BS8 1TR (UNITED KINGDOM) (Stephen.Hallett@bristol.ac.uk)

³ Department of Mechanical Engineering, Technische Universiteit Eindhoven
P.O. Box 513, 5600 MB EINDHOVEN (NETHERLANDS) (J.J.C.Remmers@tue.nl)

⁴ LMT, ENS de Cachan CNRS, Université Paris-Saclay,
61 avenue du Président Wilson F-94235 Cachan (FRANCE) (allix@lmt.ens-cachan.fr)

The objective of this mini-symposium is to provide a forum for the in-depth discussion of new and recent analysis methods that simulate the non-linear deformation and fracture of composite materials. Such models may address different matrices (e.g. polymer, ceramic, metal), different reinforcement materials (e.g. carbon, glass) and architecture (e.g. laminates, fabrics, spread tows). Abstracts submitted to this mini-symposium may also include models developed at different length and time scales, addressing quasi-static or dynamic loading and degradation mechanisms such as fatigue. Recent developments on the constitutive and kinematic representation of the failure mechanisms of composite materials are also within the scope of this mini-symposium. In summary, the following topics are welcome:

- Fracture of polymer, ceramic and metal-matrix composites.
- Fracture of unidirectional, non-crimp, braided and woven fabrics.
- High-strain rate failure response of composites.
- Simulation of fracture of composites under fatigue loading.
- Micro, meso, and macro-mechanical modeling of composites.
- Multi-scale modeling of inelastic deformation and fracture of composites.
- Advanced kinematic representations of discrete fracture in composites.
- Composite fracture prediction using Finite Fracture Mechanics.
- Simulation of the hygro-thermal degradation of polymer composites.
- Effect of defects and uncertainties.