

Fracture and damage of composites and laminates

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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.