

ADVANCES IN DUCTILE FAILURE

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ABSTRACT

The focus of this Minisymposium is on recent advances in the ductile fracture of materials undergoing non-proportional loading paths, with an emphasis on complex matrix behaviors and complex void morphologies. Both experimental and modeling contributions are welcome as, of course, are contributions that combine experiment and modeling. Experimental contributions of particular interest concern the physical mechanisms of ductile fracture under non-proportional loading paths at various strain rates and their interaction with localized plastic flow. Qualitative as well as quantitative studies of these mechanisms using modern experimental facilities are especially welcome. Ductile fracture modeling issues of particular interest are: the competition between ductile damage accumulation and localization phenomena to understand and model shear failure; the role of material anisotropy; the role of material heterogeneities. Of particular importance, we will also consider all numerical aspects, algorithmic procedures and practical numerical implementations of constitutive formulations aimed at providing objective predictions of ductile failure along with their identification procedures.