Modelling Brittle Fracture of Epoxy Nanocomposites using Extended Finite Element and Cohesive Zone Surface Methods

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SUPPLEMENTARY INFORMATION

Supplementary Information 1: Uniaxial tensile test results

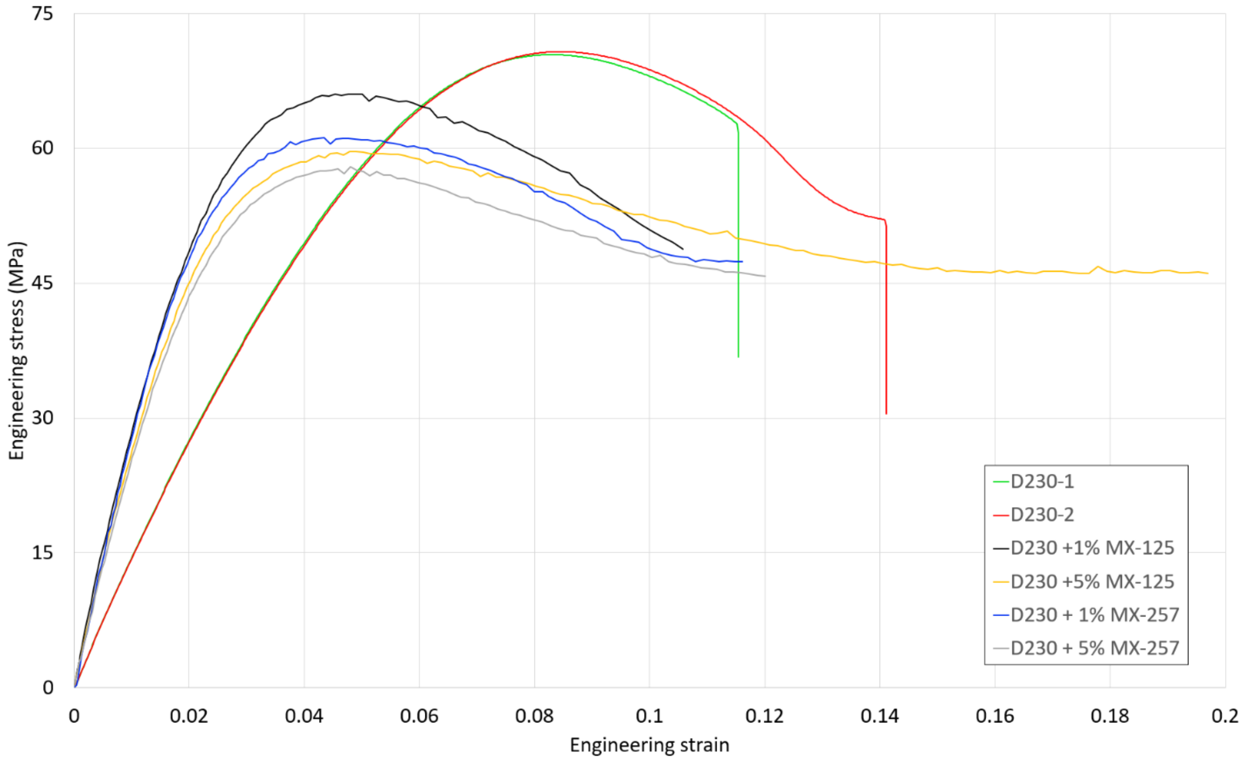

Figure S1. Engineering stress-strain curves measured from uniaxial tensile experiments for each material.

Supplementary Information 2: Mesh sensitivity of XFEM simulations

XFEM predictions of P_{max} and d_c are well-converged with respect to the mesh density as shown in Figures S2 and S3. The "Unfilled" material is a D230 resin possessing material properties and exhibiting fracture and tensile behavior like that of the D230-1 and D230-2 resins.

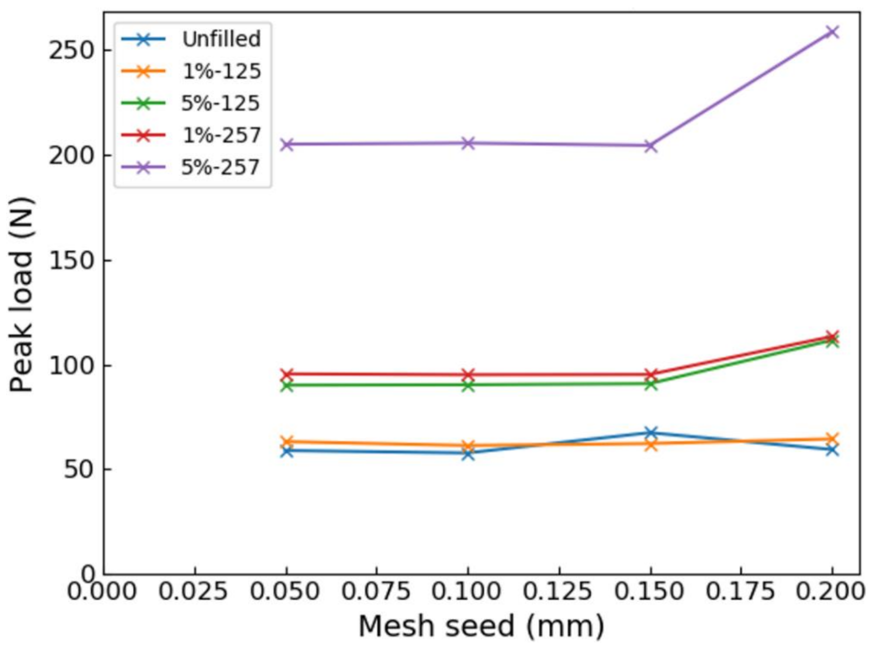

Figure S2. Convergence of critical load in XFEM simulations with respect to mesh size.

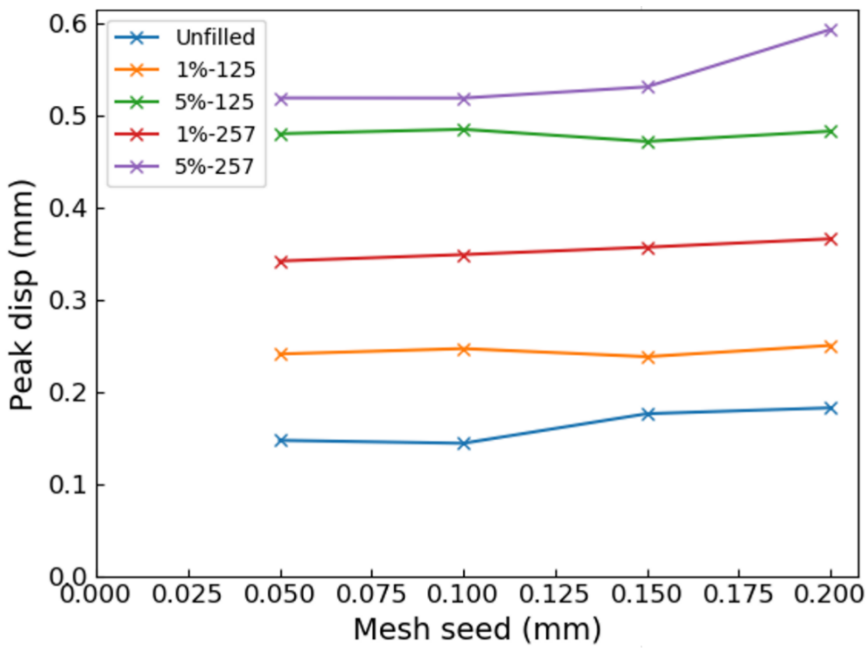

Figure S3. Convergence of critical load-line displacement in XFEM simulations with respect to mesh size.