Fracture in random heterogeneous particle systems

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To understand the onset of fracture better, we study energy functionals for one-dimensional heterogeneous particle systems with convex-concave interaction potentials that allow for fracture. We provide a notion of fracture in the discrete system and show that - in the continuum limit - this yields the same onset of fracture as corresponding energy functionals that are obtained by \( \Gamma \)-convergence methods.