

1154-74-570

Robert P Lipton* (lipton@lsu.edu), Mathematics Department, Room 256 Lockett Hall, Baton Rouge, LA 70803, and **Prashant K Jha** (pjha.sci@gmail.com), 6.328 POB, University of Texas at Austin, Austin, TX 78712. *Classic dynamic fracture recovered as the limit of a nonlocal peridynamic model: The single edge notch in tension.*

A simple nonlocal field theory of peridynamic type is applied to model brittle fracture. The fracture evolution is shown to converge in the limit of vanishing nonlocality to classic plane elastodynamics with a running crack. The kinetic relation for the crack is recovered directly from the nonlocal model in the limit of vanishing nonlocality. We carry out our analysis for a single crack in a plate subject to mode one loading. The convergence is corroborated by numerical experiments. (Received September 07, 2019)