1059-70-244 **xiantao Li*** (xli@math.psu.edu), 219C McAllister Bld, University Park, PA 17802. *Numerical simulations of crack propagation.*

The dynamics of cracks is typically modeled at the level of continuum scales, modeled by elastodynamics equations. However, many important issues in fracture is related to the atomic interactions at the microscopic scale. We will present a coupled model, combining traditional continuum PDEs with atomic level descriptions. Based on the coupled model, we study crack initiations under shock loading. (Received February 23, 2010)