

1011-49-234

**Anna Vainchtein\*** (aav4@pitt.edu), Department of Mathematics, University of Pittsburgh,  
Pittsburgh, PA 15260. *Quasistatic evolution of steps along a phase boundary*. Preliminary report.

We study quasistatic evolution of steps along a phase boundary in a two-dimensional discrete model of twinning. The model consists of antiplane shear deformation of a cubic lattice with bi-stable interactions along one component of shear strain and linear interactions along the other. Energy landscapes connecting equilibrium configurations with periodic and non-periodic distribution of steps are constructed, and the energy barriers separating metastable states are calculated. We show that a sequential one-by-one step propagation along a twinning boundary requires smaller energy barriers than simultaneous motion of several steps. This is a joint work with Basant Sharma (Ecole Polytechnique, Paris). (Received August 28, 2005)