1002-70-148 **Anna Vainchtein*** (`aav4@pitt.edu`), Department of Mathematics, University of Pittsburgh, 301 Thackeray Hall, Pittsburgh, PA 15260, and **Lev Truskinovsky** (`trusk@lms.polytechnique.fr`), Laboratoire de Mechanique des Solides, CNRS-UMR 7649, Ecole Polytechnique, 91128 Palaiseau, France. *Kinetics of lattice phase transitions.* Preliminary report.

We study a fully inertial lattice model of a martensitic phase transition which takes into account long-range interactions. Although the model is Hamiltonian at the *microscale*, it generates a nontrivial *macroscopic* kinetic relation between the velocity of the martensitic phase boundary and the conjugate configurational force. The apparent dissipation at the macrolevel is due to the induced radiation of lattice waves carrying energy away from the propagating front. We show that sufficiently strong long-range interactions have a significant effect on the kinetic relation in both near-sonic and small-velocity regions. (Received September 13, 2004)