1099-60-349 **Katie Newhall*** (newhall@cims.nyu.edu) and **Eric Vanden-Eijnden**. *Transitions and Recurrence in a Nonlinear Wave Equation and Their Application to Magnetization Reversals.*

A large variety of observable phenomena are mathematically described as transitions between metastable states in a system with many degrees of freedom, such as magnetization reversals. As a toy system for a nanomagnet, we investigate a nonlinear wave equation. Metastability in such an infinite dimensional Hamiltonian system results from the phase-space containing a small bottle-neck separating two states. We discuss the existence of an invariant measure for the stochastic in space but deterministic in time flow, and build on finite dimensional results to compute the average time for transitions across a dividing boundary in phase-space. (Received February 11, 2014)