

Meeting: 1003, Atlanta, Georgia, SS 28A, AMS-SIAM Special Session on Reaction Diffusion Equations and Applications, I

1003-35-968 **Peter W. Bates** (bates@math.msu.edu), Department of Mathematics, Michigan State University, East Lansing, MI 48824, and **Jianlong Han*** (hanjianl@math.msu.edu), Department of Mathematics, Michigan State University, East Lansing, MI 48824. *The Neumann boundary problem for a Nonlocal Cahn-Hilliard equation.*

We study the existence, uniqueness and continuous dependence on initial data of the solution for a nonlocal Cahn-Hilliard equation on a bounded domain. The equation generates a gradient flow for a free energy functional with nonlocal interaction. Also we establish a nonlinear *Poincaré* inequality which is used to show the existence of an absorbing set in each constant mass affine space. (Received October 01, 2004)