1003-35-1235 **Peter W Bates*** (`bates@math.msu.edu`), Department of Mathematics, D207 Wells Hall, Michigan State University, East Lansing, MI 48824, **Jianlong Han** (`hanjianl@pilot.msu.edu`), Department of Mathematics, and **Guangyu Zhao** (`zhaoguan@pilot.msu.edu`), Department of Mathematics. *On A Nonlocal Phase-Field System.*

We study the existence, uniqueness and continuous dependence on initial data of the solution for a nonlocal phase-field system on a bounded domain. The system is a gradient flow for a free energy functional with nonlocal interaction. Also we study the asymptotic behavior of the solution and show the existence of an absorbing set in some metric space. (Received October 04, 2004)