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Jianlong Han (han@suu.edu), Cedar City, UT 84720, and **Sarah M Brown*** (brown_s@suu.edu), Cedar City, UT 84720. *Numerical analysis for the relaxation of a nonlocal Allen-Cahn equation*. Preliminary report.

We study the existence, uniqueness and continuous dependence on initial data of the solution for relaxation of a nonlocal Allen-Cahn equation on a bounded domain. The equation is the relaxation of a gradient flow for a free energy functional with nonlocal interaction. Also we do the numerical analysis for this equation. (Received August 23, 2011)