

Asymptotic limit of fractional Allen-Cahn equations and nonlocal minimal surfaces

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Abstract

I will describe recent results on the singular perturbation limit of a fractional Allen–Cahn Equation modeling nonlocal phase transitions. The limiting interface appears to be a stationary nonlocal minimal surface. New nonlocal phenomena appear and the convergence is actually strong, something not happening in the local case. The basic tool is a deep GMT theorem due to Marstrand.