
ROBERT L JERRARD, University of Toronto

Effective energy of nearly-parallel Ginzburg-Landau vortex filaments

Starting from the Ginzburg-Landau model in cylindrical 3d domains, we derive an effective free energy functional for nearly-parallel vortex filaments. As a consequence, we establish the existence of solutions of the Ginzburg-Landau equations in certain scaling regimes, possessing a collection of vortex filaments minimizing this effective energy. This is joint work with Andres Contreras.