
Free-boundary Problems for the Ginzburg-Landau Model

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We will present obtained jointly with E. Sandier on the Ginzburg-Landau model of superconductivity. In the asymptotic limit of “large κ ”, we prove a Γ -convergence result which shows that minimizers of the Ginzburg-Landau energy converge (in the sense of convergence of the vortex-density) to the solution of a simple obstacle problem. Free-boundary type limiting problems are also derived for nonminimizing critical points.