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*Lorentz space estimates for Ginzburg-Landau.*

We discuss the Ginzburg-Landau model of superconductivity in two dimensions. We present a technical improvement of the “vortex balls construction” that allows for the extraction of a new positive term in the energy lower bounds in the vortex balls. This term is then estimated using the Lorentz space  $L^{2,\infty}$ , which is critical for the expected vortex profiles. From this we can estimate the total number of vortices and prove improved convergence results. (Received July 18, 2007)