CRITICAL POINTS OF THE GINZBURG–LANDAU FUNCTIONAL ON MULTIPLY-CONNECTED DOMAINS

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Abstract. We give a numerical method for approximating critical points of the Ginzburg–Landau functional, and present test results in the form of plots of the corresponding electron densities, magnetic fields, and currents. Our domains include a rectangle, a rectangle with a rectangular hole in the center, and a rectangle with two rectangular holes. In each case, we found several critical points. The plots reveal interesting patterns, including the existence of counter-currents (adjacent currents in opposite directions).