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Stability conditions for the Ginzburg-Landau equations in the mean-field regime

We will discuss second order stability conditions for limits of stable solutions to the Ginzburg-Landau equations (with and without magnetic field) in the mean-field regime. This is a regime where the number of vortices diverges (typically their number is of order $|\log \varepsilon|$). The conditions we find are obtained by passing to the limit in the second inner variations of the Ginzburg-Landau energy.