Second Order Gamma-Convergence for the Modica Mortola Functional

The asymptotic behavior of an anisotropic Cahn-Hilliard functional with prescribed mass and Dirichlet boundary condition is studied when the parameter ε that determines the width of the transition layers tends to zero. The first order term in the asymptotic development by -convergence is well-known, and is related to a suitable anisotropic perimeter of the interface. Here it is shown that, under usual assumptions, the second order term is zero, which gives an estimate on the rate of convergence of the minimum value.