

Global minimizers for a p -Ginzburg-Landau energy when p goes to infinity

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Abstract: We consider the minimization problem of the energy functional

$$E_p(u) = \int_{\mathbb{R}^2} [|\nabla u|^p + (1 - |u|^2)^2] \, dx$$

for $p > 2$ over the space of maps in $W_{\text{loc}}^{1,p}(\mathbb{R}^2, \mathbb{R}^2)$ whose degree along circles of large radii is 1.

We first review previous works where:

- (i) we proved existence of a minimizer for any $p > 2$,
- (ii) we obtained some properties of the minimizers over the class of radially symmetric maps.

We then report on some recent results on the limit of the minimizers u_p when p tends to infinity.

This is a joint work with Y. Almog, L. Berlyand and D. Golovaty.