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*Cahn-Hilliard energy barrier and  $\Gamma$ -convergence in a certain parameter regime*

We study the  $d$ -dimensional Cahn-Hilliard energy on the flat torus in a parameter regime in which the system size is large and the mean value is close—but not too close—to  $-1$ . We derive a leading order estimate of the size of the energy barrier that surrounds the uniform state, in the case where the latter is a local but not global energy minimizer. A sharp interface version of the ideas involved leads to a  $\Gamma$ -limit of the rescaled energy gap between a given function and the uniform state, which can be used to derive information on the existence and shape of nonconstant "droplet" local minimizers of the energy. This is the result of joint work with Maria Westdickenberg.