Asymptotics for two-dimensional elliptic Allen-Cahn systems

The formation of codimension-one interfaces for multi-well gradient-driven problems is well-known and established in the scalar case, where the equation is often referred to as the Allen-Cahn equation. The vectorial case in contrast is quite open. This lack of results and insight is to a large extent related to the absence of known monotonicity formula. I will focus on the elliptic case in two dimensions, and presents some results which extend to the vectorial case in two dimensions most of the results obtained for the scalar case. I will also emphasize some specific features of the vectorial case.

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