Heteroclinic solutions of Allen-Cahn type equations with a general $\text{div}(\nabla G(\nabla u))$ elliptic operator

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Abstract

We consider a generalization of the Allen-Cahn type equation in divergence form $-\text{div}(\nabla G(\nabla u(x,y))) + F_u(x,y,u(x,y)) = 0$ where $G$ is an anisotropic, convex function satisfying suitable ellipticity and growth conditions. We prove the existence and regularity of heteroclinic solutions in the Orlicz-Sobolev space $W^{1,G}$. 