

© 2019 Heldermann Verlag
Minimax Theory and its Applications 04 (2019) 161–188

P. Pucci

Dip. di Matematica e Informatica, Università di Perugia, Via Vanvitelli 1, 06123 Perugia,
Italy
patrizia.pucci@unipg.it

Existence of Entire Solutions for Quasilinear Equations in the Heisenberg Group

The paper deals with the existence of entire solutions for a quasilinear equation (\mathcal{E}_λ) in \mathbb{H}^n , depending on a real parameter λ , which involves a general elliptic operator \mathbf{A} in divergence form and two main nonlinearities. The competing nonlinear terms combine each other. Under some conditions, we prove the existence of a critical value $\lambda_* > 0$ with the property that (\mathcal{E}_λ) admits nontrivial nonnegative entire solutions if and only if $\lambda \geq \lambda_*$. Furthermore, under the further assumption that the potential \mathcal{A} of \mathbf{A} is uniform convex, we give the existence of a second independent nontrivial nonnegative entire solution of (\mathcal{E}_λ) , when $\lambda > \lambda_*$.

Keywords: Heisenberg group, entire solutions, critical exponents.

MSC: 35J62, 35J70, 35B08; 35J20, 35B09.