

Positive solutions of quasilinear elliptic equations with exponential nonlinearity combined with convection term

Anderson Luís Albuquerque de Araujo
Universidade Federal de Viçosa

Abstract:

We establish the existence of positive solutions for a nonlinear elliptic Dirichlet problem in dimension N involving the N -Laplacian. The nonlinearity considered depends on the gradient of the unknown function and an exponential term. In such case, variational methods cannot be applied. Our approach is based on approximation scheme, where we consider a new class of normed spaces of finite dimension. As a particular case, we extended the result achieved by De Araujo and Montenegro [2016] for any $N > 2$.

References:

- [1] A.L.A. de Araujo, L. F.O. Faria, Positive solutions of quasilinear elliptic equations with exponential nonlinearity combined with convection term, submitted for publication (<https://arxiv.org/pdf/1808.08805v1.pdf>).
- [2] A.L.A. de Araujo, M. Montenegro, Existence of solution for a general class of elliptic equations with exponential growth, *Ann. Mat.* 195 (2016) 1737–1748.