

Radial solution for a class of supercritical elliptic problems

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Abstract:

This talk is concerning a class of semilinear elliptic Dirichlet boundary value problems in the ball, where the nonlinearities involve the sum of a sublinear variable exponent and a superlinear (may be supercritical) variable exponents. We do not impose the Ambrosetti-Rabinowitz condition on the nonlinearity (or some additional conditions) to obtain Palais-Smale or Cerami compactness condition. We employ techniques based on the Galerkin approximations scheme, combining with a Sobolev type embeddings for radial functions into variable exponent Lebesgue spaces (due to do Ó et al., 2016), to establish the existence result.

References:

1. A. L. A. de Araujo, L. F. O. Faria, J. L. F. Melo Positive solutions of nonlinear elliptic equations involving supercritical Sobolev exponents without Ambrosetti and Rabinowitz condition. *Calc. Var. Partial Differential Equations* - accepted for publication.
2. J.M. do Ó, B. Ruf, P. Ubilla- On supercritical Sobolev type inequalities and related elliptic equations. *Calc. Var. Partial Differential Equations* (2016) (55:83), 2–18.