Existence of solutions for generalized quasilinear elliptic equations with weights

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Abstract

Using variational methods we prove the existence of nonnegative solutions of the following boundary value problem

$$\begin{cases} -div(|x|^{-ap}A(|\nabla u|)\nabla u) = \lambda|x|^{-(a+1)p+c}f(x,u) & \text{in } \Omega \\ u = 0 & \text{on } \partial\Omega, \end{cases}$$

where $\Omega \subset \mathbb{R}^N$ is a bounded domain with C^1 boundary and $0 \in \Omega$, $2 \leq p < N$, $-\infty < a < \frac{N-p}{p}$ and $c > 0$.

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