Title:

Positive Radial Solutions for a class

of quasilinear boundary value problems in a ball

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Abstract

We prove the existence and nonexistence of positive radial solutions for the boundary value problem

$$\begin{cases} -\Delta_p u = h(u) + \lambda f(u) \; in \; \Omega \\ u = 0 \; on \; \partial\Omega \end{cases}$$

Where $\Delta_p z := \; div(|z|^{p-2}z), p > 1, \Omega$ is the open unit ball in $\mathbb{R}^n$, $h, f: (0, \infty) \to \mathbb{R}$ are allowed to be singular at $0, f$ is asymptotically p-linear, and λ is a positive parameter.