POSITIVE RADIAL SOLUTIONS
OF A QUASILINEAR PROBLEM
IN AN EXTERIOR DOMAIN
WITH VANISHING BOUNDARY CONDITIONS

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Abstract. In this work, we study the existence and nonexistence of positive radial solutions for the quasilinear equation $\operatorname{div}(A(|\nabla u|)\nabla u) + \lambda k(|x|)f(u) = 0$ in the exterior of a ball with vanishing boundary conditions using an approach based on a fixed point theorem for operators on Banach Space.

1. Introduction

We study existence and non-existence results of positive radial solutions, given $\lambda > 0$ and $d > 0$, for the quasilinear equation:

$$(1.1) \qquad \operatorname{div}(A(|\nabla u|)\nabla u) + \lambda k(|x|)f(u) = 0, \quad |x| > d, \ x \in \mathbb{R}^N, \ N \geq 2$$