Anisotropic semipositone quasilinear problems

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Abstract

We present the existence of positive solutions for a degenerate (or singular) quasilinear equation in a ball or in the entire space $\mathbb{R}^N$. As differential operator we consider a weighted p-Laplacian with a continuous coefficient satisfying a mild integrability condition towards the boundary of the ball or at infinity in $\mathbb{R}^N$. Our main result applies when the nonlinearities $f(u)$ have $(p-1)$-sublinear growth at infinity and singular semipositone structure at the origin.

This is a joint work with Pavel Draábek from the University of West Bohemia in Pilsen.