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Nonlinear homogeneous eigenvalue problem in \mathbb{R}^N : nonstandard variational approach

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Abstract: The nonlinear eigenvalue problem for p-Laplacian

$$\{ -\operatorname{div}(a(x)|\nabla u|^{p-2}\nabla u) = \lambda g(x)|u|^{p-2}u \text{ in } \mathbb{R}^N, u > 0 \text{ in } \mathbb{R}^N, \lim_{|x| \rightarrow \infty} u(x) = 0,$$

is considered. We assume that $1 < p < N$ and that g is indefinite weight function. The existence and $C^{1,\alpha}$ -regularity of the weak solution is proved.

Keywords: eigenvalue, the p-Laplacian, indefinite weight, regularity

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