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Eigenvalues of the p-Laplacian in R^N with indefinite weight

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Abstract: We consider the nonlinear eigenvalue problem

$$-div(|\nabla u|^{p-2}\nabla u) = \lambda g(x)|u|^{p-2}u$$

in $\boldsymbol{R}^N$ with $p > 1$. A condition on indefinite weight function g is given so that the problem has a sequence of eigenvalues tending to infinity with decaying eigenfunctions in $W^{1,p}(\boldsymbol{R}^N)$. A nonexistence result is also given for the case $p \geq N$.

Keywords: eigenvalue, the p-Laplacian, indefinite weight, $\boldsymbol{R}^N$
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