Estimates from Below for the First Eigenvalue of the p-Laplacian

Alexander Fabricant, Nikolai Kutev, Tsviatko Rangelov

Institute of Mathematics and Informatics, Bulgarian Academy of Sciences
Acad. G. Bonchev St, Bl. 8, 1113 Sofia, Bulgaria
`rangelov@math.bas.bg`

Keywords: p-Laplacian, first eigenvalue, Hardy inequality

The first eigenvalue λ of p–Laplacian operator with zero Dirichlet boundary conditions in bounded domain $\Omega \subset R^n$, $n \geq 2$, $p > 1$ is considered. A lower bound for λ is obtained by using Hardy inequality with double singular kernel. Comparison with analytical and numerical estimates from below in the ball for the first eigenvalue is shown.