Chiappinelli, Raffaele
Upper and lower bounds for higher order eigenvalues of some semilinear elliptic equations. (English) 
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Summary: We prove upper and lower bounds on the eigenvalues (as the $H^1_0(\Omega)$ norm of the eigenfunction tends to zero) in bifurcation problems for a class of semilinear elliptic equations in bounded domains of $\mathbb{R}^N$. It is shown that these bounds are computable in terms of the eigenvalues of the associated linear equation.

MSC:
65N25 Numerical methods for eigenvalue problems for boundary value problems involving PDEs
35J61 Semilinear elliptic equations
35P30 Nonlinear eigenvalue problems and nonlinear spectral theory for PDEs
35B32 Bifurcations in context of PDEs

Keywords:
nontrivial solution; bifurcating family; Sobolev inequality; upper and lower bounds; eigenvalues; eigenfunction; semilinear elliptic equations

Full Text: DOI

References:


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