

Existence and multiplicity of positive solutions for a fourth-order elliptic equation

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Abstract. We prove existence and multiplicity of solutions for the problem

$$\begin{cases} \Delta^2 u + \lambda \Delta u = |u|^{2^*-2} u, & \text{in } \Omega, \\ u, -\Delta u > 0, & \text{in } \Omega, \quad u = \Delta u = 0, \text{ on } \partial\Omega, \end{cases}$$

where $\Omega \subset \mathbb{R}^N$, $N \geq 5$, is a bounded regular domain, $\lambda > 0$ and $2^* = 2N/(N - 4)$ is the critical Sobolev exponent for the embedding of $W^{2,2}(\Omega)$ into the Lebesgue spaces.

References

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