Du, Feng; Wu, Chuanxi

The eigenvalues inequalities of the weighted Paneitz operator and weighted vibration problem for a clamped plate. (Chinese. English summary) [Zbl 07494970]


Summary: In this paper, we study the closed eigenvalue problem of the weighted Paneitz operator and weighted vibration problem for a clamped plate on smooth metric measure spaces, and give the upper bounds for the first $n$ eigenvalues on $n$-dimensional compact submanifolds of a Euclidean space, or a unit sphere, or a projective space, or a general Riemannian manifold. In addition, we give the lower bounds of the first eigenvalue of the weighted vibration problem for a clamped plate on a compact smooth metric measure space with the bounded weighted Ricci curvature.

MSC:
35P15 Estimates of eigenvalues in context of PDEs
53C42 Differential geometry of immersions (minimal, prescribed curvature, tight, etc.)
53C21 Methods of global Riemannian geometry, including PDE methods; curvature restrictions

Keywords: weighted Paneitz operator; eigenvalues; inequalities; weighted Ricci curvature; vibration problem

Full Text: DOI