

A FABER-KRAHN INEQUALITY FOR SOLUTIONS OF SCHRÖDINGER'S EQUATION ON RIEMANNIAN MANIFOLDS

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Resumo

Abstract: We consider a bounded open set with smooth boundary $\Omega \subset M$ in a Riemannian manifold (M, g) , and suppose that there exists $u \in C(\overline{\Omega})$ solving the problem

$$-\Delta u = V(x)u, \text{ in } \Omega,$$

in the distributional sense, with $V \in L^\infty(\Omega)$, where $u \equiv 0$ on $\partial\Omega$. We prove a sharp inequality involving $\|V\|_\infty$ and the first eigenvalue of the Laplacian, which generalizes the well known Faber-Krahn inequality. This is a joint work with Emerson Abreu (UFMG-Brazil).