Spectral geometry inequalities for Schatten p-norms of compact operators

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Abstract: In this talk we give answers to some spectral geometry questions of Schatten p-norms of convolution type compact operators on complete, connected, simply connected Riemannian manifolds of constant sectional curvature. For example, we show that among all domains of a given measure the geodesic ball is a maximizer of Schatten p-norms of some convolution type integral operators. The main reason why the results are useful, beyond the intrinsic interest of geometric extremum problems, is that they produce a priori bounds for spectral invariants of operators on arbitrary domains. This talk is mainly based on the papers [1]- [5].

Keywords: Convolution operators, Schatten p-norm, n-sphere, real hyperbolic space, Rayleigh-Faber-Krahn inequality, Hong-Krahn-Szego inequality

2010 Mathematics Subject Classification: 35P99, 47G40, 35S15

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