On the spectrum of warped products and G-manifolds

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Abstract

In this conference we study the generic spectrum of warped products and G-manifolds (that contain principal bundles). We establish a kind of splinting eigenvalues theorem considering a family of differential operators on the base of a warped product. As a consequence, we prove a density theorem for a set of warping functions that makes the spectrum of the Laplacian a warped-simple spectrum. This is then used to study the generic situation of the eigenvalues of the Laplacian on a class of compact G-manifolds. In particular, we give a partial answer to a question posed in 1990 by Steven Zelditch about the generic situation of multiplicity of the eigenvalues of the Laplacian on principal bundles.

References

[1] Uhlenbeck K. - *Generic properties of eigenfunctions*,Amer. J. Math. 98 (4) (1976) 1059–1078

[2] Zelditch S. - *On the generic spectrum of a riemannian cover.*, Ann. Inst. Fourier (Grenoble) 40 (1990) 407–442

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