Universidade Federal de São Carlos
Centro de Ciências Exatas e de Tecnologia

Seminário de Geometria Diferencial

(USP-UNICAMP-UFSCar)

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Falará sobre

Generic properties of the eigenvalues of the η-Laplacian

We consider an analytic family of Riemannian metrics on a compact smooth manifold M. We assume the Dirichlet boundary condition for the η-Laplacian, and obtain Hadamard type variation formulas for analytic curves of eigenfunctions and eigenvalues. As an application, we show that for a subset of all C^r Riemannian metrics $\mathcal{M}^r$ on M, all eigenvalues of the η-Laplacian are generically simple, for $2 \leq r < \infty$. This implies the existence of a residual set of metrics in $\mathcal{M}^r$, which makes the spectrum of the η-Laplacian simple. Likewise, we show that there exists a residual set of drifting functions η in the space $\mathcal{F}^r$ of all C^r functions on M, which makes again the spectrum of the η-Laplacian simple, for $2 \leq r < \infty$. Besides, we give a precise information about the complementary of these residual sets, as well as about the structure of the set of deformations of a Riemannian metric (respectively of the set of deformations of a drifting function) which preserves double eigenvalues. Moreover, we consider a family of perturbations of a domain in a Riemannian manifold, and obtain Hadamard type formulas for the eigenvalues of the η-Laplacian in this case. We also establish generic properties of eigenvalues in this context.

Data: **13 de março de 2019**
Horário: 16h
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