

Seminário de sistemas dinâmicos e estocásticos

IMECC - UNICAMP

Título: On the Laplacian spectrum and Wasserstein spaces.

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Resumo:

The Laplacian naturally appears in various problems of geometry and analysis, establishing important relationships between analytical properties and the structure of the spaces over which it is defined. In this presentation, I will discuss some properties of the Laplacian, in particular aspects of its spectral structure and how it can reflect geometric information. I will also present some recent results in this context [1]. In the final part, I will discuss some aspects of Wasserstein spaces and how the Laplacian may be related to the structure of these spaces. This perspective, still under development, seeks to explore possible connections between analytical properties of the Laplacian and the Wasserstein space [3, 4, 2].

REFERENCES

- [1] G. C. Brito and M. A. M. Marrocos, *On the Generic Simplicity of the Spectrum for Connection Laplacian and G-simplicity on Principal Bundles*, arXiv:2602.12884 [math.DG], 2026.
- [2] A. Magalhaes de Sa Gomes, C. S. Rodrigues and L. A. B. San Martin, *The Riemannian Geometry of the Probability Space of the Unit Circle*, arXiv:2504.11559 [math.DG], 2025.
- [3] K.-T. Sturm, *Super-Ricci Flows for Metric Measure Spaces*, Journal of Functional Analysis **275** (2018), no. 12, 3504–3569.
- [4] C. Villani, *Optimal Transport: Old and New*, Grundlehren der mathematischen Wissenschaften, vol. 338, Springer, Berlin, 2009.