



Seminar/Talk

Informal dynamical systems discussion: Liouville Metrics and Spectral Rigidity

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Host: Kaloshin Group

I will present a joint work with Joscha Henheik, Vadim Kaloshin and Amir Vig on the deformational spectral rigidity of Liouville metrics. The Liouville metrics refer to a class of Riemannian metrics on the 2-torus of the form $ds^2 = (f(x) + g(y))(dx^2 + dy^2)$. Liouville metrics are special partly because they are conjectured to be the only class of metrics whose geodesic flow is integrable in the Liouville-Arnold sense. We consider the Laplace spectrum of such metrics, i.e., the set of eigenvalues λ of the PDE $-\Delta u = \lambda u$ where Δ is the Laplace-Beltrami operator associated with the metric. We prove that, for generic f and g , if a deformation of the form $(f(x) + g(y) + \varepsilon U(x,y))(dx^2 + dy^2)$ preserves the Laplace spectrum, then $U = 0$. I will review the background of this problem and explain some key ideas of the proof.

Wednesday, November 5, 2025 11:00am - 12:00pm

Mondi 3/ Central Building



This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station.

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<https://ista.ac.at/en/campus/how-to-get-here/> The ISTA Shuttle bus is marked ISTA Shuttle (#142) and has the Institute Logo printed on the side.