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Wave propagators and traces on singular spaces

jeudi 11 avril 2024 11:35 (55 minutes)

I will give a survey of recent progress in understanding wave and Schrödinger propagators in the presence of various kinds of geometric and analytic singularities; these singularities have the effect of diffracting energy of waves interacting with them, and thus may have a significant effect on scattering phenomena. In some cases we are able to understand the effects of diffractive propagation on existence of scattering resonances; one of the important tools here is a trace formula. I will, as time permits, discuss such results for conic singularities (joint with Melrose, Melrose-Vasy, Baskin, Ford, Hillairet); for the Dirac-Coulomb problem (joint with Baskin, Baskin-Wrochna); for rotating cosmic string spacetimes (joint with Morgan); and for semiclassical Schrödinger operators with singular potentials (joint with Gannot, Galkowski, Yang-Zou).

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