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Title

Semiclassical Resolvent Estimates of Dissipative Schrödinger Operators

Abstract

The goal of this mini-course is to introduce some tools for the semiclassical analysis of dissipative Schrödinger operators. In particular, we shall present a nonselfadjoint version of Mourre's method and apply it to prove Robert-Tamura estimate for semiclassical dissipative Schrödinger operators under the condition that all trapped trajectories pass throught the region where dissipation is non-zero. The content of this mini-course contains:

- Basic properties of dissipative operators, selfadjoint dilation and applications, some known results for dissipative Schrödinger operators.
- Mourre's method for abstract dissipative operators.
- Robert-Tamura estimate for semiclassical dissipative Schrödinger operators.
- Necessity of the condition on Hamiltonian flow.
- Applications to the high frequency dissipative Helmholtz equation.

We will end this mini-course by presenting some open questions related to dissipative Schrödinger operators.