

Moritz Doll

University of Bremen

Heat Trace Asymptotics for the Generalized Harmonic Oscillator on Scattering Manifolds

On a scattering manifold, we consider a Schrödinger operator of the form $H = -\Delta + V(x)$, where the potential satisfies a growth condition that generalizes quadratic growth for Euclidean space. These types of operators were first investigated by Wunsch, who proved a relationship between singularities of the wave trace and a Hamiltonian flow. On the other hand, it is easy to see that the heat trace is smooth away from $t=0$ and our goal is to calculate the asymptotic expansion of the heat trace as $t \rightarrow 0$. We follow the approach of Melrose by constructing a suitable space on which the integral kernel of the heat operator is smooth and then using the push-forward theorem to calculate the heat trace asymptotics. This is based on ongoing joint work with Daniel Grieser.