

Dmitri Yafaev (University of Rennes-1):

Trace formula for differential operators of an arbitrary order

Abstract:

An operator $H = H_0 + V$ where $H_0 = i^{-N} \partial^N$ (N is arbitrary) and V is a differential operator of order $N - 1$ with coefficients decaying sufficiently rapidly at infinity is considered in the space $L^2(\mathbb{R})$. The goal of the paper is to find an expression for the trace of the difference of the resolvents $(H - z)^{-1}$ and $(H_0 - z)^{-1}$ in terms of the Wronskian of appropriate solutions to the differential equation $Hu = zu$. This leads to a representation for the perturbation determinant of the pair H_0, H .