Spectral instabilities of Schrödinger operators with complex potentials

Petr Siegl

Mathematical Institute, University of Bern, Switzerland
petr.siegl@math.unibe.ch

We present an overview of recent results on pseudospectra and basis properties of the eigensystem of one-dimensional Schrödinger operators with unbounded complex potentials. In particular, we address the problem of localizing the transition between spectral (Riesz basis of eigenvectors and "normal" behavior of resolvent norm) and pseudospectral (vast regions in the complex plane where resolvent norm explodes) character of these operators depending on the size of real and imaginary parts of the potential.

The talk is based on:

[1] B. Mityagin and P. Siegl: *Local form-subordination condition and Riesz basisness of root systems*, Journal d'Analyse Mathématique, to appear, arXiv:1608.00224

[2] D. Krejčiřík and P. Siegl: *Pseudomodes for Schrödinger operators with complex potentials.*