

A complex-analysis friendly form of Schroedinger equation with a non-vanishing potential

Thursday, September 5, 2019 5:30 PM (30 minutes)

The aim of the talk is to introduce a transformation which reduces initial-value problem for one-dimensional Schroedinger equation with a non-vanishing potential to an elementary homogeneous first-order nonlinear ODE. The latter exhibits nonlinearity merely as complex conjugation and hence is very amenable to application of transform methods and further complex-analytic treatment. The obtained reformulation is beneficial for both analytical and practical purposes such as simplification of construction of efficient hybrid asymptotical-numerical schemes for oscillatory quasi-classical regime, a new form of Prufer equations and new classes of solvable potentials due to reduction to an integral equation of convolution type on a half-line.

Presenter: PONOMAREV, Dmitry (TU Wien)

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