Abstract

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"Almost Homogeneous Schroeödinger Operators"

First I will describe a certain natural holomorphic family of closed operators with interesting spectral properties. These operators can be fully analyzed using just trigonometric functions.

Then I will discuss 1-dimensional Schrödinger operators with a $1/x^2$ potential with general boundary conditions, which I studied recently with S.Richard. Even though their description involves Bessel and Gamma functions, they turn out to be equivalent to the previous family.

Some operators that I will describe are homogeneous–they get multiplied by a constant after a change of the scale. In general, their homogeneity is weakly broken–scaling induces a simple but nontrivial flow in the parameter space. One can say (with some exaggeration) that they can be viewed as "toy models of the renormalization group".