

On some families of exactly solvable Schrödinger operators

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Abstract: I will discuss various realizations of 1-dimensional Schrödinger operators with $1/x^2$ and $1/x$ potentials as closed operators on $L^2[0, \infty[$. Their resolvents can be expressed in terms of various kinds of Bessel and Whittaker functions. It is natural to organize them into holomorphic families, allowing for complex coupling constants. Their properties are sometimes quite surprising.