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Short title: Delta-function potential with a complex coupling.

MR Number: 2269700

Primary classification: 81Q10

Secondary classification(s): 81Q05 46C20 47B50 34L40

Review text:

An extremely interesting new and well-developed application of the old idea due to Scholtz et al (cited as [28]) who, in 1992, emphasized that the internal consistency of Quantum Mechanics remains preserved when one replaces the most common (i.e., Hermitian) representation of the observable quantities by its less common (viz., quasi-Hermitian) alternative using the inner products of the form $\langle\psi|\Theta|\psi'\rangle$ based on a non-Dirac "metric" $\Theta = \Theta^\dagger \neq I$ in the "physical" Hilbert space of states. Ali Mostafazadeh picks up one of the simplest possible assumptions about dynamics (considering just a one-dimensional Schrödinger equation with a single delta function interaction) for which $\Theta \neq I$ (i.e., for which the coupling constant becomes a complex number) and elaborates a number of mathematical as well as physical consequences (with emphasis on the quantitative analysis of the smearing effects due to the imaginary part of the coupling, etc). Strong mathematical points of the paper lie in an explicit perturbative construction of the integral-kernel form of Θ (the neutral symbol we use for both T of ref. [8] and/or for η_+ in the AM's notation) and in a (rarely seen and usually difficult) demonstration of the boundedness and/or correct Hermitian limit of this operator, in its given approximate form at least. In the context of physics, the detailed discussion of the non-locality features of the model is equally and particularly impressive.