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η -weak-pseudo-hermiticity generators and radially symmetric Hamiltonians. (English)

Zbl 1160.81383

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Summary: A class η -weak-pseudo-Hermiticity generators for spherically symmetric non-Hermitian Hamiltonians are presented. An operators-based procedure is introduced so that the results for the 1D Schrödinger Hamiltonian may very well be reproduced. A generalization beyond the nodeless states is proposed. Our illustrative examples include η -weak-pseudo-Hermiticity generators for the non-Hermitian weakly perturbed 1D and radial oscillators, and the non-Hermitian perturbed radial Coulomb.

MSC:

81Q10 Selfadjoint operator theory in quantum theory, including spectral analysis

Cited in 1 Document

34L40 Particular ordinary differential operators (Dirac, one-dimensional Schrödinger, etc.)

Keywords:

pseudo-Hermiticity; radial Schrödinger equation; η -weak-pseudo-Hermiticity generators

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