Reviewer: M. Znojil

Theory Group, Nucl. Phys. Institute ASCR, 250 68 Řež,
Czech Republic

Authors: Bagchi, B., Mallik, S., Quesne, C. and Roychoudhury, R.

Short title: A PT symmetric QES partner to the Khare-Mandal potential

Publication: Phys. Lett. A 289 (2001) 34 - 38

Control number: 1 862 079

Primary classification: 81Q05

Secondary classification(s): 81U15

Review text:

Quantum mechanics of bound states in one dimension is often used as a methodical guide to the quantum field theory in zero dimensions and, as such, it is currently being illustrated by the completely solvable ("exact") and/or partially solvable (also known as "quasi-exact", QE) models. The latter QE models have been given an exhaustive account in ref. [16]. They proved particularly helpful in the recent constructive analyses of certain specific (so called PT symmetric) non-Hermitian models with real spectra. The typical QE construction of the latter type has been presented by Khare and Mandal in ref. [9], and the paper in question is a useful complement of this work. After an introductory minor critical note showing that the PT symmetry is not well defined in ref. [9] the authors offer a modification of the QE example of ref. [9] which restores the correct PT symmetry (as well as, presumably, the reality of the spectrum) via an elementary complex shift of the coordinate axis. The same trick is also known efficient in the "exact" PT symmetric models [cf., eg., their brief review by G. Levai and myslef in Mod. Phys. Lett. A 16 (2001) 1973].