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Review text:

The pseudo-Hermiticity means, in essence, Hermiticity of an operator with respect to an alternative metric (or scalar product) in Hilbert space. In this sense, the concept appears in quantum theory, from time to time, as a means of understanding systems ranging from the relativistic Klein-Gordon equation in its Hamiltonian reformulation: cf. H. Feshbach and F. Villars, "Elementary relativistic wave mechanics of spin 0 and spin 1/2 particles", Rev. Mod. Phys. 30 (1958), pp. 24 - 45] up to the boson mappings of fermion systems [reviewed by F. G. Scholtz, H. B. Geyer and F. J. W. Hahne in "Quasi-Hermitian operators in quantum mechanics and the variational principle", Ann. Phys. (NY) 213 (1992), pp. 74 - 101. Recently, the subject with long history (cf. the list of references in A. Ramirez and B. Mielnik, "The challenge of non-hermitian structures in physics", to appear in Rev. Fis. Mex. and available already on Los Alamos arXiv in electronic form: see http://xxx.lanl.gov/abs/quant-ph/0211048) has attracted new attention. The letter in question is its well prepared and characteristic nice example of the related intensive exchange of ideas via letter journals and electronic preprints: a short introductory comment states, for example, that the weak pseudo-Hermiticity introduced in the not yet published electronic preprint [6] is not more general than the pseudo-Hermiticity itself. The main body of the text pays attention to the gauge transformed Hamiltonian (3) of refs. [7] (cf. also Math. Rev. CNO 1923128) and [8]. It delivers the three important observations and conclusions. Firstly, it illustrates the ambiguity of the metric (well discussed by Scholz et al, loc. cit.) by giving it the explicit alternative first- and second-order differential operator forms for the toy potential known as the Scarf II oscillator [studied very recently also by G. Levai, F. Cannata and A. Ventura who succeeded in the evaluation the related pseudo-norm in closed form (cf. Math. Rev. CNO 1928019)]. Secondly, the authors point out that the pseudo-orthogonality method of their earlier derivation of the conservation of the pseudo-norm (cf. their work [9] which I co-authored, preceded by my unpublished preprint "Conservation of pseudo-norm in PT symmetric quantum mechanics" available at http://xxx.lanl.gov/abs/math-ph/0104012) does still apply in the gauge-transformed example (3). Thirdly, the authors elucidate an extremely interesting and deep relationship of their construction to the so called supersymmetric quantum mechanics and to the Lie-algebraic aspects of their toy example. In the latter context it is worth noticing that their related seminal letter [14] "in print" did already appear in Phys. Lett. A 300 (2002) on pp. 18- 26 (cf. also its extended abstract in Math. Rev., CNO 1927440) and might be complemented also by another very recent and important paper by G. Levai, F. Cannata and A. Ventura (cf. Math. Rev. CNO 1916363).