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Review text:

An obvious ambition of this five-page letter on PT-symmetric quantum systems is pedagogical. The authors tried to retell the story via the potentially appealing N by N matrix Hamiltonians $H \neq H^\dagger$, generalized "parities" P, "time reversals" T and "charges" C. Personally, I am afraid that they just re-explained the well known and/or elementary $N < \infty$ results (e.g., of refs. [7,8]) while leaving their own, "traditional" and truly interesting $N = \infty$ (i.e., ODE) examples completely aside. In technical terms, their two-by-two-matrix expansions (1) in Pauli matrices prove hardly too illuminating. On phenomenological side, some of their most interesting formal observations (concerning, e.g., C in the complex-energy regime) seem still to wait for a deeper analysis and/or applicability (presumably, *outside* of PT quantum mechanics). Moreover, although the authors are able to guarantee " that a positive η exists" via their main sufficient condition "that $[C, PT] = 0$ for *all* C that obey $[C, H] = 0$, $C^2 = 1$", they should have made a comment on the practical feasibility of such a recipe at large $N \gg 2$. Last but not least, some of the formulations would deserve more care. E.g., it is not true that "if η is not positive, then some eigenvalues are not real and must occur in complex-conjugate pairs". Indeed, in the light of ref. [7], even if any particular η ceases to be positive definite, there may exist, due to its ambiguity, *another*, different, safely positive matrix η_+, *excluding* the existence of the complex-conjugate energies.