This is a review text file submitted electronically to MR.

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Review text:

The textbook Rayleigh-Schrödinger perturbation series for energies of bound states is a computational recipe which plays the role of a key to the applied quantum mechanics. Author pays attention to the flexibility of implementation of this recipe, being motivated by the frequent necessity of an acceleration of convergence of the perturbative approximants.

His trick is to add and subtract a particular auxiliary diagonal operator and to evaluate perturbations for the resulting modified split of the Hamiltonian. The main idea is that the new series may be better convergent because one in effect changes the conditions of its convergence (via the spectrum of the zeroth approximation) very thoroughly. A few numerical illustrations are added.

Personally, I would complement the list of references, e.g., by the citation of one of the first successful conversions of a divergent perturbation series into the convergent one by I. G. Halliday and P. Suranyi (Phys. Rev. D 21 (1980) 1529) which was based on the very similar idea and devoted to the same quartic anharmonic problem.

In a way the method is presented, one could also easily miss that in all the methods of the similar type the gain in the rate of convergence is compensated by the necessity of adapting the unperturbed approximation to each value of the coupling separately. In this way one can lose one of the main merits of the "ordinary" perturbation series and method, namely, the coupling-independence of its separate coefficients.

In a final comment, I would also recommend an interested reader to check what happens, both methodically and numerically, if one tries to add and subtract some more general, non-diagonal operators as it was done, e.g., in our paper by Bishop et al in Phys. Rev. A 39 (1989) 5336.