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Review text:

One of paradoxes characterizing the interface between Quantum Mechanics and the analytic theory of ODEs (in the language, say, of the Sibuya's book [6]) is that the insight obtained in the latter context (like the results on the limiting forms of the various spectral functions as presented in the paper under consideration) may be perceived strongly academic in the former perspective. Figure 2 shows the bridge: In it, the results of the purely numerical, brute-force evaluation of the energies of the popular quartic and sextic quantum anharmonic oscillators are shown to comply, very well, with the vanishing-coupling limit behaviour of the so called zeta spectral functions as predicted by the Voros' analysis. The remarkable difference between the regular and singular modes is emphasized, with the prediction of the latter pattern [viz., eq. (5.13)] being a climax of the text. Its derivation (relying on the explicit evaluation of the action integrals) is interesting by itself. The announced continuation of this study "to complex asymptotics" looks promising to all who know how important was the role of certain particular global spectral functions (called spectral determinants of the Schroedinger differential operators) in the proof of the reality of the spectrum of the imaginary cubic oscillator [cf. P. Dorey, C. Dunning and R. Tateo, A reality proof in PT-symmetric quantum mechanics, Czech. J. Phys. 54 (2004) 35-41].