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Review text:

The lasting appeal of the "next-to-harmonic" and "first unsolvable" quantum bound-state models with central polynomial potentials derives from their broad phenomenological applicability. For this reason one encounters numerous attempts at construction of reliable interpolation/extrapolation closed formulae for the energies, among which the most valuable ones offer the approximative or strict lower and/or upper estimates. The paper in question offers and discusses a number of new and/or most updated formulae of this type which are mainly based on the idea of sophisticated semiclassical approximation. Particular attention is paid to the family of the two-term potentials of the so called anharmonic oscillator.