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Zero-Point Energy of the Pullen-Edmonds Hamiltonian JAY D. MANCINI, Kingsborough College of CUNY, VASSILIOS FESSATIDIS, MAURICIO CAMPUZANO, Fordham University, SAMUEL P. BOWEN, Chicago State University — Here we wish to apply the newly developed Generalized Moments Expansion (GMX) to the well-known potential

$$U = \frac{1}{2}\left(x^2 + y^2\right) + \alpha x^2 y^2,$$

which is used to model such molecular systems as formamide and C_2O_3. Our motivation is to investigate the numerical accuracy as well as the viability of the GMX for evaluating ground-state energies of quantum Hamiltonian systems. The zero-point energy of this potential is calculated and results are compared to an analogous Lanczos (tridiagonal) matrix truncation as well as to a Canonical Sequence Method approach.

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