J-matrix approach to extrapolation of *ab initio* calculations.

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Development of various extrapolation techniques for *ab initio* calculations became a new trend in past few years [1, 2, 3]. We consider *ab initio* calculations of binding energies in oscillator basis and extrapolation of these results. We use J-matrix formalism of scattering theory to locate S-matrix poles associated with bound states. This formalism uses infinite oscillator basis and convergence of S-matrix poles in this method is faster than convergence of variational binding energies [4].

We use a two-particle model problem to verify this method for bound states with different angular momenta and different binding energies, to test its convergence and to compare with other approaches of Ref. [1, 2, 3].

References

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