

On the calculation of many-body wave functions and energies from density-functional theory

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Abstract

A method is described by means of which one can calculate many-body energies *and* wave functions from density-functional theory. The method works for ground *and* excited states, and does not depend on identifying the Kohn-Sham orbitals and energies with physical ones. Numerical applications to the Helium isoelectronic series (He, Li^+, \dots, F^{7+}) illustrate the method's viability and potential.

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