Ground state properties of simple solids from GW calculations.
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of California, Davis, California 95616, USA — A novel self-consistent implemen-
tation of Hedin's GW perturbation theory is presented. This finite-temperature
implementation uses Hartree-Fock wave functions to represent Green's function.
Hartree-Fock equations are solved with full potential linear augmented plane wave
(FLAPW) method at each iteration of a self-consistent cycle. With our approach we
are able to calculate total energy and the ground state properties. As an example,
the ground state properties of Na, Al, Si, and GaAs obtained with our new code are
presented.

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