Abstract Submitted
for the DAMOP12 Meeting of
The American Physical Society

Testing the accuracy of the coupled-cluster method for trivalent atoms[1] HEMAN GHARIBNEJAD, ANDREI DEREVIANKO, University of Nevada-Reno — We use coupled-cluster method for computation of electron correlation energies, hyperfine constants and dipole matrix elements of some of the low-lying states of atomic boron. The calculations are done with converging techniques and include up to triple excitation terms. The goal is to establish the accuracy of the couple-cluster method for a system of three valence electrons so that it can be extended to compute the structure of heavier atoms in the same atomic group such as thallium. High precision computations on heavy atoms will in turn lead to more stringent constraints on new physics beyond the Standard Model, derived from atomic parity violation.

[1]This work was supported in part by the NSF.

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Date submitted: 25 Jan 2012 Electronic form version 1.4