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Results for p-shell nuclei at LO, NLO, and N2LO in chiral EFT¹ PIETER MARIS, JAMES VARY, Iowa State University — We present results for *p*-shell nuclei [1] using interactions derived from chiral effective field theory [2] up to N²LO. The many-body calculations are performed order-by-order in the chiral expansion. We show the dependence of the ground state energies on the chiral order; we also present excitation energies of narrow excited states and other observables such as magnetic and quadrupole moments of selected ground states. We discuss both the theoretical uncertainties due to the truncation of the chiral expansion [2], as well as the numerical uncertainties associated with the many-body method.

[1] S. Binder *et al.*, Phys. Rev. C93, 044002 (2016).

[2] E. Epelbaum, H. Krebs and U.-G. Meißner, Phys. Rev. Lett. 115, 122301 (2015).

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