

Abstract Submitted  
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**Ab Initio Neutron Drops with Chiral Hamiltonians**<sup>1</sup> HUGH POTTER, PIETER MARIS, JAMES VARY, Iowa State University — Ab initio calculations for neutron drops are of interest for insights into neutron-rich nuclei and neutron star matter, and for examining the neutron-only sector of nucleon-nucleon and 3-nucleon interactions. I present ab initio results calculated using the no-core shell model with 2- and 3-body chiral Hamiltonians for neutron drops up to 20 neutrons confined in a 10 MeV harmonic trap. I discuss ground state energies, internal energies, radii, and evidence for pairing. In addition, excitation energies can be used to investigate the spin-orbit splittings in the  $p$ -shell and  $sd$ -shell. Prior Green's Function Monte Carlo calculations using the Argonne  $v'_8$  potential with added 3-nucleon forces serve as a comparison.

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