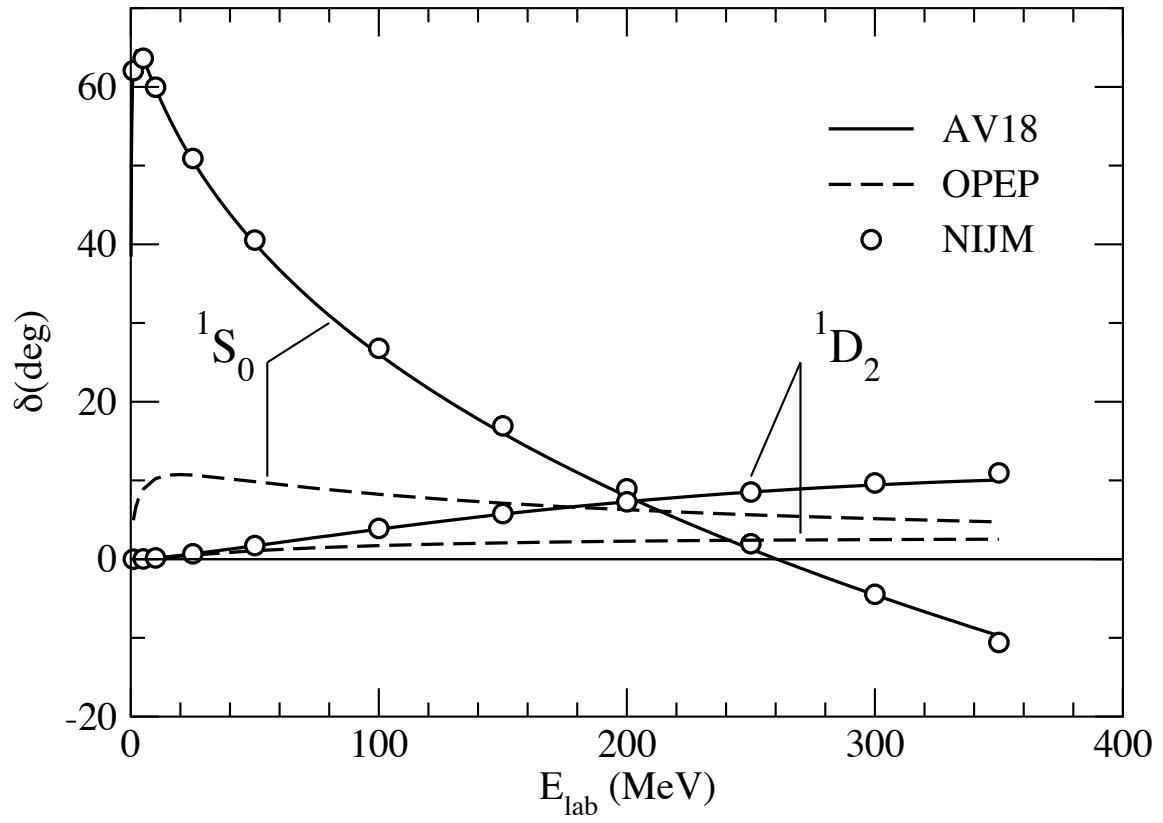
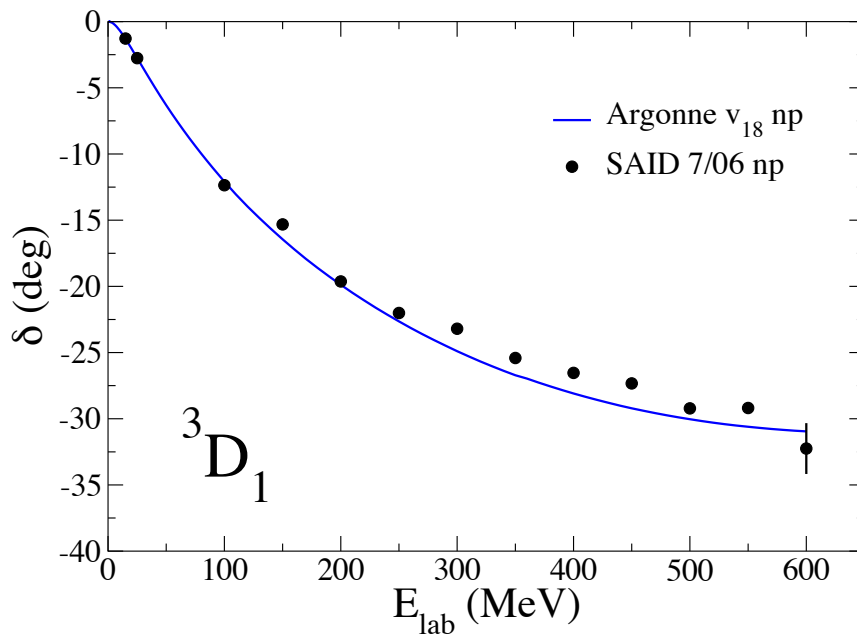
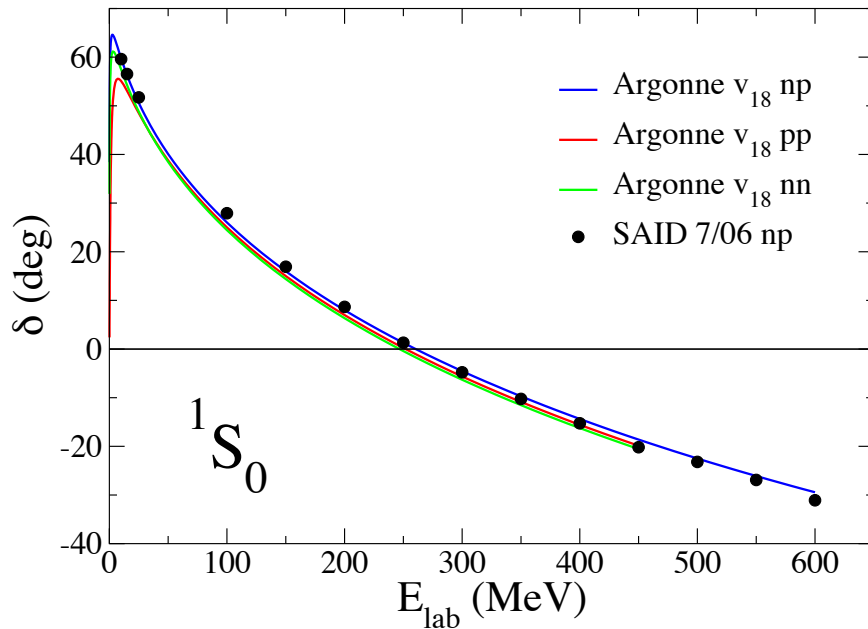


NN Scattering Phase Shifts – OPEP vs Full Potential

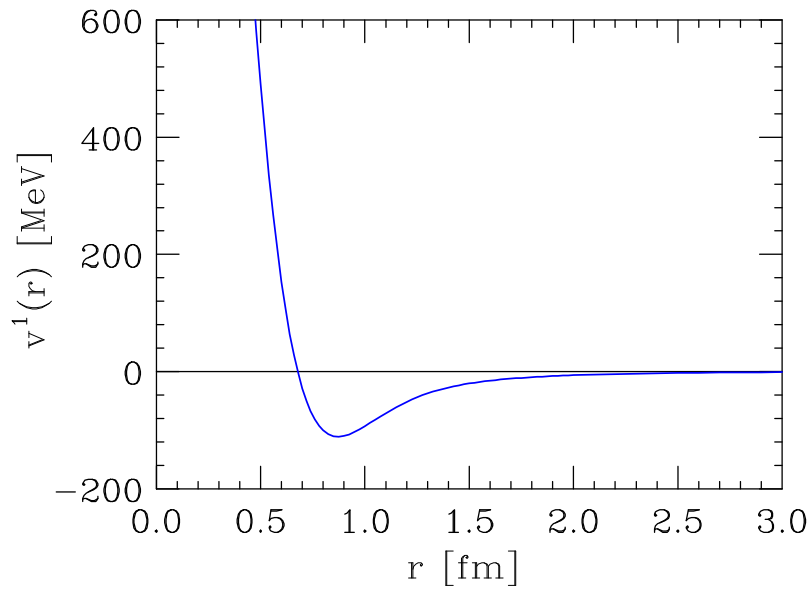


NN Scattering Phase Shifts from a State-of-the-art Phenomenological model (Argonne v₁₈)



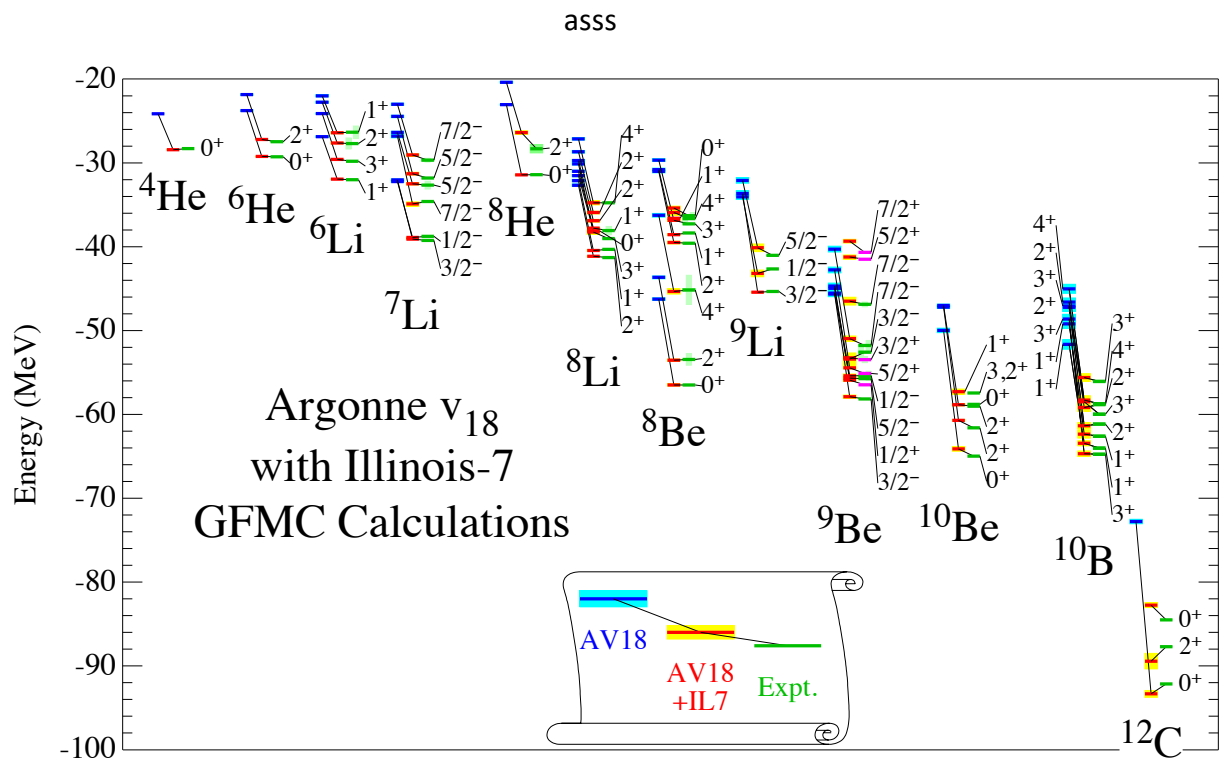
Note the energy range extending beyond pion production threshold. This feature is critical to calculations of the properties of neutron star matter

Radial Dependence of the Argonne v18 Potential in the 1S0 channel



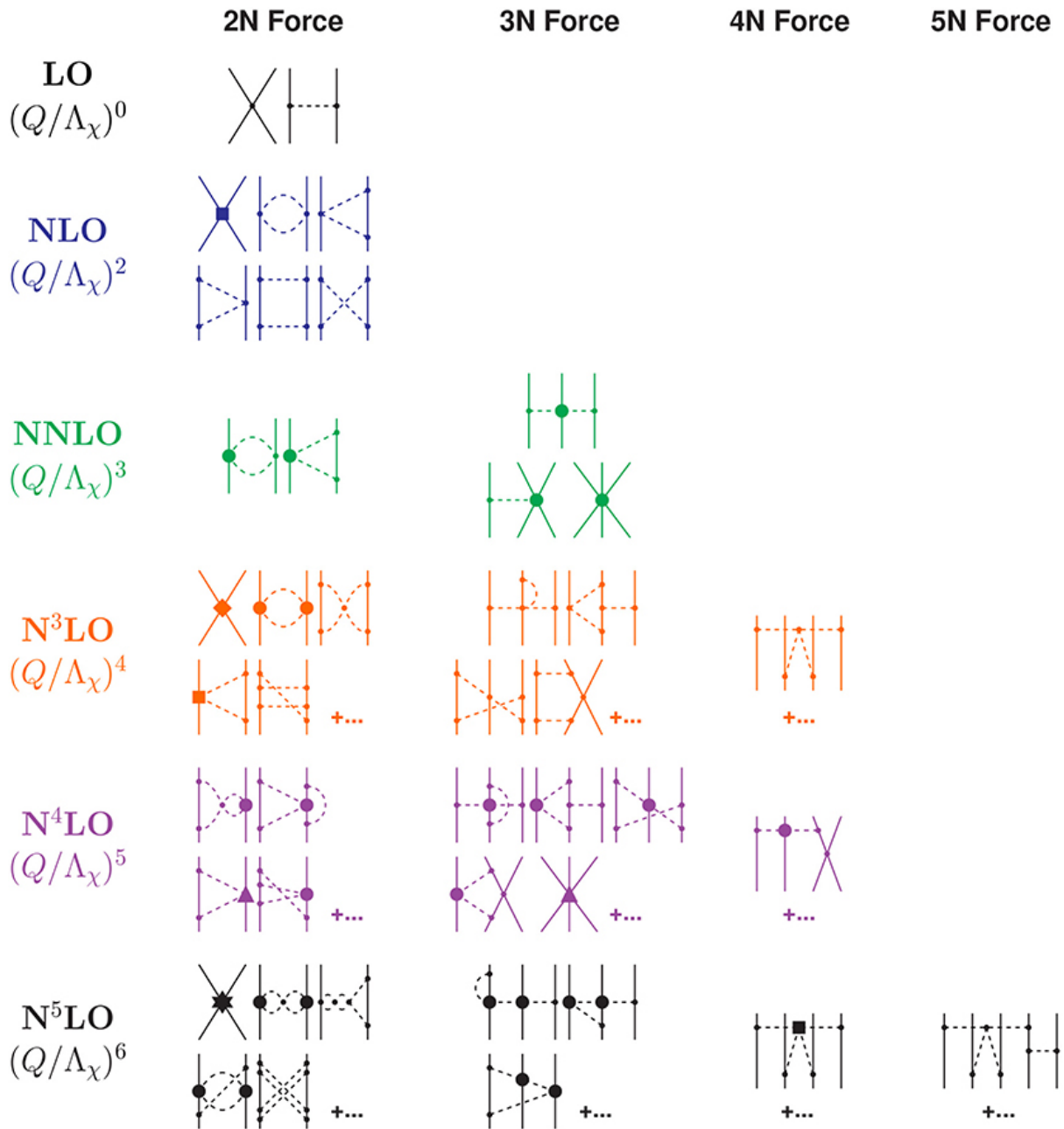
Note similarity to the Van der Waals Potential!

Spectra of Light Nuclei Obtained from QMC Using the Phenomenological Argonne v_{18} + Illinois 7 Hamiltonian



Chiral Expansion of Nuclear Forces

$$\Lambda_\chi \sim 800 \text{ MeV}$$



Warning: low-momentum expansion inherently unable to describe interactions in dense nuclear matter!

Phase Shift obtained from chiral interactions

