Contribution ID: **11** Type: **not specified**

Relativistic corrections and three-nucleon forces in neutron star matter

Wednesday 1 October 2025 17:10 (20 minutes)

We discuss the inclusion of relativistic boost corrections in the correlated basis function (CBF) effective nuclear Hamiltonian. In this framework, a well-behaved nuclear effective interaction is derived from a realistic Hamiltonian through the CBF formalism and cluster expansion techniques. This approach has proven to be remarkably powerful in computing both equilibrium and transport properties of nuclear matter, allowing for several applications in the context of neutron star physics.

Our study analyzes the dependence of boost corrections on the non-relativistic nucleon-nucleon potential, as well as their strong interplay with three-nucleon forces. Because of the crucial role of three-nucleon forces in driving the stiffness of the equation of state at high density, a correct understanding of such interplay is essential for an accurate description of neutron star physics.

Author: SABATUCCI, Andrea

Presenter: SABATUCCI, Andrea

Session Classification: Short contributions (II)