

Unified description of equation of state and transport properties of neutron star matter

Correlated Basis Function (CBF) perturbation theory and the formalism of cluster expansion have been recently employed to obtain an effective interaction from a state-of-the-art nucleon nucleon potential model. The approach based on the effective interaction allows for a consistent description of the nuclear matter ground state and nucleon-nucleon scattering in the nuclear medium. I will review the main features of the effective interaction and the results of numerical calculations of different properties of neutron star matter, including the equation of state and the transport coefficients