Avviso di Seminario

20-12-2017, Ore 15:00 - Aula A

Francesco Pederiva

Universita' Di Trento E Infn-tifpa

DRILLING INSIDE A NEUTRON STAR WITH A COMPUTER

Neutron stars (NS) have come to the general attention after the recent joint observation of gravitational waves and electromagnetic signals from a collision event. A detailed understanding of these phenomena requires the knowledge of the internal structure of the star. How can we drill inside it? Computational many-body methods can help us overcoming this problem. In the talk I will overview some of the recent progress in understanding NS made by means of accurate imaginary time projection Quantum Monte Carlo (QMC) calculations. Some of the relevant applications of these techniques to the neutron star physics will be illustrated, beginning with the neutron matter equation of state, which determines the overall structural properties of the star, the behavior of matter at densities above saturation (with the possible appearance of hyperons in the inner core of the star) as inferred from terrestrial experiments, and some response properties relevant for the interaction with neutrinos.

Il seminario rappresenta anche un'appendice al corso di "Fisica dei sistemi a molti corpi" della laurea magistrale, ed è stato organizzato su richiesta degli studenti. Tutti gli interessati sono invitati a partecipare.

Il Direttore
Maurizio Maria Busso