ID contributo: **59** Tipo: **Talk**

Topology role in the feasibility of a neutron star's matter phase candidate

lunedì 27 giugno 2022 10:30 (20 minuti)

One central question in nuclear astrophysics is determining the matter structure of neutron stars (NS). With the wealth of newly available and upcoming astrophysical observations, it is of most relevance to find ways to connect the microscopic properties of potential NS matter phase candidates with the observations. To understand the complicated evolution of NS binary (NSB) mergers, we will need even better simulations and a deeper fundamental understanding of the properties of hot and dense matter at very strong magnetic fields. In this talk, I will make a case for a dense quark matter phase in a strong magnetic field as a plausible candidate for the core of old magnetars and potentially also for the short-lived, superdense, and highly magnetized neutron stars that may form after the merging of NSB. I will discuss how the capacity of this phase to overcome a few astrophysical tests can be traced back to the characteristic nontrivial topology of the phase's quark dynamics in a strong magnetic field.

Relatore: DE LA INCERA, Vivian (University of Texas Rio Grande Valley)

Classifica Sessioni: Session 1