

Identifying Viable Inhomogeneous Chiral Phases for Neutron Star Matter

Thursday, October 10, 2024 4:20 PM (20 minutes)

Spatial inhomogeneous phases of nuclear and quark matter are a feature of the QCD Phase Map at intermediate densities/low temperatures, making them potential candidates for the inner phases of neutron stars. Yet, single-modulated chiral condensates, even when energetically favored over others at zero temperature, are wiped out by thermal fluctuations due to the Landau-Peierls instability. In this work, we discuss a general approach based on simple symmetry arguments to identify a set of single-modulated inhomogeneous chiral phases that can be robust against thermal fluctuations at temperatures compatible with those of neutron stars.

Presenter: INCERA, Vivian (University of Texas Rio Grande Valley)