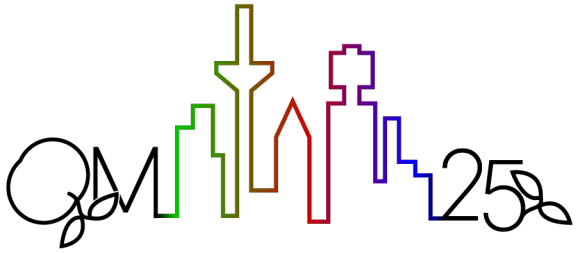

Contribution ID: **1141** Type: **Poster**

Constraining Neutron Star Equation of State with Hyperons, Dark Matter, and Quark Deconfinement

Exotic degrees of freedom, such as hyperons, dark matter, and deconfined quark matter, have attracted significant attention in the theoretical modeling of compact objects like neutron stars, which have extremely dense cores. Our goal is to explore the formation of these particles in high-density environments while maintaining neutron star stability and satisfying observational constraints from neutron stars. We employ a relativistic density functional approach for the hadronic phase, incorporating hyperons and bosonic dark matter, going through a phase transition to deconfined quark matter described by the non-local Nambu–Jona-Lasinio model with color superconductivity. We assess the compatibility of our model with observational data and use Bayesian analysis to constrain its parameters.

Category

Theory

Collaboration (if applicable)

Author: SHAHRBAF, Mahboubeh

Presenter: SHAHRBAF, Mahboubeh

Session Classification: Poster session 1

Track Classification: QCD matter in astrophysics