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Equation of State of Neutron stars

Neutron stars provide a laboratory environment where we can study nuclear matter under extreme conditions of super-density, super magnetic field as well as super-gravity. This is a laboratory where the four forces of nature namely, gravity, the weak force, electromagnetism and the strong force can be studied. Studying nuclear matter under extreme conditions in neutron stars can be used to constrain the properties of the nuclear matter produced heavy-ion collisions in facilities like Relativistic Heavy-Ion Collider (RHIC) Brookhaven National Laboratory, Long Island, New York and at the Large Hadron Collider (LHC), CERN, Switzerland, Geneva and Compressed Baryonic Matter (CBM) experiment at Facility for Antiproton and Ion Research (FAIR) Darmstadt, Germany. We will use classical mechanics, statistical thermodynamics and general relativity to study the mass, pressure and radius of a pure neutron star using different types of equation of states. In this talk, we will present the work done during the 2020 NITheP internship program.

Apply to be considered for a student ; award (Yes / No)?

No

Level for award;(Hons, MSc, PhD, N/A)?

No

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