Contribution ID: **79** Type: **Invited Talks**

Modelling the dense nuclear matter equation of state consistent with the astrophysical observations

Wednesday 25 January 2023 15:45 (30 minutes)

Neutron stars are excellent laboratories to study the physics of matter at extreme conditions which are beyond the scope of any terrestrial experiments. Recent multimessenger observations of neutron stars such as the measurements of the tidal deformability from the gravitational wave observation, and the simultaneous mass and radius measurements of several pulsars in X-rays by the Neutron Star Interior Composition Explorer (NICER) instrument aboard the International Space
Station along with the discoveries of massive radio pulsars in the last decades have significant implications for the understanding of the equation of state of dense nuclear matter. In this talk, I will discuss how these pieces of information are combined with nuclear experimental data to constrain the properties and the composition of the interior of neutron stars. I will also review the correlation between certain nuclear empirical parameters such as the symmetry energy, and incompressibility with the macroscopic structure parameters such as the radius, and tidal deformability of the star.

Presenter: Dr CHAR, Prasanta (Université de Liege,Liege, BE)