Contribution ID: **98** Type: **not specified**

Equation of state of hot hyperonic neutron star core

Tuesday, 24 May 2022 09:35 (20 minutes)

A study of the composition and properties of neutron stars and proto-neutron stars is presented, based on a relativistic mean-field model. The baryonic matter equation of state (EoS) at zero and finite temperatures is computed within the FSU2H model, which has been updated according to the recent analysis on Xi baryon potential. The finite temperature EoS and composition of matter are computed at both constant temperature and constant entropy per baryon, in order to account for the different conditions of density and temperature that can be found in proto-neutron star, binary mergers remnants and supernova explosions. We find that high temperatures significantly change the composition and the EoS, especially for densities close to nuclear saturation density. This can have a strong impact on several astrophysical observables, such as the mass, radius and tidal deformability of the star.

Presenter: KOCHANKOVSKI, Hristijan (Institute of Cosmos Sciences (ICCUB) - Universitat de Barcelona)