Contribution ID: 85

Type: Talk

## Deconfinement Phase Transition in Neutron-Star Mergers

Saturday 12 September 2020 09:00 (30 minutes)

We study in detail the nuclear aspects of a neutron-star merger in which deconfinement to quark matter takes place. For this purpose, we make use of the Chiral Mean Field (CMF) model, an effective relativistic model that includes self-consistent chiral symmetry restoration and deconfinement to quark matter and, for this reason, predicts the existence of different degrees of freedom depending on the local density/chemical potential and temperature. We then use the out-of- chemical-equilibrium finite-temperature CMF equation of state in full general-relativistic simulations to analyze which regions of different QCD phase diagrams are probed and which conditions, such as strangeness and entropy, are generated when a strong first-order phase transition appears. We also investigate the amount of electrons present in different stages of the merger and discuss how far from chemical equilibrium they can be.

Author: DEXHEIMER, Veronica (Kent State University)

Presenter: DEXHEIMER, Veronica (Kent State University)

Session Classification: DENSE MATTER, SNOVAE, DM, COMPACT STARS, DE, BHs, COSMOL-OGY