Abstract Submitted
for the APR20 Meeting of
The American Physical Society

Deconfinement phase transition in hot and dense matter KRISHNA ARYAL, Kent State Univ - Kent — Neutron stars are natural laboratories for the study of dense matter. Their densities vary from $\sim 1 g/cm^3$ in the atmosphere to $\sim 10 g/cm^3$ in the core. As the density of matter increases, atomic nuclei disintegrate into nucleons and, eventually, the nucleons themselves disintegrate into quarks. The transition between these phases can vary steep first order to smooth crossover, depending on certain conditions. As the matter in the inner core of neutron stars (NS) and protoneutron stars (PNS) is very dense but strongly interacting, it cannot be described by first principle theories. We choose Chiral Mean Field Model (CMF) to describe neutron stars. It is a quantum relativistic model that describes hadrons (nucleons and hyperons) and 3 light flavors of quarks interacting via meson exchange, as a way to describe the attractive and repulsive components of the strong force.

Krishna Aryal
Kent State Univ - Kent

Date submitted: 10 Jan 2020 Electronic form version 1.4