

Finite-temperature hypernuclear EoS and universal relations of compact stars

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The equation of state (EoS) for dense, strongly interacting matter serves as the central input in astrophysical simulations involving isolated compact objects and binary systems across various scenarios. While numerous models exist to describe the composition of cold neutron stars, the range narrows considerably when considering EoS that encompass varying temperatures, densities, and electron fractions. This talk will discuss the generation of finite temperature EoS of hypernuclear matter in the range of densities, temperatures, and electron fractions required for numerical simulations of SNe, protoneutron stars, and BNS mergers, along with the response of their generic features and composition to varying the baryon-meson couplings. In addition, it will address the properties of hot, isentropic compact stars constructed from those EoS, in the limiting cases of static and maximally rotating configurations, and the validity of universal relations between their global properties.

Presenter: Mr TSIOPELAS, Stefanos (University of Wrocław)