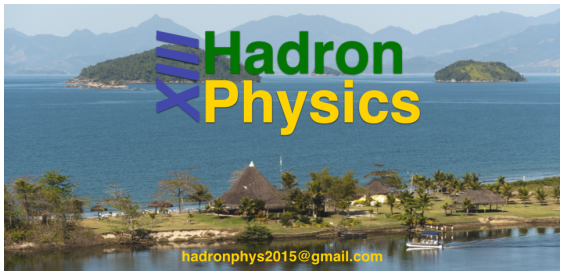

Contribution ID: **83** Type: **Poster**

Conversion of nuclear matter in strange matter into neutron star

In this work we present a schematic description of the dynamical evolution of a protoneutron star which begins to burn neutron matter into strange matter inside the core. We have used a simple two-shell model where the inner shell medium is initially composed of a small lump of strange quark matter surrounded by an outer shell composed of free neutron matter. In a first attempt, we have utilized a polytrophic equation of state (EOS) for the outer hadronic medium description and the MIT bag model EOS describing for the strange quark matter. The combustion mode can actually become a detonation process (faster) or a burning process (slower), in this work we assume the conversion is a detonation. The main purpose of the work is to study the formation and propagation of the shock front generated by the detonation process. An effective description for the thermodynamic global evolution of the burning shell is developed and we also investigate the possibility of mass ejection as a consequence of the detonation process, which could produce a pure quark star as a remnant or even an hybrid neutron star. The masses and radii values obtained for the final equilibrium configurations are compared with the observational data of compact stars.

Author: Prof. ALMEIDA, Luis (UFAC)

Co-authors: Prof. RODRIGUES, Hilário (CEFET/RJ); Prof. DUARTE, Sérgio (CBPF)

Presenter: Prof. ALMEIDA, Luis (UFAC)

Track Classification: Hadronic and quark matter - applications in astrophysics