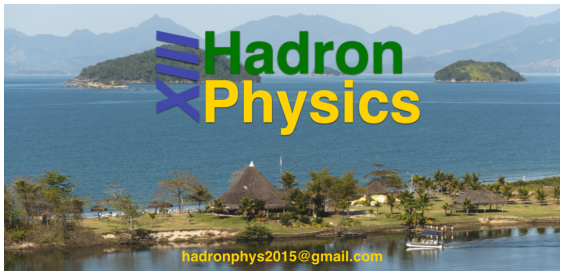

Contribution ID: **103** Type: **Poster**

Phase transitions in neutron star equation of state induced by the delta resonances matter

With the high production of delta-resonances (˜30 % of baryonic population) in the dense phase of relativistic heavy ion collisions arises a great interest in the study of the delta matter formation in neutron star structure. In previous work we determine the equation of state and the population of baryons and leptons, and also we discuss the implication of changes in the baryons-meson coupling constants to the formation of delta matter in stellar medium. We use the nonlinear Walecka model including the octet of baryons of spin 1/2 $(n, p, \Lambda^0, \Sigma^-, \Sigma^0, \Sigma^+, \Xi^-, \Xi^0)$ and baryonic resonances of spin 3/2, represented by the delta resonances $(\Delta^-, \Delta^0, \Delta^+, \Delta^{++})$ and Ω^-, in the baryonic sector, and of the electrons and muons in the leptonic sector. We note that the delta resonance interaction induces a liquid-gas type phase transition accompanying delta matter formation at densities values of neutron star interior. In present work this phase transition is explored with respect to the domain of the delta-mesons coupling constants.

Author: Prof. OLIVEIRA, José Carlos (UFRR)

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

Presenter: Prof. OLIVEIRA, José Carlos (UFRR)

Track Classification: Hadronic and quark matter - applications in astrophysics