

Delta Baryons in Neutron-Star Matter under Strong Magnetic Fields

mardi 14 septembre 2021 16:00 (1 minute)

In this work, we study magnetic field effects on neutron star matter containing the baryon octet and additional heavier spin 3/2 baryons (the Δ 's). We make use of two different relativistic hadronic models that contain an additional vector-isovector self interaction for the mesons: one version of a relativistic mean field (RMF) model and the Chiral Mean Field (CMF) model. We find that both the additional interaction and a strong magnetic field enhance the Δ baryon population in dense matter, while decreasing the relative density of hyperons. At the same time that the vector-isovector meson interaction modifies neutron-star masses very little ($<0.1 M_\odot$), it decreases their radii considerably, allowing both models to be in better agreement with observations. Together, these features indicate that magnetic neutron stars are likely to contain Δ baryons in their interior.

Auteur principal: MARQUEZ, Kauan (Federal University of Santa Catarina, Brazil)

Co-auteur: PERES MENEZES, Debora (Federal University of Santa Catarina (UFSC))

Orateur: MARQUEZ, Kauan (Federal University of Santa Catarina, Brazil)

Classification de Session: Poster