Contribution ID: **37** Type: **Talk**

Equation of state of magnetized proto-quark star

Monday 12 December 2022 18:15 (15 minutes)

Present work investigates the properties of a proto-quark star (PQS) using Polyakov Chiral SU(3) Quark Mean Field (PCQMF) model in the presence of a strong magnetic field. Considering various snapshots of PQS along the star evolution, the analysis of longitudinal and transverse equation of state (EoS) is carried out. Also, the effect of vector interaction on magnetized PQS with the density-dependent strong magnetic field is considered and the critical value of a magnetic field for stable magnetized PQS is calculated. The derived EoS can be beneficial for the study of mass-radius of PQS and can be compared with recent astrophysical observations.

Session

Astroparticle Physics and Cosmology

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Session Classification: WG1-Astroparticle Physics and Cosmology