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Structure of Massive Protoneutron neutron star PSR J1614-2230 with Trapped Neutrinos

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Cosmic ray particle acceleration in supernovae is expected to occur. A protoneutron star is formed in the aftermath of the supernova explosion of a massive star. Therefore, the study of properties and structure of protoentron stars has great implications for investigating the origin and acceleration of cosmic rays. Considering the baryon octet which comprises of the least massive baryons and includes the Λ , Σ and Ξ , focusing on the influence of trapped neutrinos, we study the composition and structure of massive protoneutron star PSR J1614-2230 in the framework of relativistic mean field theory (RMFT). In this paper we show the calculation results about constitution, temperature, equation of states, mass and radius of the protoneutron star for different cases of trapped neutrinos. It is found that trapped neutrinos have significant impact on the natures of massive protoneutron star.

Collaboration

– not specified –

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