Calculation of strange star structure

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Abstract

In this paper, we have considered that the strange-star consists of quark matter from its center to surface. For quark matter, we have used two models, the MIT bag model and string-flip like model. In the bag model, the energy of the system has been considered the kinetic energy of the particles of system in addition to a constant B. We have considered two states for B, one of them is constant and the other one is density dependent. The second state has been obtained from the recent Cern data from quark-geleon plasma formation. In string-flip like model, the energy of the particles of the system has been obtained from the Schrodinger equation, where the Hamiltonian has been considered the sum of kinetic and potential energies. The potential in Hamiltonian is the general potential which depends on density that is the block potential. In the String-flip like model, the block potential is linear or square functions of the relative distance between two quarks. We have also obtained the equation of state of quark matter for all considered cases. Finally, we have computed the structure of the quark star using our equations of state.

Keywords: strange star, equation of state, structure

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