

Thermodynamic properties of a magnetized neutral vector boson gas at finite temperature

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We study the thermodynamic properties of a neutral vector boson gas in presence of a constant magnetic field at finite temperature. The study has been done considering relativistic and non-relativistic bosons. In general, one of the most outstanding properties of magnetized bosonic systems is the occurrence of Bose-Einstein condensation (BEC) and Bose-Einstein ferromagnetism: in the condensed state, the gas shows a spontaneous magnetization. The main purpose of this work is to study the effect of temperature on the equations of state for that matter that allows more accurate descriptions of compact objects, specifically of neutron stars, which might contain spin-1 bosons formed up by two paired neutrons. As a limit case we study the structure of stars fully composed by matter in this form.

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