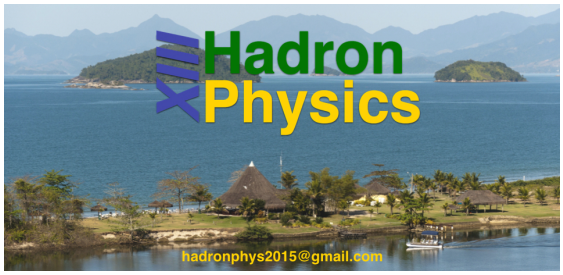

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Cooling of neutron stars and emissivity of neutrinos by the direct Urca process under influence of strong magnetic field

One of the most interesting kind of neutron stars are the pulsars, which are highly magnetized neutron stars with fields up to 10^{14}G at the surface.
The strength of magnetic field in the center of a neutron star
remains unknown. According to the scalar virial theorem, magnetic field
in the core could be as large as 10^{18}G. Emissivity of neutrinos by the direct Urca process is the mechanism more efficiently of cooling of the neutron stars. It is believed to be the process responsible for the cooling of proto-neutron stars after the first 100 years of life.
In this work we study the influence of a magnetic field on the cooling of neutron stars due to the neutrino emissivity by the direct Urca process. The matter is described through a relativistic mean-field model at zero temperature. We calculate numerically the emissivity of neutrinos and the cooling due to the direct Urca process for different magnetic fields.

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