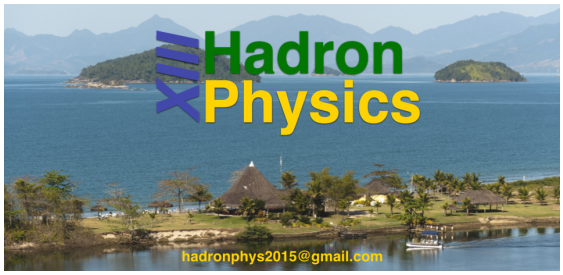

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Strong magnetic fields and radio emision in magnetars and pulsars of white dwarfs

Recently, several highly magnetized white dwarfs have been observed with fields up to $10^9 G$. Strong magnetic fields can change the structure of the star, such as mass, radius, electromagnetic radiation, pair production and also its period of rotation. In this work, we investigated the role of strong magnetic field in white dwarfs. We present the degenerated electron fermi gas to equation of state (EoS) under huge magnetic field close to the upper limit of $B \sim 10^{13} G$ obtained by the virial condition of equilibrium magnetized white dwarfs (Das, 2013; Kundu, 2012). We see that effect of the landau level the stiffness of the EoS, that is important to change the maximum white dwarfs mass limits obtained by Chandrasekhar, $M \sim 1.43 M_{\odot}$ as recently presented in the literature (Coelho, 2014b). An alternative description bored in very fast and highly magnetized white dwarfs has been recently proposed to the Soft Gamma Repeaters (SGR) and Anomalous X-Ray Pulsars (AXP), usually known as Magnetars (Malheiro, 2012). A spinning very magnetized white dwarf generates huge electromagnetic potential differences on its surface, producing electromagnetic emission radiation as neutron pulsars. Using several emission pulsar models (Chen, 1993), we investigated the electromagnetic radiation for white dwarf (WD) pulsar. We show that emission far the WD star surface, near the light cylinder radius may explains why only some of the SGRS and AXPs emits in radio.

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