

Title: Magnetized strangelets at finite temperature

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Abstract: The main properties of strangelets, namely their energy per baryon, radius and electric charge, are studied in the unpaired magnetized strange quark matter (MSQM) and paired magnetized colour flavour locked (MCFL) phases. Temperature effects are taken into account in order to study their stability compared to the Fe-56 isotope and nonmagnetized strangelets within the framework of the MIT bag model. We conclude that the presence of a magnetic field tends to stabilize the strangelets more, even when temperature is considered. It is also shown that MCFL strangelets are more stable than ordinary MSQM strangelets for typical gap values of the order of $O(100)$ MeV. A distinctive feature in the detection of strangelets either in cosmic rays or in heavy-ion collider experiments could be their electric charge. We find that the electric charge is modified in the presence of the magnetic field, leading to higher (lower) charge values for MSQM (MCFL) strangelets, when compared to the nonmagnetized case.

KeyWords Plus: Liquid-Drop Model; Quark Matter; Neutron-Stars; QCD Matter; Field; Superconductivity; Surface; Radius; Charge; Phase

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