Contribution ID: **29** Type: **Talk**

Revisiting stability windows for quark and protoquark stars

Thursday 3 July 2014 14:30 (45 minutes)

We have calculated stability windows at zero [1] and finite temperature [2] for different models that are generally applied to describe quark stars: the MIT bag model, the quark mass density dependent model (QMDD) and the Nambu-Jona-Lasinio model. The quantity that has to be investigated in the search for stable strange matter at finite temperature is the free energy per baryon and we analyze stability windows up to temperatures of the order of 40 MeV, which are typical during the process of the star evolution. The QMDD model can generally explain larger star masses. The effects of strong magnetic fields on the stability windows are also computed.

[1] J.R. Torres and D.P.Menezes, Eur. Phys. Lett. (2013), in press, arXiv:1210.2350[nucl-th];

[2] D.F.T. Agudelo, J.R. Torres, D.P. Menezes and V. Dexheimer, in preparation.

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Track Classification: STARS2013