

The Structure and Signals of Neutron Stars, from Birth to Death



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SU(3) symmetric hypernuclear matter and related stellar properties

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Based on the SU(3) symmetry group, we fix the hyperon-meson coupling constants and constrain them to experimental nuclear matter results and astrophysical observations. We then study the effects of meson-hyperon coupling constants on the onset of hyperons in dense nuclear matter. While the discovery of massive pulsars PSR J1614-2230 and PSR J0348+0432 points towards a very stiff equation of state at very large densities, results from heavy ion collisions point in opposite direction for densities below five times the nuclear saturation density. We study some well known quantum hadrodynamics parametrizations and see that most of them cannot satisfy both types of constraints.

Author: Dr MENEZES, Debora (Universidade Federal de Santa Catarina)

Presenter: Dr MENEZES, Debora (Universidade Federal de Santa Catarina)

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