

# LNGS SEMINAR SERIES

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## **Rescuing the hyperons in neutron stars**

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The discovery of the high mass pulsars J1614-2230 ( $M = 1.97 \pm 0.04 M_{\odot}$ ) and J0348+0432 ( $M = 2.01 \pm 0.04 M_{\odot}$ ) poses an interesting challenge for nuclear physics as it requires rather stiff EoS of nuclear matter at high density. It is believed that at large densities substantial population of heavy baryons (hyperons) is inevitable, because these become energetically favorable once the Fermi energy of neutrons becomes of the order of their rest (effective) mass. Their onset then reduces the degeneracy pressure of the cold thermodynamic ensemble and generally predicts a maximum mass of a neutron star which is lower than the measured lower limits. This is the essence of the so-called "hyperonization puzzle" in compact stars. In this talk we shall discuss this topic within the relativistic density functional theory.

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