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The equation of state of neutron-star matter

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Neutron stars are unique laboratories to probe matter in extreme conditions that cannot be currently reproduced on Earth. The determination of their equation of state (EoS) is a challenge, but it is particularly important since it allows to relate different global neutron-star properties and to link the prediction of astrophysical observables to microphysical properties of dense matter.

In this presentation, I will give a brief introduction on the dense-matter EoS, and specifically on the EoS for neutron stars. Various constraints coming from both nuclear physics and astrophysics will be discussed. The prediction for the dense-matter EoS and neutron-star observables obtained with a large variety of EoSs will be presented in connection with (multi-messenger) observations.

Author: FANTINA, Anthea Francesca (Grand Accélérateur National d'Ions Lourds (GANIL))

Presenter: FANTINA, Anthea Francesca (Grand Accélérateur National d'Ions Lourds (GANIL))

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