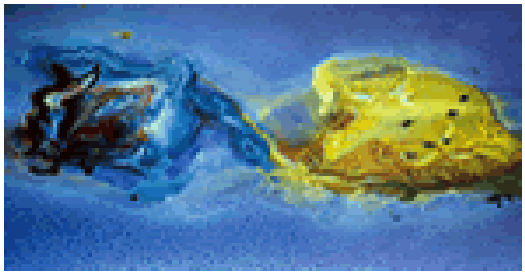

Contribution ID: **157** Type: **Invited talk**

Constraints from the GW170817 merger event on the nuclear matter EoS

Wednesday 1 August 2018 14:00 (20 minutes)

The equation of state (EoS) of nuclear matter is one of the key issues in understanding the physical properties of neutron stars (NS). Currently, the strongest constraint comes from the fact that the maximum mass for NSs must be larger than about 2Mo, whereas the determination of the radius is still suffering of observational uncertainties and models dependence.

Gravitational wave (GW) observations of coalescing binary NSs is a promising avenue to constrain the dense matter EoS. The detection of the merger event, GW170817, along with its electromagnetic counterpart, has allowed to place lower and upper bounds on some parameters describing the binary's tidal interactions, thus ruling out very stiff and very soft EoS. This translates into an allowed window for the radius of the 1.4Mo stellar configuration between ˜12 and 13 km. Using various microscopic and phenomenological equations of state for nuclear and hybrid stars'configurations, we find radii compatible with the observational limits, thus identifying suitable EoS. Correlations between various observables, e.g. moment of inertia and tidal deformability, will also be discussed.

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