Contribution ID: **16**

Type: **contributed talk**

# Constraining the Nuclear Equation of State through the Tidal Deformability of Neutron Stars

*Thursday, 24 May 2018 09:45 (15 minutes)*

The pioneering gravitational wave observation from a binary neutron star merger opens up new possibilities to constrain the equation of state of dense matter. In particular, the observed signal allows to extract an upper bound for the dimensionless tidal deformability of neutron stars. In this work, we study to what extent simultaneous measurements of neutron star masses and tidal deformabilities can constrain radii of neutron stars and the equation of state. To this end, we consider equations of state up to nuclear densities based on chiral effective field theory interactions and extend them in a general way to higher densities. Based on a large set of equations of state, we systematically incorporate the constraints from observations and causality to derive model-independent limits for the equation of state over a wide range of densities and for the properties of neutron stars.

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**Session Classification:** Session M4