



Contribution ID: 366

Type: **Invited talk in the parallel session**

Measuring Nuclear Matter Parameters with NICER and LIGO/Virgo

Thursday, 8 July 2021 16:30 (20 minutes)

Neutron star observations offer us an excellent testbed to measure nuclear parameters that are difficult to access with terrestrial experiments. Some of these nuclear parameters have strong correlations with radii and tidal deformabilities of neutron stars. In this talk, I focus on one of such parameters, $K_{\text{sym},0}$, that corresponds to the curvature of symmetry energy at nuclear saturation density. I describe how one can use the correlations to constrain this parameter with the recent x-ray measurement of the radius with NICER and the gravitational-wave measurement of the tidal deformability with LIGO/Virgo. I will also discuss recent improvements on the analysis by increasing the number of sampling equations of state, including higher-order nuclear parameters, and relaxing some of the assumptions in the original analysis.

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Session Classification: Dense Matter in Compact Stars

Track Classification: Neutron Stars: Dense matter in compact stars