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MATTI JARVINEN

Tel-Aviv University

TITLE:

Predictions for dense nuclear matter, neutron stars, and their mergers from holographic QCD

ABSTRACT:

Motivated by the current shortage of theoretical tools for studying cold and dense nuclear matter, I discuss a simple holographic approach, where dense nuclear matter is introduced through a homogeneous non-Abelian bulk gauge field in a bottom-up model (V-QCD). Combining predictions of the holographic model with state-of-the-art effective field theory models of nuclear matter, I construct a family of feasible "hybrid" equations of state which cover both the quark matter (Dr. Jokela's talk) and nuclear matter phases. The model predicts, among other things, that neutron stars have no quark matter cores. Simulations of binary neutron star mergers, using the hybrid equations of state as an input, indicate that the model favors low characteristic frequencies in the spectrum of produced gravitational waves.