



Contribution ID: 27

Type: 4th week (Nuclear matter under extreme conditions)

Reaching percolation and conformal limits in neutron stars

Thursday, November 7, 2024 10:00 AM (30 minutes)

In this talk, I discuss the statistically determined equation of state of dense matter that fulfills the multimessenger constraints and determine the properties of dense matter found in neutron stars. I demonstrate that the speed of sound and trace anomaly are driven towards their conformal values at the center of maximally massive NSs. I argue that the local peak of the speed of sound is located at values of energy and particle densities consistent with deconfinement and percolation conditions in QCD matter. I also demonstrate that the curvature of the energy per particle may serve as an approximate order parameter that signifies the onset of strongly coupled conformal matter in the NS core.

talk based is on:

- [1] M. Marczenko, L. McLerran, K. Redlich, C. Sasaki, Phys.Rev.C 107 (2023) 2, 025802
- [2] M. Marczenko, K. Redlich, C. Sasaki, Phys.Rev.D 109 (2024) 4, L041302

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Session Classification: 1-day workshop (4th week)