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From heavy-ion collisions to compact stars: Equation of state, and relevance of the system size

Wednesday, 27 September 2017 14:00 (25 minutes)

After a brief introduction to the finite density frameworks, I will report on dense equation of state investigations via resummed perturbative QCD. The pressure at non-zero baryon density, as well as cumulants related to the baryon number fluctuations will be compared to lattice QCD data.

Next, omitting for now the importance of the coupling corrections, and considering a zero-density toy model to begin with, I will focus on corrections due to the small size of some of the systems. After heuristically motivating the relevance for finite size effects in heavy-ion collisions, I will compare the magnitudes of both types of corrections. I will then present a few preliminary results, such as the speed of sound in finite size systems at high temperature.

Presenter: Dr MOGLIACCI, Sylvain (University of Cape Town)