Contribution ID: **9** Type: **not specified**

Bayesian analysis meets ultra-central collisions: assessing the anisotropic flow puzzle

Tuesday, 26 April 2022 16:00 (20 minutes)

Ultra-relativistic heavy-ion collisions are currently best understood via complex, multi-staged hybrid hydrodynamic simulations. Recently, the potentially large parameter space associated with these simulations started to being constrained by means of Bayesian analysis that considered only data measured at typical centralities. A decade-old long puzzle is the failure of any simulation model to describe experimental flow data in extremely central collisions. We study whether multiple state-of-the-art Bayesian constrained models [1-4] display the same pathologies — either an elliptic flow that is too large or triangular flow that is too small, or both — seen in older simulations and find that while the overall description of the ultra-central anisotropic flow data is better compared to previous results, the tension with data still exists as one goes to ultra-central collisions. We speculate on ways that the puzzle could be solved in the future.

[1] D. Everett et al. [JETSCAPE], Phys. Rev. Lett. 126, no.24, 242301 (2021); Phys. Rev. C 103, no.5, 054904 (2021)

[2] J. S. Moreland, J. E. Bernhard and S. A. Bass, Phys. Rev. C 101, no.2, 024911 (2020)

[3] G. Nijs, W. van der Schee, U. Gürsoy and R. Snellings, Phys. Rev. C 103, no.5, 054909 (2021); Phys. Rev. Lett. 126, no.20, 202301 (2021)

[4] G. Nijs and W. van der Schee, arXiv:2110.13153 [nucl-th]

Primary author: Dr VEIGA GIANNINI, Andre

Co-authors: DENICOL, Gabriel (Universidade Federal Fluminense); DOBRIGKEIT CHINELLATO, David (University of Campinas UNICAMP (BR)); HIPPERT TEIXEIRA, Mauricio (University of Illinois at Urbana-Champaign); SOARES NARCISO FERREIRA, Antonio Mauricio (University of Campinas); WILLIAM LUZUM, Matthew; NORONHA, Jorge (University of Illinois at Urbana-Champaign); NUNES DA SILVA, Tiago Jose (Universidade Federal de Santa Catarina); TAKAHASHI, Jun (University of Campinas UNICAMP (BR))

Presenter: Dr VEIGA GIANNINI, Andre

Session Classification: Sessão 2

Track Classification: Sessão 2