

Abstract Submitted
for the DNP20 Meeting of
The American Physical Society

beam-energy and collision-system dependence of flow correlations and fluctuations in heavy-ion collisions NISEEM ABDELRAHMAN, Univ of Illinois - Chicago — Investigations of flow correlations and fluctuations in heavy-ion collisions can give in-depth insights into the expansion dynamics of these collisions. They can also provide new constraints for initial-state models to allow robust extraction of the specific shear viscosity η/s . The recent STAR differential measurements of the flow correlations (symmetric cumulants) and the flow-momentum correlations, $\rho(v_n^2, \langle p_T \rangle)$ [1], will be presented for several collisions-systems at different beam energies. The results show characteristic system- and beam-energy-dependent trends which are compared with similar LHC measurements [2,3] as well as calculations from several viscous hydrodynamic models. The comparisons between data and theoretical calculations show that the measurements can be used to pin down the respective influence of initial-state fluctuations, system-size, shape (ε), and $\eta/s(T)$. The implications of the constraining power of these measurements will be discussed.

Piotr Bozek, Transverse momentum-flow correlations in relativistic heavy-ion collisions, Phys. Rev. C **93**, 044908 (2016).

ATLAS Collaboration, Measurement of flow harmonics correlations with mean transverse momentum in lead-lead and

Niseem Abdelrahman
Univ of Illinois - Chicago

Date submitted: 18 Jun 2020

Electronic form version 1.4