

Abstract Submitted  
for the DNP13 Meeting of  
The American Physical Society

**QGP parameter extraction via a global analysis of event-by-event flow coefficient distributions** JONAH BERNHARD, CHRISTOPHER COLEMAN-SMITH, Duke University, PETER MARCY, University of Wyoming, STEFFEN BASS, Duke University — A primary goal of heavy-ion physics is the measurement of the quark-gluon plasma specific shear viscosity  $\eta/s$ . Previous studies have placed bounds on  $\eta/s$ , typically by matching the centrality dependence of event-averaged  $v_n$  coefficients between model and experiment. The ATLAS experiment has recently measured event-by-event  $v_n$  distributions, which could provide a much more sensitive probe of  $\eta/s$ . Using a hybrid model with MC-Glauber and MC-KLN initial conditions, viscous 2+1D hydrodynamics, and the hadron cascade UrQMD, we calculate  $v_n$  distributions over wide ranges of several model parameters including  $\eta/s$ . By calibrating the model to data, we extract the optimal values of each parameter and clarify the important features of a physically accurate model.

Jonah Bernhard  
Duke University

Date submitted: 26 Jun 2013

Electronic form version 1.4