QGP parameter extraction via a global analysis of event-by-event flow coefficient distributions

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A primary goal of heavy-ion physics is the measurement of the quark-gluon plasma specific shear viscosity η/s. Previous studies have placed bounds on η/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 η/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 η/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.