Abstract Submitted
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Multiplicity-Momentum Correlations in Relativistic Nuclear Collisions[1] NOLAN LUPPINO, Lawrence Technological University, SEAN GAVIN, Wayne State University, GEORGE MOSCHELLI, Lawrence Technological University, CHRIS ZIN, W.J LLOPE, Wayne State University — The observation of anisotropic collective flow in the small systems produced by proton-proton and proton-nucleus collisions at RHIC and LHC has lead theorists to the radical hypothesis that hydrodynamics can occur without thermal equilibration. We seek measures of equilibration that are independent of anisotropic flow [1]. In this poster we study the effect of thermalization on correlations of multiplicity and transverse-momentum p_t. Well known minijet effects in the initial state simultaneously increase multiplicity and p_t. leading to a positive correlations between these quantities. We construct a covariance observable that vanishes once the medium created in these collisions reaches thermal equilibrium [2]. We use simulated events from the UrQMD event generator to calculate the value of multiplicity-momentum correlations in Au-Au collisions with a center of mass collision energy of 200 GeV per nucleon. We find a positive value that decreases with increasing centrality, as expected by a partial thermalization calculation [2]. [1] S. Gavin, G. Moschelli, C. Zin, Phys. Rev. C 95, (2017) 064901 [2] S. Gavin, G. Moschelli, C. Zin, in preparation

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