Abstract Submitted
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Temperature uniformity of the bulk medium produced in relativistic heavy-ion collisions[1] LANNY RAY, The University of Texas at Austin — The success of hydrodynamic models of elliptic flow in relativistic heavy ion collisions is often touted as evidence for rapid thermal equilibration. However, large momentum scale two-particle correlations indicate that a significant fraction of the final-state hadrons retain jet-like correlation structure associated with early stage, non-equilibrated low-Q^2 partons [1]. In addition, correlations on transverse momentum ($p_{t1} \times p_{t2}$) suggest that low-Q^2 parton momentum is partially dissipated causing fluctuations in the effective temperature (thermal and/or collective motion) of the bulk medium[2]. We first show that both global and local temperature fluctuation models describe the available ($p_{t1} \times p_{t2}$) correlation data equally well. Results of an analytical model are then presented which tests the sensitivity of ($p_{t1} \times p_{t2}$) correlations to the first few lower-order cumulants of the two-point temperature distribution for the event ensemble. Unique signatures in the predicted ($p_{t1} \times p_{t2}$) correlations are observed for each cumulant term studied. The prospects for direct measurement of the absolute temperature distribution in the bulk medium produced in relativistic heavy-ion collisions using ($p_{t1} \times p_{t2}$) and other correlation measures are discussed. [1] J. Adams et al., Phys. Rev. C **73**, 064907 (2006); J. Phys.G. **32**, L37 (2006). [2]J. Adams et al., nucl-ex/0408012.

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