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Partial Thermalization of Correlations in pA and AA collisionss[1]
SEAN GAVIN, Wayne State University, GEORGE MOSCHELLI, Lawrence Technological University, CHRISTOPHER ZIN, Wayne State University — Correlations born before the onset of hydrodynamic flow can leave observable traces on the final state particles. Measurement of these correlations can yield important information on the isotropization and thermalization process. Starting with Israel-Stewart hydrodynamics and Boltzmann-like kinetic theory in the presence of dynamic Langevin noise, we derive new partial differential equations for two-particle correlation functions [1,2]. To illustrate how these equations can be used, we study the effect of thermalization on long range correlations. We show quite generally that two particle correlations at early times depend on S, the average probability that a parton suffers no interactions. We extract S from transverse momentum fluctuations measured in Pb+Pb collisions and predict the degree of partial thermalization in pA experiments. [1] S. Gavin, G. Moschelli, C. Zin, Phys. Rev. C 94, 024921 (2016). [2] S. Gavin, G. Moschelli, C. Zin, Phys. Rev. C 9, 064901 (2017).

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