

Abstract Submitted
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Energy Dependence of Short and Long-Range Multiplicity Correlations in Au+Au Collisions at RHIC TERENCE TARNOWSKY, Purdue University, STAR COLLABORATION — Production of particles in the central rapidity region is dominated at all energies by short range correlations (SRC). Correlations that extend over a longer range are observed in high energy hadron-hadron interactions. Results from STAR for short and long-range multiplicity correlations (LRC) are presented for Au+Au collisions at $\sqrt{s_{NN}} = 200$ and 62.4 GeV. These correlations are measured with an increasing gap in pseudorapidity (η), from no gap to a separation of 1.6 units. A suppression in the SRC strength near midrapidity is observed in central Au+Au data at 200 GeV. An increase in LRC are seen with larger η gaps. For $p_t > 1$ GeV, the suppression in SRC is diminished. This suppression of the SRC at midrapidity is not seen in Au+Au data at 62.4 GeV. Comparisons to HIJING and the Parton String Model (PSM) do not fully reproduce the central Au+Au data. String fusion as implemented in the PSM is one possibility that has been explored to understand the behavior seen in the data. This result may indicate a reduction of particle sources and possible formation of high density matter in central 200 GeV Au+Au collisions.

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