Beam Energy Dependence of Distinguishable Particle Correlations in Heavy-Ion Collisions at STAR LAUNA DI CARLO, AMELIA DOETSCH, BEKELE ERKO, BRIAN HANLEY, WILLIAM LLOPE, Wayne State University — Heavy-ion collisions allow one to study the properties of the Quark Gluon Plasma (QGP), a hot and dense strongly-interacting system of deconfined quarks and gluons. These hot systems are produced at the Relativistic Heavy Ion Collider (RHIC) and measured by the Solenoidal Tracker at RHIC (STAR) detector. The STAR detector measures the momentum and identifies the particles produced in each collision. A measurement of the correlations between pairs of particles in each event provides the information needed to understand the collision dynamics. A specific multiplicity-weighted correlation function, called the Balance Function (BF), provides additional information on the "flow" of conserved quantities such as the electric charge and baryon number as a function of kinetic observables such as the rapidity and azimuthal angle. In this analysis, two-particle correlators, called "R_2", and balance functions have been measured for identified charged particle pairs (protons, kaons, and pions). Data from STAR for Au+Au collisions at eight different beam energies ranging from $\sqrt{s_{NN}} = 7.7$ GeV to 200 GeV will be analyzed. We report on the latest results and future plans.

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