Systematic Studies of Number of Participants in Au+Au Collisions at RHIC Using STAR Data

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Abstract

The number of participant nucleons has been empirically used as a measure of collision impact parameters to characterize nucleus-nucleus collisions. The determination of the number of participant nucleons at RHIC, however, is plagued with large uncertainties. Fluctuations in particle production dynamics are convoluted with variations in collision geometry. The effect of this convolution on experimental observables will be investigated. We present systematic studies of determining the number of participants from measurements of transverse momentum and number of charged particles with the STAR detector. Interesting features of Au+Au collisions will be evaluated as a function of number of participants.