Energy-Energy Correlations and Other Di-Jet/Jet-Photon Correlations

JUSTIN FRANTZ, SUNY Stony Brook, PHENIX COLLABORATION

— An integral part of the RHIC program has been to use jet probes to study the Heavy Ion Medium. Such measurements have progressed from comparisons of plain particle yields at high pt, to two-particle opening angle correlations, and currently further jet observables are being explored. For example, as a new twist and point of view on the interesting pt-dependence of the di-jet azimuthal correlations, we have explored the Energy- Energy Correlation (EEC) in both 200 GeV Au+Au (run4 dataset) and p+p collisions. The EEC represents the autocorrelation of the energy flow of the jet fragmentation. Such measurements are attractive since they require no jet-finding in Au+Au but are a step towards event shape observables used to study perturbative and non-perturbative QCD. We’ve explored a technique for measuring the EEC using photon-triggered events, and we will also present other observables related to the PHENIX photon-jet and jet-jet measurements.

Justin Frantz
SUNY Stony Brook

Date submitted: 23 Jan 2007