

Direct Photon-Hadron Correlations Measured with the PHENIX Detector

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Photon tagged jets are an excellent probe of and enhance our understanding of jet tomography in heavy ion collisions. Since photons are not modified by the strongly coupled medium at RHIC, the measured photon momentum approximately balances that of the away-side parton. Therefore, the effective modification to the fragmentation function can be measured, by comparing the spectra of the away-side yields in direct photon-hadron correlations in Au+Au collisions to those in p+p. Modifications to the shape of the away-side can also be quantified. Direct photon-hadron correlations have been measured with the PHENIX detector in p+p and Au+Au collisions at $\sqrt{S_{NN}} = 200\text{GeV}$ at RHIC. This is done using a statistical subtraction method to remove the contribution of decay photons from the inclusive photon-hadron correlations. Event by event techniques have been applied in the analysis of the p+p data to improve the systematic uncertainty in the baseline measurement and are studied in Au+Au data. The latest results are also compared to several theoretical models of energy loss as well as single and di-hadron measurements.