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Measuring Intrinsic Partonic Transverse Momentum via Two-Particle Correlations in PHENIX JOE OSBORN, University of Michigan, PHENIX COLLABORATION — Investigating partonic interactions is one of the primary goals of the PHENIX experiment at the Relativistic Heavy Ion Collider (RHIC). Probing parton dynamics within the nucleon and in the process of hadronization is one of the frontiers in quantum chromodynamics, yet distinguishing initial-state effects related to nucleon structure from final-state effects related to hadronization can be a challenge in proton-proton collisions. Direct photons, coming directly from the partonic hard-scattering process, offer an excellent mechanism through which to measure the intrinsic partonic transverse momentum since the photon is independent of non-perturbative final state hadronization effects. Therefore direct photons are an optimal observable for isolating initial state effects in the proton. At leading order in proton-proton collisions, quark-gluon Compton scattering and quark-antiquark annihilation are the dominant $2 \rightarrow 2$ scattering processes for the production of direct photons. By measuring the angle between the correlated direct photon and away side charged hadrons produced from the scattered parton, the intrinsic partonic transverse momentum can be quantified. The status of the analysis with data taken by the PHENIX detector in 2012 and 2013 will be presented.

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