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Direct photon measurements in pp collisions at sqrt(s)=510 GeV by PHENIX

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At RHIC energies high pT direct photons are mainly produced by the quark-gluon Compton scattering process. Being not disturbed by fragmentation processes, they provide access to initial condition of partonic collisions. Direct photon production in pp collisions serves an ideal probe for gluon parton distribution functions (PDF), whereas quark PDFs are well constrained by deeply inelastic lepton-nucleon scattering. Similarly, longitudinally polarized pp collisions provide direct access to gluon helicity distribution within the proton, and therefore contribute to resolving the long standing puzzle of the proton spin decomposition. We will present the status of the direct photon analysis from pp collisions at sqrt(s)=510 GeV by PHENIX for both unpolarized and helicity dependent measurements, and comparison to previous measurements at different sqrt(s) and to NLO pQCD calculations.

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