

Studies of photon-jet correlations in 5.02 TeV Pb+Pb and pp collisions with ATLAS

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Nuclear collisions which produce a high transverse momentum (p_T) prompt photon offer a useful way to study the dynamics of the hot, dense medium produced in these events. Because photons do not carry color charge, they are unaffected by the hot, dense medium. Thus, the outgoing photon serves as a tag of the initial parton flavors, and measures the initial parton p_T before they are quenched by their passage through the medium. In 2015, ATLAS sampled 0.49 nb⁻¹ and 26 pb⁻¹ of Pb+Pb and pp data at 5.02 TeV, respectively, with a high-level photon trigger that selects $p_T > 25$ GeV photons with high efficiency. The larger prompt photon cross-section and integrated luminosity with respect to 2.76 TeV data allow for new, differential studies of photon-jet correlations. In this talk, ATLAS results on photon-jet azimuthal and p_T balance will be presented using $p_T > 60$ GeV photons and $R=0.4$, $p_T > 30$ GeV jets. Double-differential distributions of the jet-to-photon p_T ratio, x_{Jg} , and of the azimuthal difference, $\Delta\phi$, will be presented as a function of photon p_T and event centrality. The status of other photon-tagged jet observables will also be discussed.

Preferred Track

Jets and High p_T Hadrons

Collaboration

ATLAS

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