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Measurement of isolated direct photons in lead-lead collisions at sqrt(s_NN)=2.76 TeV with the ATLAS detector

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Direct photons are a powerful tool in heavy ion collisions. Their production rates provide access to the initial state parton distribution functions, which are expected to be modified by nuclear effects. They also provide a means to calibrate the expected energy of jets that are produced in the medium, and thus are a tool to probe the physics of jet quenching more precisely both through jet rates and fragmentation properties. The ATLAS detector measures photons with its hermetic, longitudinally segmented calorimeter, which has excellent spatial and energy resolution, providing detailed information about the shower shape of each measured photon. These capabilities provide powerful rejection against the background from neutral pions in jets. Rejection against jet fragmentation products is further enhanced by isolation criteria, which can be based on calorimeter energy or the presence of high pT tracks. First results on the rates of isolated direct photons from approximately 140 μb-1 of lead-lead data will be shown, as a function of transverse momentum, pseudorapidity and centrality, and their rates compared to expectations from perturbative QCD.

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