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Measurement of boson production in lead-lead collisions at $\sqrt{s_{NN}}=2.76$ TeV with the ATLAS detector

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Direct production of bosons are a powerful tool in heavy ion collisions. Their 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 and $Z \rightarrow ee$ decays with its hermetic, longitudinally segmented calorimeter, which has excellent spatial and energy resolution, providing detailed information about the shower shape of each measured photon. ATLAS also measures the $Z \rightarrow \mu\mu$ and $W \rightarrow \mu\nu$ in the same pseudorapidity range using the its muon system. First results on the rates of isolated direct, Z and W from approximately $140 \mu\text{b}^{-1}$ 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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