

# Measurement of W and Z boson production in 5 TeV pp, p+Pb and Pb+Pb collisions with the ATLAS detector

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W and Z bosons are short lived and do not interact strongly. Thus their production yields measured via lepton decay channels in lead-lead with respect to proton-proton collisions provide direct tests of both binary collision scaling and possible modification of parton distribution functions (nPDF) due to nuclear effects. Further, the proton-lead collisions provide an excellent opportunity to study nPDFs in detail. The ATLAS detector has a broad acceptance in the muon and electron channels, with excellent performance even in the high occupancy environment of central heavy-ion collisions. ATLAS has recorded 0.49 nb<sup>-1</sup> of lead-lead data at the new center-of-mass energy of 5.02 TeV. Sizes of weak boson production samples are expected to increase by a factor of eight relative to the available Run 1 data at 2.76 TeV. In addition the data can be compared directly to the 29nb<sup>-1</sup> of proton-lead data collected in Run 1 at the same energy. In this talk, W and Z boson production yields, and lepton charge asymmetries from W decays, are presented differentially in rapidity and transverse momentum as a function of centrality in lead-lead and proton-lead collisions.

**Primary author(s)** : Mr. JANUS, Piotr (AGH University of Science and Technology (PL))

**Presenter(s)** : Mr. JANUS, Piotr (AGH University of Science and Technology (PL))

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