Contribution ID: **37** Type: **Oral Presentation**

Electroweak probes in heavy-ion collisions with ATLAS

Monday, 1 June 2020 11:00 (20 minutes)

Electroweak bosons produced in lead-lead (Pb+Pb) collisions are an excellent tool to constrain initial-state effects which affect the rates of hard-scattering processes in nucleus-nucleus interactions. The production yields of massive electroweak bosons, observed via their leptonic decay channels, offer a high-precision test of the binary collision scaling expected in Pb+Pb and a way to quantify nuclear modifications of the parton distribution functions (PDFs).
The large samples of Pb+Pb data at $\sqrt{s_{\mathrm{NN}}}$ = 5.02 TeV collected by the ATLAS experiment in 2015, and the corresponding high-statistics pp data at the same collision energy used as a baseline, allow for a detailed experimental study of these phenomena and comparisons to predictions from a variety of theoretical calculations. This talk presents the latest ATLAS results on electroweak boson production, including updated results on Z production and high-precision W boson results in Pb+Pb collisions. Inclusive production of prompt photons in proton-lead˜(p+Pb) collisions at $\sqrt{s_{\mathrm{NN}}}$ = 8.16 TeV is also covered.
Various predictions of nuclear modifications to PDFs are discussed.

Collaboration (if applicable)

ATLAS

Track

Electroweak Probes

Contribution type

Contributed Talk

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