

# 11th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions



Beitrag ID: 81

Typ: Talk

## Electroweak-boson measurements from small to large collision systems with ALICE at the LHC

*Dienstag, 28. März 2023 17:30 (20 Minuten)*

Electroweak bosons produced in hard-scattering processes at the early stage of the collision, are efficient probes of the initial state of the collision. While the W measurements in pp collisions are a stringent test of perturbative QCD-based calculations and production mechanisms, they can constrain the nuclear parton distribution functions in p-Pb and Pb-Pb collisions.

Electroweak bosons are studied with ALICE in pp collisions at  $\sqrt{s} = 13$  TeV, p-Pb collisions at  $\sqrt{s_{NN}} = 8.16$  TeV and Pb-Pb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV via their leptonic decays in the muon and electron channels at forward rapidity ( $-4.0 < \eta < -2.5$ ) and midrapidity ( $|\eta| < 0.8$ ), respectively. The observations in p-Pb and Pb-Pb collisions at forward rapidity give access to low Bjorken- $x$  values, a phase-space region poorly constrained by heavy-ion experiments.

The latest W-boson results concerning differential measurements of the normalised production yields, production cross sections, nuclear modification factors and lepton-charge asymmetry as a function of rapidity, transverse momentum, collision centrality and charged-particle multiplicity are presented. The production of W bosons in association with hadrons as a function of the charged-particle multiplicity in pp collisions is reported as well. Comparisons with model calculations are discussed.

### Experiment/Theory

ALICE

### Affiliation

ALICE

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**Sitzung Einordnung:** Parallel: Electromagnetic & Electroweak Probes

**Track Klassifizierung:** Electromagnetic and electroweak probes