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Precision measurements of Standard Model parameters with the ATLAS detector

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The ATLAS Collaboration is engaged in precision measurement of fundamental Standard Model parameters, e.g. the weak-mixing angle and the complete set of coefficients that describe the angular distributions of Drell-Yan production.

A measurement of the forward-backward asymmetry for the neutral current Drell Yan process is presented and the results are then used to extract a measurement of the effective weak mixing angle. This measurement shows significant sensitivity to the uncertainties of the parton density functions of the proton. The angular distributions of the Drell-Yan lepton pairs around the Z-boson mass peak probe the underlying QCD dynamic of the Z-boson production mechanisms. We present a measurement of the complete set of angular coefficients describing these distributions using 8 TeV centre-of-mass energy. The measurement is compared with the theoretical predictions and shows discrimination power between different approaches of the QCD modeling.

additional information

Submitted on behalf of the ATLAS Standard Model Physics Group by the ATLAS Speakers Committee representative Alex Read (a.l.read@fys.uio.no). Alex is not the speaker! A speaker will be selected by the Speakers Committee when the abstract is accepted.

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