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## Measurement of the Muon Charge Asymmetry for W Bosons Produced in Inclusive $pp \rightarrow W(\mu\nu) + X$ at $\sqrt{s} = 8$ TeV

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Measurement of the Muon Charge Asymmetry for W Bosons Produced in Inclusive  $pp \rightarrow W(\mu\nu) + X$  at  $\sqrt{s} = 8$  TeV are presented. The data sample corresponds to an integrated luminosity of 18.8 inverse femtobarns recorded with the CMS detector at the LHC. With a sample of more than a hundred million W to mu nu events, the statistical precision is greatly improved in comparison to previous measurements. These new results provide additional constraints on the parton distribution functions of the proton. These measurements are used together with the cross sections for inclusive deep inelastic ep scattering at HERA in a next-to-leading-order QCD analysis. The determination of the valence quark distributions is improved.

### Oral or Poster Presentation

Oral

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