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Associated Production of W+c and Determination of the Strange-Quark Content of the Proton

Tuesday 5 June 2018 16:00 (1h 30m)

The measurement the of W+c production cross-section provides an opportunity to directly access the strange quark content of the proton at the electroweak scale.
We focus on W $\longrightarrow$ lν and c $\longrightarrow$ D * as probes of W+c since both, W-boson and D-Meson, can be measured with good accuracy by the CMS-detector. Further the fragmentation of charm quarks into D-mesons is well measured. The data taken by the CMS-experiment at the LHC in 2016 offers sufficient statistics for an analysis of the pseudorapidity-distribution of the muon coming from the decay of the W-boson. We present the results for the inclusive and differential cross section of W+charm, as well as comparisons to theoretical predictions at Next-to-Leading order (NLO).
The results from this analysis are used as input for a QCD analysis at NLO to determine the strange-quark distribution and extract the strangeness fraction of the proton.

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