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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 of the  $W+c$  production cross-section provides an opportunity to directly access the strange quark content of the proton at the electroweak scale.

We focus on  $W \rightarrow l\nu$  and  $c \rightarrow D^*$  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  $W+c$ , 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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