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Heavy-Flavor measurements in proton-proton collisions with ALICE

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The study of heavy flavor production in proton-proton collisions is of particular interest for quantum chromodynamics (QCD), as charm and beauty quarks possess large masses and are thus mainly created in hard partonic scattering processes. Cross sections obtained from measurements for charm and beauty quarks allow to constrain theories and to provide important parameters for model calculations. The ALICE experiment recently provided measurements in a higher, so far unexplored energy region, which allows for the first tests of predictions of transverse-momentum-differential cross sections from pQCD in this new energy domain.

In the ALICE detector system, the products of heavy-flavor hadrons are measured through the reconstruction of hadronic D-meson decays at mid-rapidity and via semileptonic decay channels of charm and beauty hadrons at forward and mid-rapidity. ALICE has analyzed pp collisions at center of mass energies of 2.76 and 7 TeV at the LHC and measured the pT-differential cross section of leptons from decays of heavy flavor hadrons as a function of particle multiplicity. Furthermore, the D-meson yield at mid-rapidity was also studied as a function of the multiplicity of charged particles produced in the collision. We discuss recent results from these analyses.

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