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Measurement of D-meson production as a function of charged-particle multiplicity in proton-proton collisions at $\sqrt{s} = 13$ TeV with ALICE at the LHC

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The study of charm production as a function of charged-particle multiplicity allows the investigation of the role of multi-parton interactions (MPI), and provides insight into the processes occurring at the partonic level and on the interplay between the hard and soft particle production mechanisms in proton–proton (pp) collisions. In this contribution, measurements of open heavy-flavor production as a function of charged-particle multiplicity, via the study of the D-meson self-normalized yields in pp collisions at the center-of-mass energy of $\sqrt{s} = 13$ TeV is presented. The D-meson yields are measured in different $p_{\rm T}$ intervals at midrapidity via their hadronic decay channels. The D-meson self-normalized yield is found to increase stronger than linearly with increasing charged-particle multiplicity, with a significant $p_{\rm T}$ dependence. The measurements are compared with the results in pp collisions at $\sqrt{s} = 7$ TeV and model calculations.

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