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Production of open heavy flavour hadrons in pPb and fixed-target collisions LHCb

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A rich set of open heavy flavour states is observed by LHCb in pPb collisions collected at 5 and 8.16 TeV nucleon-nucleon center-of-mass energies. Thanks to the LHCb forward acceptance that is complementary to general purpose detectors, heavy-flavor hadrons can be studied down to zero p_T . Presented in this talk is the measurements of production of beauty hadrons and open charm states including heavy baryons, through cleanly reconstructed exclusive decays. Nuclear effects are studied, quantified by the nuclear modification factors, forward-to-backward production ratios and baryon-to-meson ratios.

LHCb has the unique capability to study collisions of the LHC beams on fixed targets. Internal gas targets of helium, neon and argon have been used so far to collect samples corresponding to integrated luminosities up to 0.1 pb⁻¹. An upgraded target, allowing a wider choice of target gas species and to increase the gas density by up to two orders of magnitude, is going to be installed for the LHC Run 3. Results and prospects on open and hidden charm productions will be presented, which can provide crucial constraints on cold nuclear matter effects and nPDF at large x .

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