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Measurement of D meson production and long-range azimuthal correlation in 8.16 TeV p +Pb collisions the ATLAS experiment

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Measurements of production and azimuthal anisotropy of prompt charm mesons (D^0 and D^*) are presented using p +Pb data at $\sqrt{s_{NN}} = 8.16$ TeV collected in 2016 by ATLAS. Prompt charmed meson production is measured in minimum bias p +Pb data, and is reconstructed via two decay channels: $D^0 \rightarrow K + \pi$ and $D^* \rightarrow D^0 + \pi \rightarrow K + \pi + \pi$. The measured charm meson production cross sections are comparable with FONLL predictions scaled by $A_{Pb} = 208$ within uncertainties. The production asymmetry between forward and backward center-of-mass rapidities for the charm mesons is studied for the range of $|y^*| < 0.5$, and no significant asymmetry is observed. The anisotropy is studied using two-particle correlations, with a template fitting procedure used to subtract the residual jet contribution. Finite long-range correlations are observed for particle pairs containing D^* mesons. The flow modulation of D^* is broadly consistent with what has been observed for light hadrons and muons from heavy quark decays.

Content type

Experiment

Collaboration

ATLAS

Centralised submission by Collaboration

Presenter name already specified

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