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Measuring the production of D^* mesons within jets at the ATLAS experiment

Monday 7 April 2025 16:45 (15 minutes)

Charm quark fragmentation functions describe the probability of charm quarks hadronising into particular charm hadrons. Understanding such functions will provide valuable data for studies involving charm hadrons, such as the development of flavour tagging algorithms and MC event generators. This talk will discuss the approach to the measurement of the charm fragmentation function by analysing the production of D^* mesons within jets, using the ATLAS low pileup Run 2 pp collision data at $\sqrt{s} = 13$ TeV. D^{*+} candidates are reconstructed from their decay into $D^0\pi^+$ and subsequently $D^0 \to K^-\pi^+$, and its charge conjugate. The measurement of the charm fragmentation function for D^* mesons has only been performed once in ATLAS, using Run 1 data. This study will aim to improve on the precision of the previous measurement.

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