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Hadronic and semileptonic b-hadron decays at LHCb

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In a data sample corresponding to ~36 pb−1 of pp collisions at a centre-of-mass energy sqrt(s) = 7 TeV, we make the first observation of the decay Lambda_b -> Lambda_c+Ds- and measure its branching fraction relative to that of Lambda_b -> Lambda_c+π-. We also present related measurements of B hadron decays.
In a data sample corresponding to ~36 pb−1 of pp collisions at a centre-of-mass energy sqrt(s) = 7 TeV, we observe for the first time the decay Bs -> D0 K∗0. A clear
signal of 34.5 ± 6.9 events is obtained with a statistical significance over 9 standard deviations
and we measure its branching ratio relative to that of B0 ⟶ D0 rho0: B(Bs -> D0K∗0)/B(B0 ->D0 rho0)
= 1.39 \pm 0.31 \pm 0.17 \pm 0.18, where the first uncertainty is statistical, the second systematic
and the third is due to uncertainty in the hadronisation fraction fd/fs.
We report first observations of the Cabibbo-suppressed decays B^{-,0} -> D^{0,-}Kππ, and measure their branching fractions relative to the B^{-,0} ⟶ D^{0,-}πππ Cabibbo-favoured modes. The measurements are conducted with the LHCb experiment using 35 pb−1 of data collected at sqrt(s) = 7 TeV.
The LHCb experiment is pursuing a broad programme of measurements of B_S and
Lb semileptonic decays, with the goal of identifying exclusive hadronic final states and measuring their form factor shapes. We report first measurements of $B_S \to D_S \mu\nu X$, $B_S \to DK\mu\nu X$, and $\Lambda_b \to \Lambda_c \mu\nu X$ based on the 2010 and early 2011 LHCb data samples.

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