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Type: **Parallel session talk**

Observation of Λ_b -anti Λ_b production asymmetry ($12'+3'$)

Tuesday 27 July 2021 11:00 (15 minutes)

A precise measurement of the Λ_b production asymmetry is critical to the measurements of CP violation in the decay of b-baryons at LHCb. In general these production asymmetries cannot be precisely predicted since they require knowledge of non perturbative b-quark hadronisation processes, and so need to be experimentally determined. The semileptonic $\Lambda_b \rightarrow \Lambda_c \mu \nu$ decay offers an excellent tool for precise measurement of such production asymmetry. It has a large branching fraction and a clear experimental signature with the presence of a high transverse momentum muon. Furthermore, it is theoretically clean and the CP violation in the decay can be safely assumed to be negligible. The first observation of the Λ_b -anti- Λ_b baryon production asymmetry is presented, together with strong evidence of a dependence of this production asymmetry with the rapidity.

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Collaboration / Activity

LHCb

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