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## $\Lambda$ polarization measurements at LHCb

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Leveraging its precise vertex reconstruction and advanced particle identification, the LHCb detector offers a unique environment to study spin dynamics and hadronization in high-energy collisions. Measurements of baryon polarization in unpolarized proton-nucleus collisions probe how quark spins contribute to the final-state hadron, providing insight into parton spin transfer and fragmentation mechanisms. In particular, charm-baryon polarization provides a sensitive test of heavy-quark spin transfer, while light-baryon polarization explores spin effects in the hadronization of light quarks. Recent LHCb results on baryon polarization in both fixed-target and collider-mode data are presented, highlighting their implications for hadronization dynamics, spin transfer mechanisms, and transverse-momentum-dependent fragmentation functions.

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