

Probing the Standard Model with Electroweak Bosons at LHCb

Monday 7 April 2025 17:00 (15 minutes)

High precision measurements of electroweak physics provide compelling tests of the Standard Model. To make such measurements a good understanding of both the detector alignment conditions and the initial state is required. The talk will discuss studies towards both at LHCb. First, a measurement of, and correction for, curvature biases will be presented, based on arxiv:2311.04670. This approach improves the Z boson invariant mass resolution by 20% and is a key step in LHCb's precision electroweak programme. Second, studies towards a new measurement that probe the intrinsic charm content of the proton will be presented. The LHCb collaboration's measurement of Z bosons produced in association with a charm-jet presented event yields that could be explained by the proton having an intrinsic charm component. It is theorised that this charm content could be accessed at LHCb through the study of events containing both a Z boson and D meson. This analysis is now underway, and the talk will present the latest status of this measurement.

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