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Measurement of A_b and A_c at the Z^0 Pole using a Lepton Tag

The SLD Collaboration

We present a direct measurement of the parity-violating parameters A_b and A_c using e^+e^- collisions at the Z^0 pole energy produced with the SLC. The high longitudinal polarization of the electron beams allows us to obtain A_b and A_c by analyzing the left-right forward-backward asymmetries $\tilde{A}^b_{FB}$ and $\tilde{A}^c_{FB}$ in Z^0 hadronic decays, extracted using muons and electrons from semileptonic decays of b and c quarks. The lepton identification algorithms take advantage of multivariate techniques, incorporating information from the Cherenkov Ring Imaging Detector. Based on the 1993-96 SLD sample of 200,000 hadronic Z^0 decays, we measured A_b and A_c with statistical uncertainties of $\pm$ 0.05 and $\pm$ 0.08 respectively.