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Measurement of A_b at the Z^0 Resonance using a Jet-Charge Technique

The SLD Collaboration

We present an improved SLD measurement of the parity-violating parameter A_b from Left-Right Forward-Backward asymmetry of $b\bar{b}$ pair production at the Z^0 pole. We take advantage of the high polarization of the SLC electron beam and use a jet-charge self-calibrating technique. This technique, employing momentum-weighted charges from both hemispheres, allows calibration of the analyzing power from data and gives a much reduced model dependence. A high purity b-tag based on topological reconstruction of the mass of the B-decay vertex is used in the measurement. Based on our 1993-1996 sample of $\sim 200,000$ Z^0 decays, we have achieved a statistical precision of $\pm 4\%$.