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Studies of $B_s^0 - \overline{B_s^0}$ Mixing at SLD

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We report several studies of the time dependence of $B_s^0 - \overline{B_s^0}$ mixing using a sample of 400,000 hadronic Z^0 decays collected by the SLD experiment at the SLC. The analyses take advantage of the excellent vertexing efficiency and resolution of the pixel-based CCD Vertex Detector. All analyses determine the B or $\overline{B}$ flavor at production by exploiting the large forward-backward asymmetry of polarized $Z^0 \to b\bar{b}$ decays. This flavor tag is enhanced by incorporating additional information from the hemisphere opposite that of the reconstructed B decay. Five different analyses are presented. Three analyses select semileptonic B decays. These analyses differ in the technique used to reconstruct the B decay vertex: inclusive reconstruction using the lepton and all tracks in the jet, lepton with a topologically reconstructed D vertex, and lepton with an opposite-sign identified kaon (or ϕ meson). Two analyses reconstruct inclusive B decays by either fully reconstructing a D_s decay or by topologically reconstructing both B and D decay vertices. The separation between B and $\overline{B}$ decays is based on the lepton charge in the first three analyses, and the D_s charge or the charge difference between B and D vertices in the last two analyses. These preliminary analyses are combined to a sensitivity comparable to that of the current world average.