Measurement of Time Dependent B(D)0 Anti-B(D)0 Mixing at SLD

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ABSTRACT

Measurement of time-dependent $B_d^0 - \bar{B}_d^0$ mixing at SLD

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The time dependence of $B_d^0 - \bar{B}_d^0$ mixing has been observed in events containing high-$P_T$ leptons using a highly inclusive vertexing method to determine the $B$ decay length and boost. The initial state $B$ hadron flavour is determined using the large forward-backward asymmetry provided by the highly polarized electron beams of SLC in combination with a jet charge technique. From a sample of 150,000 hadronic $Z^0$ decays observed in the SLD detector at the SLC between 1993 and 1995, the mass difference between the two $B_d^0$ mass eigenstates has been measured to be $\Delta m_d = 0.486 \pm 0.065\text{(stat)} \pm 0.035\text{(syst)} \text{ps}^{-1}$.
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\[ B_d^\circ - \overline{B}_d^\circ \] mixing at SLD

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