



Contribution ID: 1182

Type: Parallel Session Talk

Implications of the dimuon CP asymmetry in $B_{\{d,s\}}$ decays

Saturday, 24 July 2010 14:10 (17 minutes)

The D0 Collaboration reported a 3.2σ deviation from the standard model prediction in the like-sign dimuon asymmetry. Assuming that new physics contributes only to $B_{\{d,s\}}$ mixing, we show that the data can be analyzed without using the theoretical calculation of $\Delta\Gamma_s$, allowing for robust interpretations. We find that this framework gives a good fit to all measurements, including the recent CDF $S_{\{\psi\phi\}}$ result. The data allow universal new physics with similar contributions relative to the SM in the B_d and B_s systems, but favors a larger deviation in B_s than in B_d mixing. The general minimal flavor violation framework with flavor diagonal CP violating phases can account for the former and remarkably even for the latter case. This observation makes it simpler to speculate about which extensions with general flavor structure may also fit the data.

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Session Classification: 06 - CP violation, CKM and Rare Decays

Track Classification: 06 - CP violation, CKM and Rare Decays