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Anomalies in Hadronic B Decays: an Update

The decays B->PP, where the pseudoscalar P is a pi or K, have been studied under the assumption of flavor SU(3) symmetry. The global fit reveals a 3.6 sigma discrepancy with the Standard Model. Separate fits for Delta S = 0 and Delta S = 1 decays find parameter sets that differ by a factor of 10, indicating a flavor SU(3) breaking of 1000%, significantly larger than the 20% breaking expected in the Standard Model.

An extended study is being conducted, including final states with eta and eta' mesons. The resulting global fit, once again under the assumption of flavor SU(3) symmetry, is worse, with a 4.1 sigma deviation from the Standard Model. When theoretical constraints |C/T| = 0.2 or A = 0 are imposed, the fits worsen, with the discrepancy approaching 5 sigma.

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