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Study of rare B decays at BABAR

We present results on radiative and electroweak-penguin decays based on the full BABAR dataset. The decays B->K* l+l- (both charged and neutral modes) are studied using an angular analysis to extract the quantities A_FB and F_L, which are sensitive to potential effects of physics beyond the Standard Model. Furthermore, the quantity P_2, which is subject to smaller theoretical uncertainties and is more sensitive to non-SM contributions, is extracted.
We also present the first search for B+ -> K+ tau+ tau-, where one B meson from the decay of Y(4S) -> B+ B- in a hadronic decay mode is fully reconstructed, and the topology of the rest of the event is compatible with a B+ -> K+ tau+ tau- decay and leptonic decays of the tau leptons.
Finally, we report on measurement of the CP asymmetry in the radiative decay B0->Ks0 pi- pi+ gamma, a quantity that is sensitive to possible processes where non-SM photon helicities are involved. The structure of the hadronic final state is studied using the isospin-related decay B+ ->K+ pi- pi+ gamma. Along with the branching fractions of the charged and neutral decays, we present the CP asymmetry for events selected in the rho mass band, S_{KS pi+ pi- gamma}, and finally extract the contribution from decay to the CP eigenstate, B0 -> KS rho gamma.

Summary

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