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Studies of the rare decays B -> K* l+ l- and B -> K pi pi gamma, and search for B+ -> K+ tau+ tau- with the BABAR detector (10' + 5')

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Flavour changing neutral current processes, such as B -> K(*)*l+l- where l = e+, mu+, tau+ are highly suppressed in the Standard Model (SM). These rare decays occur at lowest order via 1-loop diagrams, and contributions from virtual particles in the loop allow one to probe large mass scales at relatively low energies. We present here the most recent results based on the full BABAR data sample, collected at the energy of the Y(4S) resonance, which corresponds to 471 million BBbar pairs.*
In particular, 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 a search for the B+ -> K+ tau+ tau- decay. This search is performed on the recoil of a fully reconstructed B-meson decay from the decay of Y(4S) -> B+B-, by looking for activity compatible with B+ -> K+ tau+ tau- decay and leptonic decays of the two tau's in the rest of the event.
Finally, we report the 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.

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