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Studies of Charmless Hadronic B-meson Decays at BABAR

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We report a number of recent measurements of B-meson decays to purely hadronic final states that do not contain charm mesons. These studies are based on the very large sample of \overline{B} events collected by the BABAR detector at SLAC's $e+e-$ asymmetric collider B-factory when it operated on the Upsilon(4S). We include in this paper the results of: a Dalitz plot analysis of $B^0 \rightarrow K_S K_S K_S$ which provides a determination of the total branching fraction and those of intermediate states; a Dalitz plot analysis of $B^0 \rightarrow K^+ \pi^- \pi^0$ which involves the measurements of rates, differences and direct CP violation parameters of all intermediate states and with which we place constraints on the apex of the CKM unitarity triangle; inclusive branching fraction measurements of $B^0 \rightarrow \pi^+ K_S^-$ and of $B^{+-} \rightarrow K^+ \pi^0 \pi^0$; a search for B-meson decays to the axial-vector vector final state $\rho^+ K^0$ and the search for the vector vector final state $B^+ \rightarrow \rho^0 K^+$ and, for cases where a signal is present, we include studies of longitudinal polarization fractions; and measurements of B-meson decays to η' , ρ , η' , f_0 and η' K where K stands for a vector, scalar, or tensor strange meson and in which we also measure, where applicable, the charge asymmetries.

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