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Study of interference effects in the decays of psi mesons into K+K-

Using the ISR technique with an undetected photon, the e+e- -> K+K- reaction has been studied with the BABAR detector in the energy region up to 8 GeV. The BABAR data have been used to measure the charged kaon electromagnetic form factor, and, together with data from other experiments, to perform a model-independent determination of the relative phases between single-photon and three-gluon amplitudes in psi -> K anti-K decays. The values of the branching fractions measured in the reaction e+e- -> K+K- are shifted due to interference of resonant and non-resonant amplitudes. We have determined the absolute values of the shifts to be 5% for J/psi and 15% for psi(2S) decays. The interference pattern near the psi(3770) resonance has been studied also.

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