

Study of inclusive charmonium production in e^+e^- annihilation and B decays at BaBar

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In a e^+e^- B factory charmonium states can be produced through different mechanisms, as in e^+e^- annihilation, with double charmonium production, and in B-meson decays.

Prompt production of J/ψ or $\psi(2S)$ in association with a second charmonium state has been observed by both the BaBar and Belle experiments in e^+e^- annihilation at a center-of-mass energy of 10.58 GeV. These processes provide an opportunity to study both perturbative and non-perturbative effects in QCD and to search for new charmonium states recoiling against the reconstructed J/ψ or $\psi(2S)$. We present a study of such events using the full BaBar dataset.

We also present measurements of absolute branching fractions of the two-body decays of B mesons $B(B \rightarrow K X_{cc})$, where X_{cc} is a charmonium state. In fact, in events where one B is fully reconstructed, the charmonium spectrum can be observed in an unbiased way, looking at the distribution of the K momentum in the recoiling B rest frame.

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