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Heavy quark mesons and baryons (incl. lattice calculations)

Hadron spectroscopy and exotics (experiment and theory)

Experiment: Experiment and Phenomenology

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The Charmonium Decay Puzzle

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Abstract

The past few years have seen enormous progress in hadronic charmonium decays. A number of anomalies have been observed in the pattern of hadronic two-body decays of the $\psi(2S)$ relative to the J/ψ , which contradicts the naive expectation of perturbative QCD that the J/ψ and $\psi(2S)$ decays with the same final state should behave similarly at the parton level. The new experimental input stimulates much recent theoretical activity in an attempt to resolve the puzzle. In this talk, I shall review the status of both the experimental and theoretical efforts and seek to examine the related issues by using the existing experimental data. Estimates of the ratio of $\psi(2S)$ to J/ψ hadronic decay rates based purely on data are compared with the theoretical prediction of :15also discussed in the light of new results from the BES experiment.

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