APR05-2005-000085

Abstract for an Invited Paper
for the APR05 Meeting of
the American Physical Society

The hidden charm of hadrons

STEPHEN L. OLSEN, University of Hawaii

Recently there has been revived interest in a long-standing question in hadron physics: *Are there hadrons with a more complex structure than the quark-antiquark mesons and three- quark baryons of the original quark model?* Experiments with particles containing "hidden charm," i.e. charmed-anticharmed quark pairs, provide unique sensitivity for addressing this question. The spectroscopy of ordinary charmed-anticharmed meson states is well understood both theoretically and experimentally. Moreover, since these standard states are narrow and have rather distinct experimental signatures, confusion caused by overlap or interference with tails of other resonances is minimal. B mesons commonly decay to final states containing a charmed and anticharmed quark pair, and the high luminosity B factories are producing huge numbers of B mesons. In this talk, I describe evidence for as-yet unseen charmed-anticharmed quark mesons as well as candidates for more exotic, multiquark and quark-antiquark-gluon hybrid mesons found in a sample of more than one-half billion B meson decays produced at the KEKB B- meson factory and detected in the Belle Spectrometer.