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Cross-sections of e+e- annihilation into open or hidden charm states

Monday, 3 June 2024 15:00 (30 minutes)

This presentation will discuss three recent measurements conducted at BESIII of the cross-sections of electron-positron annihilation into open or hidden charm final states. The first measurement utilizes e+e- collision data collected at BESIII, spanning center-of-mass energies from the threshold to 4.95 GeV. Precise measurements of the cross-sections of e+ e- -> Ds+ Ds- have been performed. The resulting cross-section lineshape reveals several new structures, providing valuable input for coupled channel analysis and model testing. The second measurement utilizes data samples at center-of-mass energies ranging from 3.80 to 4.95 GeV, corresponding to an integrated luminosity of 20/fb. The measurements of Born cross-sections for the e+ e- -> D0D0bar and D+D- processes are presented with unprecedented precision. A series of intriguing structures are observed in the lineshape of the cross-sections. The third measurement uses data samples with an integrated luminosity of 22.42/fb at center-of-mass energies from 3.808 to 4.951 GeV. The measurements of cross-sections of the e+ e- -> eta J/psi have been updated. A maximum-likelihood fit with psi(4040), two additional resonances, and a non-resonant component is performed. The mass and widths of the two additional states are consistent with those of the previously found psi(4230) and psi(4360).

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