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Studies of χ_{cJ} and ψ decays at BESIII

Thursday 20 July 2023 14:20 (20 minutes)

In this talk, four recent measurements of χ_{cJ} or ψ decays at BESIII will be presented. It contains: 1) Using 448 million $\psi(3686)$ events collected with the BESIII detector, the process $\psi(2S) \rightarrow \phi K_s K_s$ has been observed for the first time, and the branching fraction is determined; 2) Using the same data sample, the branching fractions of the decays $\chi_{cJ} \rightarrow \phi \phi$ ($J=0,1,2$) have been measured most precisely, and the polarization parameters of $\chi_{cJ} \rightarrow \phi \phi$ have been determined for the first time via a helicity amplitude analysis; 3) Utilizing 2700 million $\psi(3686)$ events collected by the BESIII detector, the decays $\chi_{cJ} \rightarrow \Omega_{c\pm} \text{ anti-}\Omega_{c\mp}$ ($J=0,1,2$) have been observed for the first time with high significance, respectively, via the radiative decays of $\psi(3686) \rightarrow \gamma \chi_{cJ}$. The relevant branching fractions have been provided. 4) The process $e^+ e^- \rightarrow \eta J/\psi$ at a center-of-mass energy 3.773 GeV is observed for the first time, its Born cross-section is measured, and the branching fraction of $\psi(3770) \rightarrow \eta J/\psi$ is determined by a combined fit with the cross-sections at other energy points, after considering the interference effect for the first time.

Consent

I consent to recording/broadcasting my presentation.

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