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Novel Observations in Charmonium Decays

Thursday 11 July 2024 15:00 (20 minutes)

This presentation will discuss recent experimental discoveries in the realm of charmonium decays, containing four independent measurements at BESIII. 1) The observation of the $\psi(3686) \rightarrow 3\phi$ decay. This observation sheds light on the rare decay process of the $\psi(3686)$ resonance into three ϕ mesons, providing valuable insights into the dynamics of charmonium decays. No significant structure is observed in the $\phi\phi$ invariant mass. 2) The search for $\eta_c(2S) \rightarrow \pi^+\pi^-\eta_c$ and $\eta_c(2S) \rightarrow \pi^+\pi^-K^0S^{\pm}\pi^{\mp}$ decays. This study aims to explore the decay properties of the $\eta_c(2S)$ meson, offering new perspectives on its decay modes and contributing to our understanding of charmonium states. 3) The observation of the $\psi(3686) \rightarrow \Omega^-K^+ \text{ anti-}\Xi^0 + \text{c.c.}$ decay. This process is observed for the first time. Possible baryon excited states are searched for in this decay, but no evident intermediate state is observed with the current sample size. 4) The observation of $\chi_{cJ} \rightarrow 3(K+K^-)$. All the decays from χ_{c0} , χ_{c1} , and χ_{c2} are observed for the first time.

session

F. Heavy Flavor and Quarkonia

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