

Search for rare decays at BESIII

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The BESIII experiment has collected 2.6B $\psi(2S)$ events and 10B J/ψ events. The huge data sample provide an excellent chance to search for rare processes in charmonium decays. In this talk, we report the recent search for $J/\psi \rightarrow D^+ e^- \nu_e$, $\psi(2S) \rightarrow \Lambda_c^- \bar{\Sigma}^+$. The big charmonium sample also produce millions of hyperons, which is used to study the weak decay of $\Sigma^- \rightarrow p e^- \bar{\nu}_e$, $\Sigma^- \rightarrow n e^- \bar{\nu}_e$, $\Sigma^0 \rightarrow p e^- \bar{\nu}_e$, $\Sigma^0 \rightarrow n e^- \bar{\nu}_e$. In addition, LFV process $J/\psi \rightarrow e^+ \tau^- \mu^-$ & BNV/LNV process $D^0 \rightarrow p e^- n$, and the FCNC process $D^0 \rightarrow \pi^0 \nu \bar{\nu}$ is also searched at BESIII.

Primary authors: LIU, Bei Jiang (Institute of High Energy Physics); ZHENG, Bo (University of South China); ZHENG, Bo (University of South China); LI, Jingshu

Presenter: ZHENG, Bo (University of South China)

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