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## Search for BNV and LNV at BESIII

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The observed matter-antimatter asymmetry in universe poses a serious challenge to our understanding of nature. BNV decay has been used in experiments to study this large scale fact. BESIII searches for BNV and LNV processes with the world largest  $J/\psi$  data sets directly produced in  $e^+e^-$  collision. The BNV/LNV channel  $J/\psi \rightarrow \Lambda_c^+ e^- + c.c.$  is analyzed, no signal event is observed. The upper limit for the branching fraction is set to be  $6.9 \cdot 10^{-8}$  at 90% C.L., which is still much larger than the SM estimation. The Majorana neutrino is searched in LNV decays  $D \rightarrow (K^-\pi^0/K^-\pi^+/\bar{K}^0) e^+e^+$ , no significant signal is observed, the upper limits of the branching fractions are set to be  $2.7 \cdot 10^{-6}$ ,  $3.3 \cdot 10^{-6}$  and  $8.5 \cdot 10^{-6}$  at 90% C.L., respectively. The Majorana neutrino is also looked for with different mass assumption, ranging from 0.25 to 1.0 GeV/c<sup>2</sup>, in the decays  $D^0 \rightarrow K^- e^+ \nu_N(\pi^+e^+)$  and  $D^{*+} \rightarrow K^0 e^+ \nu_N(\pi^+e^+)$ , and the upper limits of the branching fractions are extracted to be at the level of  $10^{-7}$  to  $10^{-6}$  at 90% C.L..

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**Session Classification:** Flavor & Dark sector