



Contribution ID: 213

Type: Poster

Search for charged lepton flavor violating decay $J/\psi \rightarrow e\mu$

Monday, 3 July 2023 15:30 (1 hour)

We present a search for the lepton flavor violating decay $J/\psi \rightarrow e\mu$ using 8.998×10^9 J/ψ events collected with the BESIII detector at the BEPCII e^+e^- storage ring. No excess of signal above background is observed; we therefore set an upper limit on the branching fraction of $\mathcal{B}(J/\psi \rightarrow e\mu) < 4.5 \times 10^{-9}$ at the 90% confidence level. Improving the previous best result by a factor of more than 30, this measurement places the most stringent limit to date on lepton flavor violation in the heavy quarkonium sector.

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Session Classification: Poster session & Coffee break