

## A new idea to search for charged lepton flavor violation using a muonic atom

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### Abstract content

We propose a new process of  $\mu(-) e(-) \rightarrow e(-) e(-)$  in a muonic atom for a quest of charged lepton flavor violation. The Coulomb attraction from the nucleus in a heavy muonic atom leads to significant enhancement in its rate, compared to  $\mu(+ ) e(-) \rightarrow e(+ ) e(-)$ . The upper limit of the branching ratio is estimated to be of the orders of  $O[10^{(-17)}-10^{(-18)}]$  for the photonic and the four Fermi interactions from the present experimental constraints. The search for this process could serve complementarily with the other relevant processes to shed lights upon the nature of charged lepton flavor violation.

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