Contribution ID: **1** Type: **Regular talk (15'+5')**

Lepton flavor violation interactions from diphoton effective vertex

Monday 4 December 2023 11:00 (20 minutes)

We perform an effective field theory analysis using the charged lepton flavor violation diphoton operators, $\bar{\ell}_i \ell_j \gamma\gamma$. We explored the single and double radiative decays, $\ell_i \to \ell_j \gamma(\gamma)$, $e \to \mu$, $e \to \tau$, and $\mu \to \tau$ conversions in nuclei, and determined which processes can probe $\bar{\ell}_i \ell_j \gamma\gamma$ better. Using the current upper bounds on the radiative decay, $\ell_i \to \ell_j \gamma$, we can find an indirect upper bound on the double radiative decays, three orders of magnitude stronger than the direct bounds from current searches for $\mu \to e$ transitions, and four orders of magnitude better than current bounds for $\tau \to \ell\gamma\gamma$. We also find that the best limits for $\bar{\ell}_i \ell_j \gamma\gamma$ operator are provided by $\ell_i \to \ell_j \gamma$ processes, while the best future sensitivities come from $\mu \to e$ conversion in aluminum.

Author: Dr MARÍN OCHOA, Marcela (UNAM)

Presenter: Dr MARÍN OCHOA, Marcela (UNAM)