

# Lepton flavor violating tau decays with a light gauge boson

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$L \rightarrow \ell \chi$  decays (with  $\chi$  a boson associated to this lepton flavor violation, LFV) have not been described satisfactorily so far for light spin-one  $m_\chi$ . In particular, observables exhibited an unphysical divergence in the limit of massless  $\chi$ , associated to its longitudinal polarizations. Based on gauge symmetry, we show how to correct this issue. To this end, we consider two general models realizing the effective field theory description. Being the LFV generated either at tree level or at one loop, these processes are well behaved for light  $m_\chi$ . We discuss the most salient phenomenological consequences and its relevance in the searches for this kind of decays.

## What is your topic?

Lepton universality and flavour violation

**Author:** MARÍN, Marcela (Cinvestav)

**Co-authors:** Dr IBARRA, Alejandro (Technische Universität München); ROIG GARCÉS, Pablo

**Presenter:** MARÍN, Marcela (Cinvestav)

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