



Contribution ID: 48

Type: **not specified**

On-shell renormalization of vector-like leptons

Wednesday 24 September 2025 14:30 (15 minutes)

Through tree-level mixing, vector-like leptons (VLL) can have a significant impact on the SM lepton mass generation, Higgs couplings and flavor (violating) observables. Precise predictions of these observables however require calculations beyond leading order, which necessitates the definition of a renormalization scheme.

In this talk, I present such a scheme, implementing on-shell conditions on the self-energies for the first time. I show how loop corrections to the mixing can be treated in a practicable way and discuss the impact of higher order corrections on observables, focusing in particular on the correlation between the $g-2$ and Higgs coupling of the muon, that serves as an important constraint on the VLL.

Primary author: MOEHLING, Kilian (TU Dresden IKTP)

Co-authors: STÖCKINGER, Dominik (TU Dresden); Dr STÖCKINGER-KIM, Hyejung (TU Dresden IKTP)

Presenter: MOEHLING, Kilian (TU Dresden IKTP)

Session Classification: Parallel Sessions Wednesday Pheno 2

Track Classification: Particle Phenomenology