

PAUL SCHERRER INSTITUT



Particle Theory Seminar

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PSI

“The impact of 6-dimensional effective vertices in LFV
muonic transitions”

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Abstract:

This work is a summary of preliminary results concerning the full one-loop automation in the evaluation of the $\mu \rightarrow e\gamma$ and $\mu \rightarrow 3e$ rare muonic transitions. It is well-known that such decay modes are absent in the Standard Model (SM). As a consequence, any experimental observation of Lepton-Flavour-Violating (LFV) muonic transitions should be considered as a clear signal of Physics Beyond the SM. In order to investigate such possibility, we consider the full set of 6-dimensional effective operators respecting the SM $SU(3) \times SU(2) \times U(1)$ gauge symmetries. Then, our efforts were devoted to implement such extension in a fully automatised chain of tools for fast simulations of one loop induced LFV muonic transitions. Here, we present the status of our research.