

Triple-leptoquark interactions for tree- and loop-level proton decays

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I discuss the impact of triple-leptoquark interactions on matter stability for two specific proton decay topologies that arise at the tree- and one-loop level if and when they coexist. I furthermore demonstrate that the one-loop level topology is, in such an instance, much more relevant than the tree-level one despite the usual loop-suppression factor. To support that claim I present detailed analysis of the triple-leptoquark interaction effects on the proton stability within one representative scenario, where the scenario in question simultaneously features a tree-level topology that yields three-body proton decay $p \rightarrow e^+ e^+ e^-$ and a one-loop level topology that induces two-body proton decays $p \rightarrow \pi^0 e^+$ and $p \rightarrow \pi^+ \bar{\nu}$.

Primary author: DORŠNER, Ilja (University of Split)

Presenter: DORŠNER, Ilja (University of Split)

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