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Loop Effects in Probing Lepton Number Violation

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The discovery of lepton number violation would be a clear sign of physics beyond the Standard Model, with neutrinoless double beta decay ($0\nu\beta\beta$) as its most sensitive probe. Within the SMEFT framework, we show that one-loop effects can significantly strengthen tree-level bounds on new-physics scales for several dimension-7 operators across flavours. Using UV model examples, we illustrate the interplay between $0\nu\beta\beta$ contributions from dimension-7 and loop-induced dimension-5 SMEFT operators.

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