

Heavy neutral lepton corrections to SM boson decays: lepton flavour universality violation in low-scale seesaw realisations

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We study the impact of the presence of heavy neutral leptons (HNL) on lepton flavour universality and electroweak precision observables (EWPO). In view of the increasing experimental sensitivity, we consider the one-loop contributions of the HNL to the several observables under scrutiny. We show the significance of next-to-leading order corrections to lepton flavour universality in $Z \rightarrow \ell\ell$ ratios and to the invisible Z decay width, in which the one-loop contributions can exceed the current experimental uncertainty. Furthermore, we discuss the complementarity between charged lepton flavour violating (cLFV) and EWPO, and emphasise on the key role of the invisible Z width to explore regimes with negligible to significant cLFV contributions.

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