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Lepton-flavour-violating constraints from triality

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Triality models are motivated by flavour structure theories. They produce charged lepton flavour violation channels mediated by a doubly charged scalar. However, the triality charges forbid decays such as muon to electron conversions, avoiding stringent experimental bounds. We have calculated predictions of charged lepton violation in this scenario and show the complementarity between Belle II and muTristan searches. We also present current 1-loop constraints from LEP and LHC in Higgs and Z decays and the predictions of future colliders' sensibilities, such as HL-LHC, FCC, ILC, and CEPC.

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