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Vector-Like Leptons and Inert Scalar Triplet: Lepton Flavor Violation, g–2 and Collider Searches

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We investigate simplified models involving an inert scalar triplet and vector-like leptons that can account for the muon g–2 anomaly. These simplified scenarios are embedded in a model that features W' and Z' bosons, which are subject to stringent collider bounds. The constraints coming from the muon g–2 anomaly are put into perspective with collider bounds, as well as bounds coming from lepton flavor violation searches. The region of parameter space that explains the g–2 anomaly is shown to be within reach of lepton flavor violation probes and future colliders such as HL-LHC and HE-LHC.

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