Charged Higgs Online workshop



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The muon g-2 in an Aligned 2-Higgs Doublet Model with Right-Handed Neutrinos

We explain anomalies currently present in various data samples used for the measurement of the anomalous magnetic moment of electron (a_e) and muon (a_μ) in terms of an Aligned 2-Higgs Doublet Model with right-handed neutrinos. The explanation is driven by one and two-loop topologies wherein a very light CP-odd neutral Higgs state (A) contributes significantly to a_μ but negligibly to ae, so as to revert the sign of the new physics corrections in the former case with respect to the latter, wherein the dominant contribution is due to a charged Higgs boson (H^{\pm}) and heavy neutrinos with mass at the electroweak scale. For the region of parameter space of our new physics model which explains the aforementioned anomalies we also predict an almost background-free smoking-gun signature of it, consisting of $H^{\pm}A$ production followed by Higgs boson decays yielding multi- τ final states, which can be pursued at the Large Hadron Collider.

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