Contribution ID: **26** Type: **Oral**

An alternative explanation of the multi-lepton anomalies at the LHC

In recent years, hints for multi-lepton anomalies have been accumulated by the analysis of Large Hadron Collider (LHC) data, pointing towards the existence of beyond the Standard Model (SM) Higgs bosons. In this study, we further investigate these multi-lepton anomalies by considering the Higgs Triplet Model with a hyper-charge of zero (HTM0). It consists of a neutral scalar H^0 that stems from the CP-even component of the Higgs triplet and also the two charged scalars $h^{\pm}$ which stem from the charged component of the Higgs triplet. These components come from the mixing between the nonphysical fields of the Higgs doublet and the Higgs triplet.

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