Contribution ID: **9** Type: **not specified**

The scalar sector and lepton Yukawa sector in CP4 3HDM

Sunday, 21 December 2025 15:40 (20 minutes)

CP4 3HDM is a three-Higgs-doublet model based on the CP symmetry of order 4 (CP4) without any accidental symmetries. When exploring the scalar and Yukawa sector phenomenon of this model, the usual scan procedure is computationally time-consuming and inefficient. A much better scanning procedure, which we call the inversion, is to identify a set of crucial physical observables, to use them as input parameters, and to reconstruct the coefficients in the potential and Yukawa matrix. In this work, we construct inversion in the scalar sector and lepton Yukawa sector of CP4 3HDM. Furthermore, we investigate two lepton flavor violation (LFV) processes, the leptonic decay of the SM-like Higgs boson and the radiative decay of the muon, and use these processes to constrain the lepton Yukawa sector of the model.

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Session Classification: Higgs & related indirect BSM 10