

SMEFT vs HEFT in the case of type-II seesaw

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The representative effective field theories(EFTs) written in terms of Standard Model particles are Standard Model EFT(SMEFT) and Higgs EFT(HEFT). When we integrate out the heavy particles in the UV theory before electroweak symmetry breaking, it results in the SMEFT. On the other hand, if we integrate out the heavy particles taking into account the mass mixing in the symmetry-breaking phase, it results in the HEFT. Recently, the matching type-I, II, and III seesaw onto the SMEFT has been studied by the IHEP group and attracted a lot of attention. We have matched the type-II seesaw model onto the HEFT and compared our results with those of previous studies. We show quantitatively how much more accurate the HEFT description is than the SMEFT when the mass scale of the heavy particles is close to the electroweak scale.

Paper info

The paper is in preparation.

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