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Flavour Parametrization of couplings with fermions in the 2HDM: the case with the 4-zero texture mass matrix

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Abstract content

The versions of the Two Higgs Doublets Model (2HDM) suppress the Flavour Changing Neutral Currents (FCNC) through different mechanisms as; imposing symmetries on the Higgs doublets or explicitly introducing the mass hierarchy in the entrances of the Yukawa matrices. Every possibility that nullify FCNC in the context of the 2HDM generates a new version of this model, but the version that use textures in the mass matrix, as for example version III, are very generic in the sense that, changing its parameters, can generates simplest versions as I, II or the A2HDM. The Yukawa matrices can be quite general, thus some restrictions have to be impose in order to model the couplings with fermions. Transformations in the flavour space play an important role relating some versions of the 2HDM. At this brief talk, a parametrization of the Yukawa couplings in terms of flavour transformations for a 4 zero texture matrix is shown. This can be the starting point to generate new versions of the 2HDM exploiting the flavour symmetry of the Yukawa sector.

Summary

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