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Flavour Physics in the Aligned Two-Higgs-Doublet Model

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The alignment in flavour space of the Yukawa matrices of a general two-Higgs-doublet model results in the absence of tree-level flavour-changing neutral currents. In addition to the usual fermion masses and mixings, the aligned Yukawa structure only contains three complex parameters, which are potential new sources of CP violation. For particular values of these three parameters all known specific implementations of the model based on discrete Z2 symmetries are recovered.

One of the most distinctive features of the two-Higgs-doublet model is the presence of a charged scalar. In this talk, I will discuss its main phenomenological consequences in flavour-changing processes at low energies, ranging from leptonic to radiative decays and B-mixing, including recent results.

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