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Radiative generation of quark masses and mixing angles in the 2HDM

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I will present a framework to generate the quark mass hierarchies and mixing angles by extending the Standard Model with one extra Higgs doublet. The charm and strange quark masses are generated by small quantum effects, thus explaining the hierarchy between the second and third generation quark masses. All the mixing angles are also generated by small quantum effects: the Cabibbo angle is generated at zero-th order in perturbation theory, while the remaining off-diagonal entries of the Cabibbo-Kobayashi-Maskawa matrix are generated at first order, hence explaining the observed hierarchies in the CKM matrix. The values of the radiatively generated parameters depend only logarithmically on the heavy Higgs mass, therefore this framework can be reconciled with the stringent limits on flavor violation by postulating a sufficiently large new physics scale.

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