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Flavored axions and the flavor problem

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A Peccei-Quinn˜(PQ) symmetry is proposed, in order to generate in the standard Model˜(SM) quark sector a realistic mass matrix ansatz with five texture-zeros. Limiting our analysis to Hermitian mass matrices we show that this requires a minimum of 4 Higgs doublets. This model allows assigning values close to 1 for several Yukawa couplings, giving insight into the origin of the mass scales in the SM. Since the PQ charges are non-universal the model features Flavor-Changing Neutral Currents˜(FCNC) at the tree level. From the analytical expressions for the FCNC we report the allowed region in the parameter space obtained from the measurements of branching ratios of semileptonic meson decays.

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