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Suppression of flavor violation in an A_4 warped extra dimensional model

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We recently proposed a model (JHEP08(2010)115) based on the non abelian discrete flavor group A_4 implemented in a custodial RS setup with a bulk Higgs. We showed that the standard model flavor structure can be realized within the ZMA (zero mode approximation), with nearly TBM neutrino mixing and a realistic CKM matrix with rather mild assumptions.

An important advantage of this framework with respect to flavor anarchic models is the vanishing of the dangerous tree level KK gluon contribution to ϵ_K and the suppression of the new physics one loop contributions to the neutron EDM, $b \rightarrow s \gamma$ and Higgs mediated FCNC processes. These results are obtained beyond the ZMA, in order to account for the full flavor structure and mixing of the zero modes and first KK modes of all generations.

The resulting constraints on the KK mass scale are shown to be significantly relaxed compared to the flavour anarchic case, showing explicitly the role of non abelian discrete flavor symmetries in relaxing flavor violation bounds within the RS setup.

As a byproduct of our analysis we also obtain the same contributions for the custodial anarchic case with two $SU(2)_R$ doublets for each fermion generation.

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