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Tribimaximal Mixing From Small Groups

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Current experimental data on the neutrino parameters is in good agreement with tribimaximal mixing and may indicate the presence of an underlying family symmetry. For 76 flavor groups, we perform a systematic scan for models: The particle content is that of the Standard Model plus up to three flavon fields, and the effective Lagrangian contains all terms of mass dimension <=6. We find that 44 groups can accommodate models that are consistent with experiment at 3sigma, and 38 groups can have models that are tribimaximal. For A4xZ3, T7 and T13 we look at correlations between the mixing angles and make a prediction for theta13 that will be testable in the near future. We present the details of a model with theta12=33.9, theta23=40.9, theta13=5.1 to show that the recent tentative hints of a non-zero theta13 can easily be accommodated. The smallest group for which we find tribimaximal mixing is T7. We argue that T7 and T13 are as suited to produce tribimaximal mixing as A4 and should therefore be considered on equal footing.

Auteur principal: Dr WINGERTER, Akin (LPSC)

Orateur: Dr WINGERTER, Akin (LPSC)

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