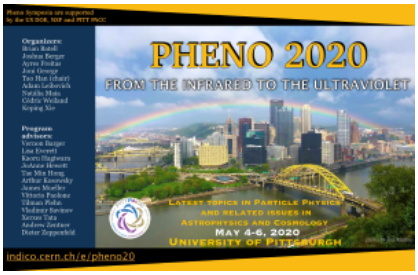

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Towards Minimal SU(5)

Tuesday 5 May 2020 15:00 (15 minutes)

A simple $SU(5)$ model is proposed that connects the neutrino mass generation mechanism to the observed disparity between the masses of charged leptons and down-type quarks. The model is built out of 5-, 10-, 15-, 24-, and 35-dimensional representations of $SU(5)$ and comprises two (three) 3×3 (3×1) Yukawa coupling matrices to accommodate all experimentally measured fermion masses and mixing parameters. The gauge coupling unification considerations, coupled with phenomenological constraints inferred from experiments that probe neutrino masses and mixing parameters and/or look for proton decay, fix all relevant mass scales of the model. The proposed scenario places several multiplets at the scales potentially accessible at the LHC and future colliders and correlates this feature with the gauge boson mediated proton decay signatures. It also predicts that one neutrino is massless.

Summary

Unification, GUT, Neutrino mass

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