

Tri-hypercharge and tri-unification: a path to the origin of flavour

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The tri-hypercharge proposal introduces a separate gauged weak hypercharge assigned to each fermion family as the origin of flavour. This is arguably one of the simplest setups for building “gauge non-universal theories of flavour” or “flavour deconstructed theories”, which are receiving increasing attention in recent years. Firstly, I will briefly introduce the tri-hypercharge proposal and show how fermion mass hierarchies and small quark mixing arise naturally in such a setup, correlated with a significant amount of meaningful phenomenology. Secondly, I will show how the aforementioned tri-hypercharge theory, along with a larger set of flavour deconstructed theories, may arise from a gauge unified “tri-unification” framework based on a $SU(5)^3$ gauge symmetry supplemented with a cyclic permutation symmetry that ensures a single gauge coupling at the GUT scale.

Title of the Poster/Talk

Related Papers/Preprints

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