

Probing flipped trinification at colliders

We explore the recently proposed gauge symmetry $(SU(3)_C \times SU(3)_L \times SU(3)_R \times U(1)_X)$, which naturally embeds both the Left-Right symmetric model and the 3-3-1 model as subgroups. Within this unified framework, we propose four families of leptons and quarks. A detailed analysis of their contributions to gauge anomaly cancellation is carried out for a general value of the parameter β .

We also report LHC bounds on the Z' mass for the particular case $\beta = -1/\sqrt{3}$, considering all possible combinations of lepton and quark families. These limits exhibit a strong dependence on the mixing parameter θ , which enters the couplings of Standard Model fermions to the Z' boson.

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