ID de Contribution: **26**   Type: **Ordinary**

The cost of gauge coupling unification in minimal SU(5) at 3 loops

jeudi 7 mars 2013 17:45 (15 minutes)

It was shown recently that the original SU(5) gauge theory proposed by Georgi and Glashow, augmented with an adjoint fermionic multiplet, is compatible both with neutrino masses and gauge coupling unification. In particular, the latter predicts the existence of light electroweak triplet states with masses at the TeV scale. We are going to report in talk about the correlation between the triplet masses and the unification scale at the NNLO accuracy. Such accurate predictions are needed in order to match the experimental precision on the determination of the electroweak gauge couplings. Special emphasis will be put on the possibilities to test such a model through the current experiments at the LHC.

Summary

Gauge coupling unification; physics beyond the Standard Model; precision calculations; collider phenomenology;

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Classification de Session: Beyond the SM

Classification de thématique: Theory