



ID de Contribution: 59

Type: YSF (Young Scientists Forum)

New MSSM-SU(5) relations for the up-squarks

mercredi 18 mars 2015 19:30 (5 minutes)

We investigate the consequences at low energies of a new MSSM-SU(5) induced symmetry relation in the up-squark sector. We show that this relation is not too much spoiled by the RGE running down to the electroweak scale and is kept relatively model independent. Therefore, it could bring us information on the possibility that a SU(5) symmetry holds at high energies assuming that the LHC will detect squarks and access, at least partially, to their flavour decomposition.

In that purpose, we set up a statistical test based on a Bayesian approach and consider several cases, depending on the amount of flavour information the LHC will be able to collect on the up-squarks.

This test relies on a Markov Chain Monte Carlo simulation whose results will be presented and which allows to test, given an observed low energy spectra, with which significance the spectra points toward a high scale SU(5) dynamic.

The relevant low energies flavour constraints will also be included in the study in order to restrict our parameter space to a realistic case.

The talk will be (partially) based on arXiv:1403.3397 and arXiv:1501.05307

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Classification de Session: Young Scientist Forum 3

Classification de thématique: Theory