SUSY07



Contribution ID: 140

Type: Parallel Talk

Flavour Violating Interactions of Supersymmetric Particles

Tuesday 31 July 2007 15:00 (20 minutes)

In a wide class of supersymmetric models, the soft SUSY breaking parameters are determined by high scale physics. Using an appropriate high scale ansatz, weak scale SUSY couplings relevant for phenomenology can then

be theoretically calculated using renormalization group (RG) methods. This procedure also allows us to obtain predictions for the flavour structure of the theory. To accurately obtain the RG prediction at the two loop level, effects of thresholds at one loop must be incorporated. These include the decoupling of heavy particles and the

concomitant splitting between couplings that are equal in the SUSY limit (the gauge and gaugino couplings, for

instance). The threshold effects can filter back into the overall running, and both the decoupling and the splitting

must therefore be considered if true two loop level accuracy is to be obtained. We describe a method that allows

the calculation of all soft supersymmetry breaking parameters. A program (to be incorporated into ISAJET) has

been developed, which includes flavour violating couplings of superparticles based on an arbitrary framework for

the high scale flavour structure. The weak scale flavour structure derived in this way can be applied to the study

of SUSY flavour changing decays. As an illustration, we recalculate the branching ratio of the flavour-violating decay of the top squark.

Author: Mr BOX, Andrew (University of Hawaii)

Presenter: Mr BOX, Andrew (University of Hawaii)

Session Classification: Colliders - Susy Phenomenology 9 (Theory)

Track Classification: Colliders - Susy Phenomenology