

# Top squark and neutralino decays in a R-parity violating model constrained by neutrino oscillation data

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In a R-parity violating (RPV) model of neutrino mass with three bilinear couplings  $\mu_i$  and three trilinear couplings  $\lambda'_{i33}$ , where  $i$  is the lepton index, we find six generic scenarios each with a distinctive pattern of the trilinear couplings consistent with the oscillation data. These patterns may be reflected in direct RPV decays of the lighter top squark or in the RPV decays of the lightest superparticle, assumed to be the lightest neutralino. Typical signal sizes at the Tevatron RUN II and the LHC have been estimated and the results turn out to be encouraging. The predictions of this model also depend on the parameters of the R-parity conserving (RPC) sector. Measurement of these parameters kinematically at the LHC and/or ILC would further sharpen the predictions. Finally the Branching Ratios (BRs) of the RPV decays turn out to be rather suppressed in some regions of parameter space. Measurement of the BRs of these rare decay modes in the clean environment of the ILC would then be a challenging programme.

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