

PROBING BILINEAR R-PARITY VIOLATING SUSY THROUGH T -NEUTRINO IN NEUTRINO-NUCLEUS SCATTERING

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Motivated by the naturalness and neutrino mass generation, we study a Bilinear R-parity violating supersymmetric scenario with a light Higgsino-like lightest supersymmetric particle (LSP). R-parity violation (RpV) brings an interesting possibility of generating tiny neutrino masses in the context of the Minimal Supersymmetric Standard Model (MSSM). In this work, we study the quasi-elastic scattering, Δ -resonance and deep inelastic scattering contributions to the neutrino-nucleon scattering $\nu_{\ell} + N \rightarrow \ell^{-} + X + c.c.$ in the presence of light sleptons $\tilde{\ell}$. New physics contributions from the sleptons modify the extraction of atmospheric mixing angle θ_{23} which rely up on the SM cross section of $\nu_{\ell} + N \rightarrow \ell^{-} + X + c.c.$ in appearance experiments. We also study the effects of stau's on the polarization of τ^{\pm} leptons produced in ν_{τ} -nucleon scattering.