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Neutrinoless Double Beta Decay with R-Parity Violating SUSY and Light Neutralinos

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The exotic contributions of sfermions, neutralinos, and gluinos to neutrinoless double beta decay ($0\nu\beta\beta$) in the presence of R-parity violating (RPV) couplings have been known for some time. In this talk and poster, we update the sensitivity of $0\nu\beta\beta$ to the lightest mostly-bino neutralino over the neutralino mass range 0.1 MeV - 10 TeV, constraining the RPV coupling in a way that is compatible with collider searches for SUSY partners. A neutralino lighter than the average momentum transfer of $0\nu\beta\beta$ has not been constrained in this way before. We compare to other experimental constraints on the RPV coupling and neutralino mass.

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