Contribution ID: **366** Type: **not specified**

New bounds on sparticle masses through rare signals and collider searches

Thursday 26 August 2021 10:30 (20 minutes)

Though collider searches are constraining supersymmetric parameter space, generic model independent bounds on sneutrinos remain very low. We calculate new model independent lower bounds on general supersymmetric scenarios with sneutrino LSP and NLSPs. By recasting ATLAS LHC exotic searches in mono boson channels, we place an upper bound on the cross section on $pp \to \tilde{\nu}\tilde{\nu} + V$ processes in mono-γ, mono-W/Z and mono-Higgs channels. We also evaluate the LHC discovery potential of sneutrinos in the HL-LHC 3 ab−1 run. Lastly, we present preliminary results for similar constraints on higgsino LSPs by placing upper bounds on $pp \to \tilde{\chi}^0\tilde{\chi}^0 + V$ process cross sections.

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Session Classification: Searches for the BSM Physics at the LHC and Future Hadronic Colliders

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