



Contribution ID: 509

Type: **not specified**

## Implications of purity constraints on light higgsinos

*Monday 13 May 2024 14:00 (15 minutes)*

The lightest supersymmetric particles could be higgsinos that have a small mixing with gauginos. If the lightest higgsino-like state makes up some or all of the dark matter with a thermal freezeout density, then its mass must be between about 100 and 1150 GeV, and dark matter searches put bounds on the amount of gaugino contamination that it can have. Motivated by the generally good agreement of flavor- and CP-violating observables with Standard Model predictions, I consider models in which the scalar particles of minimal supersymmetry are heavy enough to be essentially decoupled, except for the 125 GeV Higgs boson. I survey the resulting purity constraints as lower bounds on the gaugino masses and upper bounds on the higgsino mass splittings. I also discuss the mild excesses in recent soft lepton searches for charginos and neutralinos at the LHC, and show that they can be accommodated in these models if  $\tan \beta$  is small and  $\mu$  is negative.

### Mini Symposia (Invited Talks Only)

**Author:** MARTIN, Stephen**Presenter:** MARTIN, Stephen**Session Classification:** Dark Matter**Track Classification:** Dark Matter