



Contribution ID: 87

Type: talk

## If the neutralino is not dark matter, can it be heavier than the chargino?

*Tuesday, 18 December 2012 18:45 (25 minutes)*

If R-parity is violated, we no longer expect the neutralino to be dark matter. Then one might ask, is it possible for the chargino to be lighter than the neutralino in such scenarios?

That would indeed lead to spectacular signals at the LHC, like chargino decays to three charged leptons. This possibility was studied using bayesian scanning in the form of SuperBAYES.

Using Non-universal Higgs masses as well as gaugino mass parameters, in order to allow maximum freedom in the neutralino sector, the conclusion is that the chargino-neutralino mass difference is unlikely to go much below 130 MeV.

However, with the most important competing decay channel for the chargino being to neutralino and pion, this is small enough to allow R-parity violating chargino decays at the LHC.

**Primary author:** BOMARK, Nils-Erik (University of Bergen)

**Presenter:** BOMARK, Nils-Erik (University of Bergen)

**Session Classification:** Dark Matter and SUSY, models

**Track Classification:** Preliminary version of material to be approved