Contribution ID: **711** Type: **talk**

New probes for bino dark matter with coannihilation at the LHC

Friday, July 24, 2015 3:15 PM (12 minutes)

It has been widely known that bino-like dark matter in the supersymmetric theories in general suffers from over-production. The situation can be drastically improved if gluinos have a mass slightly heavier than bino as they reduce the dark matter abundance through coannihilation. We consider such a bino-gluino coannihilation in high-scale SUSY models. In this scenario, gluinos have long lifetime due to the limited phase space for the decay and the heavy squark mass indicated by higgs mass. The over-production of the bino-like dark matter can be also mitigated by wino with degenerated mass from bino. Then, the heavy higgsino could make bino long-lived. We study the prospects for exploring the bino-gluino and bino-wino coannihilation scenario at the LHC. We show that the searches for the long-lived particles with displaced vertices offer a strong tool to test these scenario in collider experiments.

additional information

Probing Bino-Gluino Coannihilation at LHC (arXiv:1504.00504 [hep-ph])

Probing Bino-Wino Coannihilation at LHC (work in progress)

Primary author: OTONO, Hidetoshi (Kyushu University (JP))

Co-authors: NAGATA, Natsumi (University of Minnesota, University of Tokyo); SHIRAI, Satoshi (DESY)

Presenter: OTONO, Hidetoshi (Kyushu University (JP))

Session Classification: Higgs and New Physics

Track Classification: Higgs and New Physics