Contribution ID: **97** Type: **Parallel Session talk**

Low fine tuning in the MSSM with higgsino dark matter and unification constraints

Wednesday 28 May 2014 17:40 (20 minutes)

We examine the issue of fine tuning in the MSSM with GUT-scale boundary conditions. We focus on a phenomenologically interesting region that is favored by the Higgs mass measurement and the relic density, where the dark matter is a nearly pure higgsino with mass ˜1 TeV, while the scalars and gauginos have masses in the multi-TeV regime.
We identify specific unification patterns that can lead to a significant reduction of the fine tuning due to the gaugino, scalar, and higgsino masses, relative to the simplest unification conditions. More properly, the fine tuning is shifted from the masses to the parameters of the underlying theory, whose relation can emerge quite strikingly from phenomenological requirements (relic density, Higgs+LHC, LUX). We give an example of this mechanism in the context of supergravity and SU(5) unification.

Authors: SESSOLO, Enrico Maria (NCBJ, Warsaw); KOWALSKA, Kamila (NCBJ); ROSZKOWSKI, Leszek; TROJANOWSKI, Sebastian (NCBJ)

Presenter: SESSOLO, Enrico Maria (NCBJ, Warsaw)

Session Classification: Dark Matter

Track Classification: SuSy and other BSM phenomenology