

# Portoroz 2013: Probing the Standard Model and New Physics at Low and High Energies

Contribution ID: 9

Type: **not specified**

## **Bilinear R-parity violating sneutrino heavy decay modes**

*Wednesday 17 April 2013 09:57 (22 minutes)*

In bilinear R-parity violation (BRpV), in which the superpotential includes a bilinear term between the lepton doublet and the up-type Higgs superfields, a sneutrino LSP can decay into pairs of heavy standard model states:  $W$ 's,  $Z$ 's, tops or Higgs bosons. These final states can dominate over the traditionally considered bottom pair final state, yielding unique and novel supersymmetric signals with each supersymmetric event possibly producing two pairs of these heavy standard model fields. In this talk, after a brief review of BRpV models, I will discuss this possibility. In particular how from the observation of these final decay modes BRpV might be excluded as the sole generator of neutrino masses.

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**Session Classification:** Neutrinos and DM I