

- **Discovery of strongly produced SUSY:**
  - Is there any topology that is out of radar?
- **Interpretation of searches in simplified models:**
  - Is there any simplified model interpretation which should be performed and which is not done yet by any of the collaborations?
- **Interpretation in real models:**
  - Is the run 1 approach (do simplified models, then do pMSSM scan) satisfactory for the community?
  - Are “simplified pMSSM models” interpretation giving useful information?

# Signatures considered so far (RPC SUSY strong production)

- RPC signatures:
  - Gluino pair production:
    - Direct ( $g \rightarrow qqN_1$ ), one step ( $g \rightarrow qqC_1 \rightarrow qqWN_1$ ), two step ( $g \rightarrow qqN_2 \rightarrow qqZ/h$   $C_1 \rightarrow qqZ/h W N_1$ ) - Similar for squark pair production
    - $g \rightarrow ttN_1$ ,  $g \rightarrow bbN_1$ ,  $g \rightarrow tbN_1$
    - GMSB-like:  $g \rightarrow qq \text{ gam } G$
  - Stop pair production (similar for sbottom)
    - $st \rightarrow t(*)N_1$ ,  $st \rightarrow bC_1$ ,  $st \rightarrow tZ/hN_1$ ,  $st \rightarrow cN_1$ ,  $st \rightarrow b \text{ tau } \nu G$

# Signatures considered so far (RPV)

- $\lambda''$  decay of neutralino (in gluino decay chain), stop (pair production and in gluino cascade), gluino
  - 0 and 1-lepton topologies
- $\lambda'$  decay of neutralino in strong production cascade, stop in stop pair production.
- $\lambda$  decay of neutralino (in gluino cascade or in EW production), slepton.

# Channels

- Multijet+MET
  - 0-lepton or 1-lepton (e/ $\mu$ /**tau**), 2-lepton (same-sign, opposite-sign on/off Z)
  - 1 soft lepton, 2 soft leptons
  - 1 photon
  - with/without b-tags, with/without top-tags
  - with H(bb) using bb mass
- Multijet (RPV)
  - 0-lepton multijet - using sum of large-R jet masses
  - 0-lepton boosted jet pairs with substructure, or resolved jets in pairs
  - **Multileptons**
  - Same-sign 2-leptons (CMS for smuon, ATLAS for squark/gluino pairs)
  - 1-lepton, resolved (b-)jets
  - **L-b pairs**

CMS only, ATLAS only