

Minutes, CERN Local SUSY Working Group, 14-March-2006

No meeting during trigger/physics week.

Next meeting: [28-MAR-06, 13:15-15:00, B40-R-D10]

Points raised during the meeting:

- Wouter has created a new Wiki entry on generators. More details during the next meeting(s)
- Johannes has presented the international SPA (SUSY Parameter Analysis) effort, concentrating on the interpretation of ILC+LHC results; need to identify the use of this initiative for the special situation of SUSY analysis at the LHC [SPA]
- Jamie has shown sphericity distributions, implemented within EventView; need to understand why Z+jets events are so spherical (and aplanar) [Sphericity[↗](#)]
- Andreas gave a few ideas on possible kinematic and event shape variables for multivariate SUSY analysis (see summary below)

Todo items:

- **everybody should have chosen a subject from the latest CSC challenges document**
- add new kinematic and event shape variables (suggested below, but also others) to EventView, and apply TMVA to it
- Amir will create SUSYView package, and add all of us to the cvs acl for full access
- Kai and (possibly) Attila will look into top events (from SUSY and SM). Kai pointed out that the current SUSY samples may not be suitable (competitive) for such studies, since top production could be too small. If so, one would need new production. Kai will look into this.
- generate events for a few SUSY phase points with ATLFAST, and learn about their characteristics
- do di-lepton endpoint analysis (All)
- need to identify talk subjects for next SUSY meeting (after Trigger+physics week, but don't know when it will be, not yet on CDS agenda). Possible proposals:
 - ◆ SUSYView package, with new selection variables, and possibly TMVA results
 - ◆ top ETmiss analysis
 - ◆ what else ?

Wiki page:

- add literature repository
- add minutes repository
- add link to SPA
- add link to ATLAS SUSY WS
- add link to newest CSC challenge draft

Long-term commitment for more detector-related work:

- hadronic tau reconstruction for SUSY searches (Olya)
 - fake ETmiss effects, and how to correct these from data (Kai)
 - electron id (Andreas)

 - need: top reconstruction expert (Kai, Attila ?)
 - need: jet reconstruction expert (Kai ?)
 - need: muon id expert
 - need phenomenology expert (All!)
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Possible additional kinematic and event-shape variables:

- best: ET_{miss} , $M_{\text{eff}} = ET_{\text{miss}} + \text{Sum}_{[\text{all objects}]} \{ p_T \}$
- sum over p_T
- sum over p_T of 1,2,3,... highest energy objects
- balanced-ness of p_T among all objects (requires some mathematical definition of "balanced-ness")
- masses of di-jet combinations, or higher mass combinations
- balanced-ness dijet masses
- number of jets, number of leptons
- Legendre polynomials of scalar products of the objects 3-momenta with thrust axis (probably much correlated with sphericity)
- correlation between $\phi(ET_{\text{miss}})$ and $\phi(\text{jets})$ (thrust of $\phi(\text{jets})$?)

This topic: Main > AtlasSusyLocal_14Mar06

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