Jet Structure Topical Group Meeting

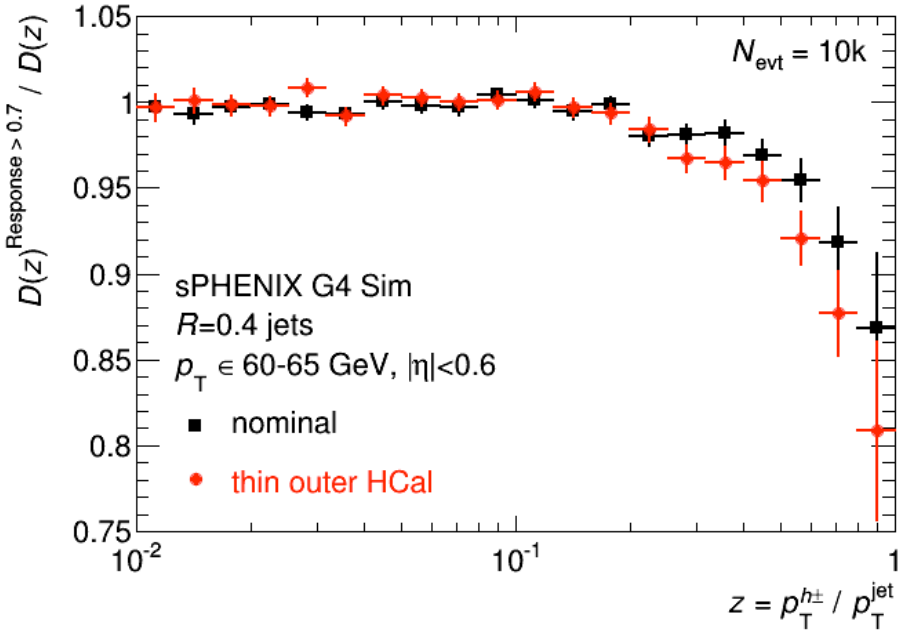
Rosi Reed

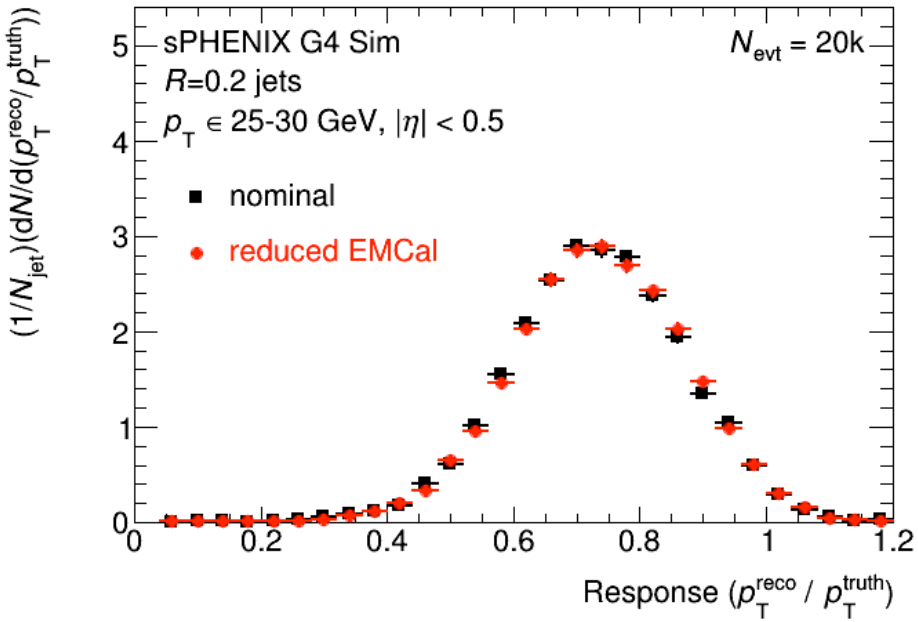
Dennis Perepelitsa

Pythia+GEANT QM plots

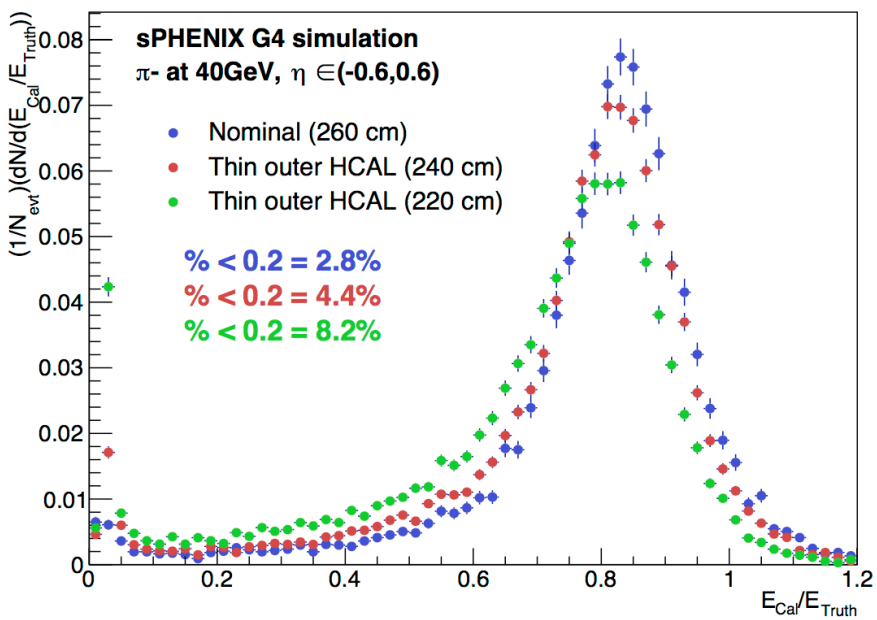
- Calorimeter response to R = 0.2, 0.3, 0.4 jets in γ-jet events
- Calorimeter response versus particle z
- Calorimeter response for γ versus 3 different clustering algorithms
- Tracking efficiency and resolution versus track p_T
- X_{Jg} – Reasonable jet observable

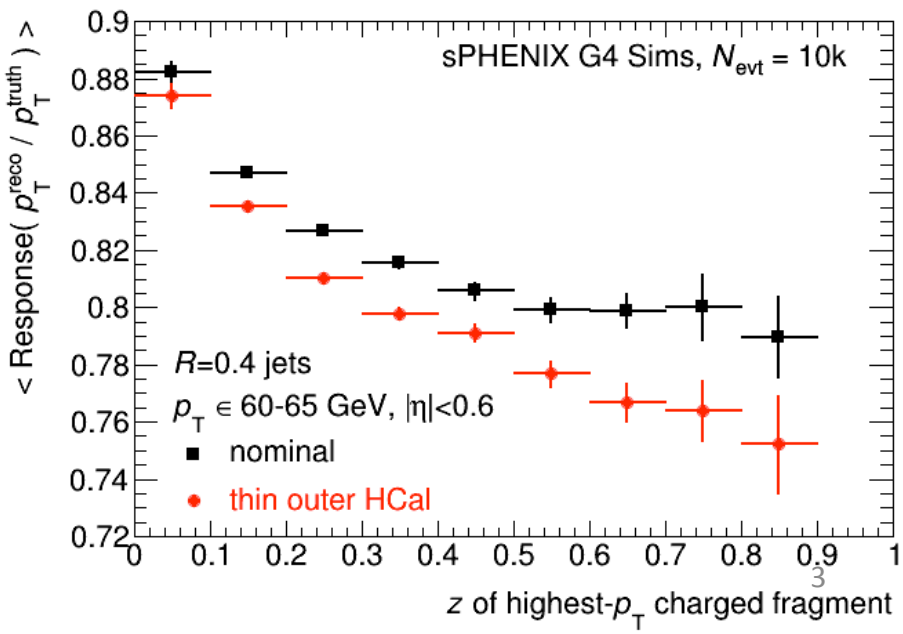
Calorimeter plots (p+p collisions)



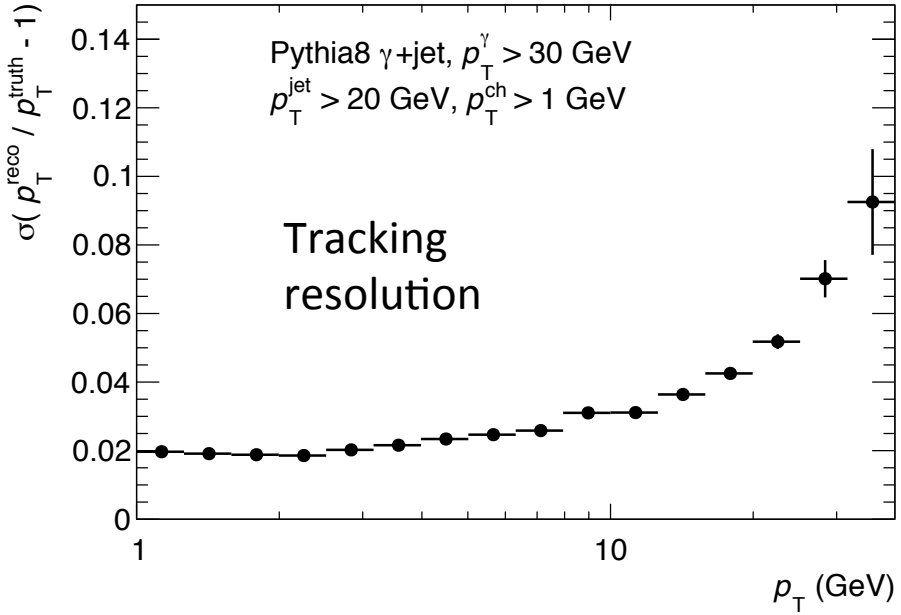


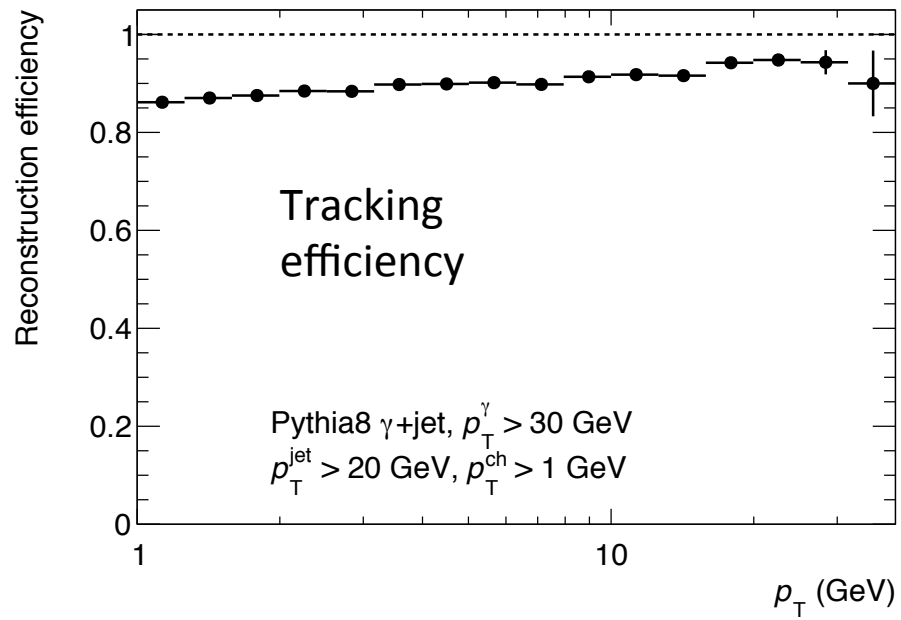
Total Calorimeter Response (Cluster)

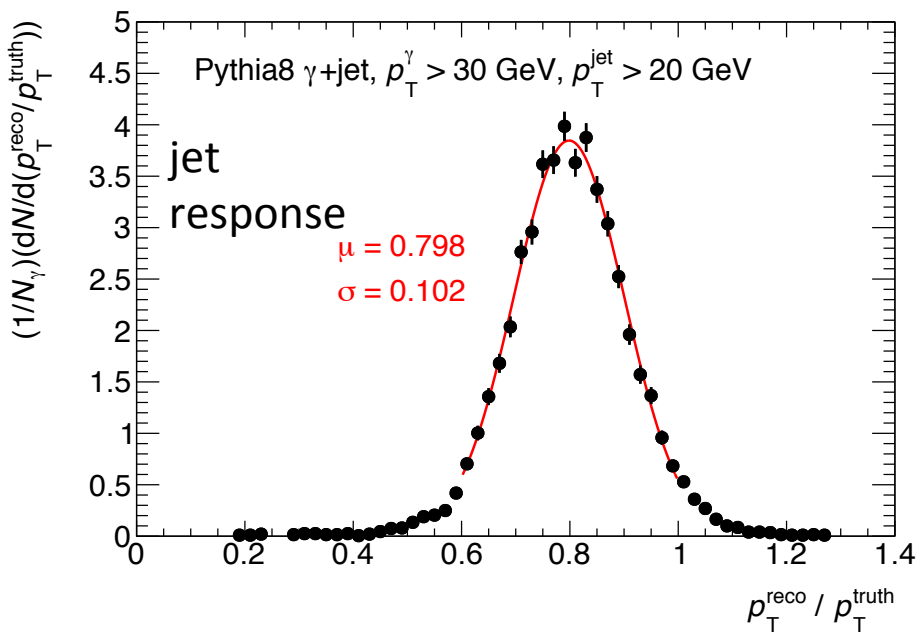


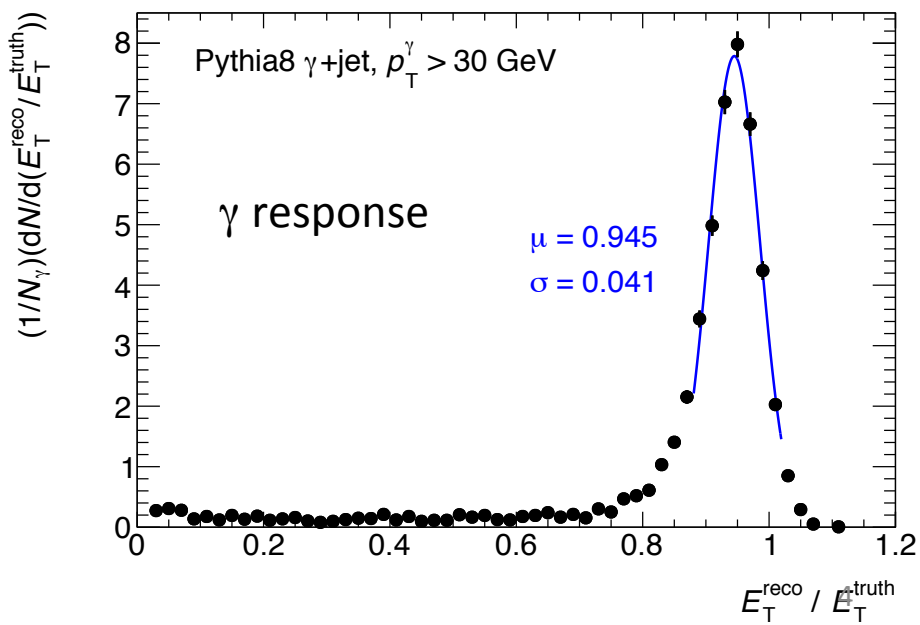


Calorimeter + Tracking plots (p+p collisions)









Au+Au plots - Complications

- During the separation of PHENIX and sPHENIX software divorce the UE subtraction didn't make it in
  - MIE studies were based on this
  - Major long-term problem for the JS group that needs to be solved
    - Dennis and Rosi will work on it → solving prior to QM is not realistic
    - **It would great to have a volunteer**
      - **especially one who worked on the original studies**
  - The lack of this will prevent us from making real Au+Au jet performance plots
    - Obviously an issue for QM.
- Another issue is that it is ~hour per central Au+Au event just for the tracking reconstruction
  - Discussion with simulation group to see if this can be improved

Au+Au plots

- What should we do?
  - JER pp vs AA
  - Jet finding efficiency
    - Hard to do versus p_T with current pythia samples
  - Clusterizer performance

Files can be found at:

- HepMC: phenix/upgrades/decadal/dvp/GeneratorInputFiles/PhotonJet/
- G4: /sphenix/sim/sim01/production/photonjet/2017-01-10/
- Please have a look, all contributions are welcome!