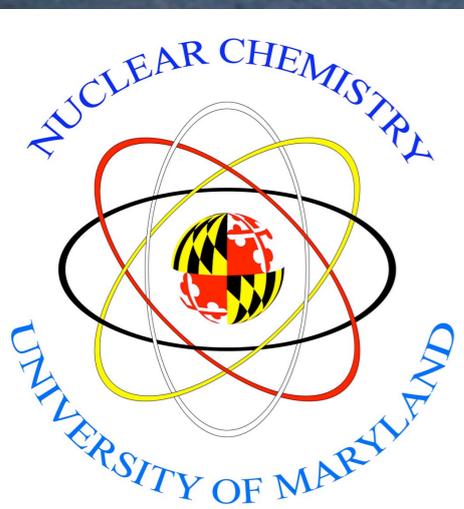


# Heavy Ion Jets

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CMS Heavy Ions  
12 December 2008

# Heavy Ion Jets

Currently in HeavyIonsAnalysis/Configuration/  
python/IterativeConePu5Jets\_PbPb\_cff.py

- iterativeCone5GenJets

  - \* Generator level iterative Cone Jets, radius = 0.5

- iterativeConePu5CaloJets

  - Pileup corrected reconstructed Calorimeter iterative Cone Jets, radius = 0.5, inputEtJetMin = 10

- MCJetCorJetIconePu5

  - Pileup corrected reconstructed Calorimeter iterative Cone Jets with (no longer used) 152 MC Jet corrections tuned for p+p. Not tuned for Heavy Ions

  - Use at your own risk** (may be useful estimate)

# Heavy Ion GenJets

- GenJets are made from genJetParticles, which are made from genParticles with a selection: exclude resonances, partonicFinalState = False, ignores certain IDs
- genParticles are made from HepMCProduct (which has all the particles, vertices, and associations from the MC)
- Problems:
  - We want to make GenJets from each subevent within a HYDJET event
  - p+p code makes GenJets that make no sense in Pb+Pb events

# HiGenJets

- `UserCode/yetkin/RecoHI/HiJetAlgos/`
  - to be `RecoHI/HiJetAlgos` -> package requested
- Unofficial documentation: <http://www.cmsaf.mit.edu/twiki/bin/view/CmsHi/JetAnalysisSWDocumentation>
- Working to test this package which makes iterativeCone5 GenJets from HYDJET subevents
  - Will show results in future meetings
- Good work, Yetkin!

# Mixed Pb+Pb, Jets

- Problem: p+p mixing module only saves information from “signal” event
  - need our own producer that uses `CrossingFrame<HepMCProduct>` instead of the signal event
    - Philip Allfrey wrote one: [UserCode/PAllfrey/Utilities](#)
    - only would need to modify it for subevent information

# Jet Software Changes

- \* Pileup Jet Finder (iterativeCone5) tested in 2\_1\_12 with 2\_1\_7 (local MIT) hydjet SIM file, added 3\_0\_X version of Jet code changes
- \* Code changes were fairly significant
- \* Tested iterativeCone5PuJets and it appears to run correctly, and results match 2\_1\_9 (single event)
  
- \* Will continue to test as needed for significant code changes in the future

# Plans

- \* Need to continue testing HiGenJets
- \* I still need to run a Pb+Pb jet finding efficiency study in 2\_2\_X
  - \* Can embed QCD dijet events and compare to dijet GenJets
  - \* Can also use modified mixing module and HiGenJets
- \* Thanks a lot to Yetkin for making the HiGenJet software, and Philip for the MixedGenParticleProducer!