AOD format and size

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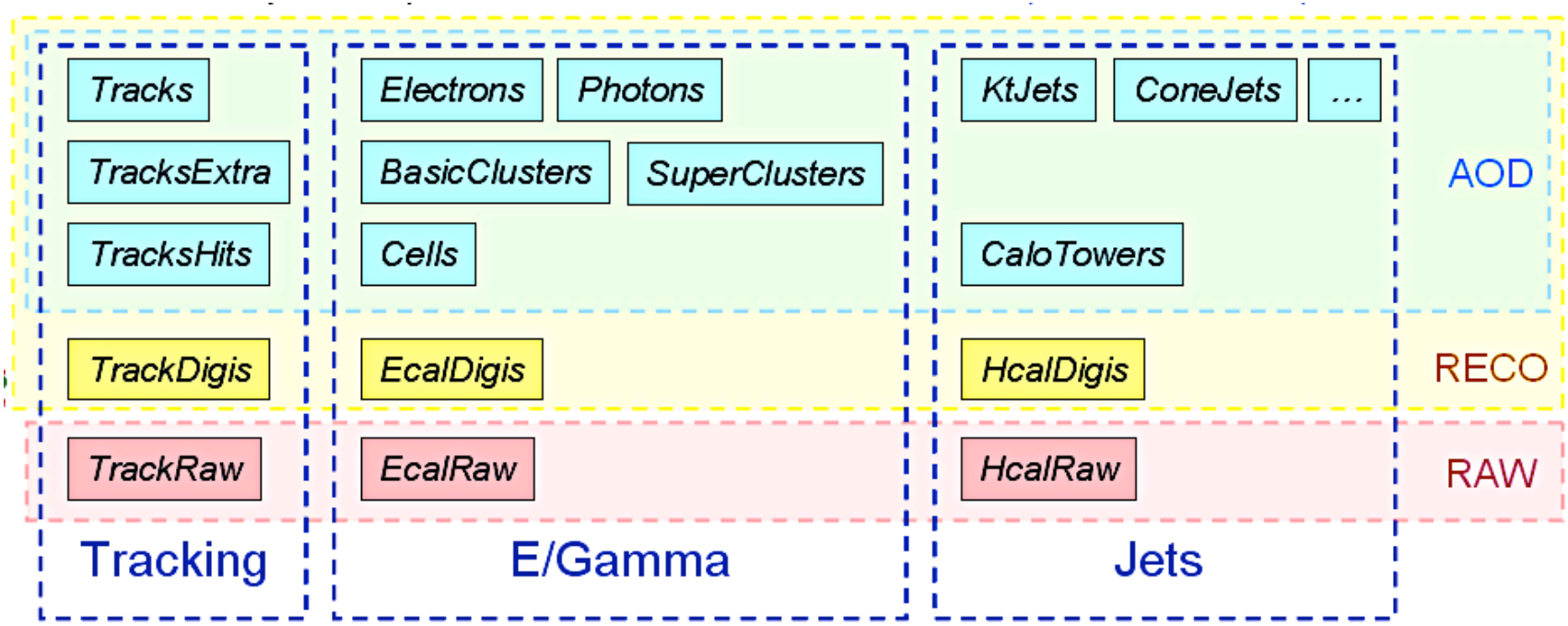
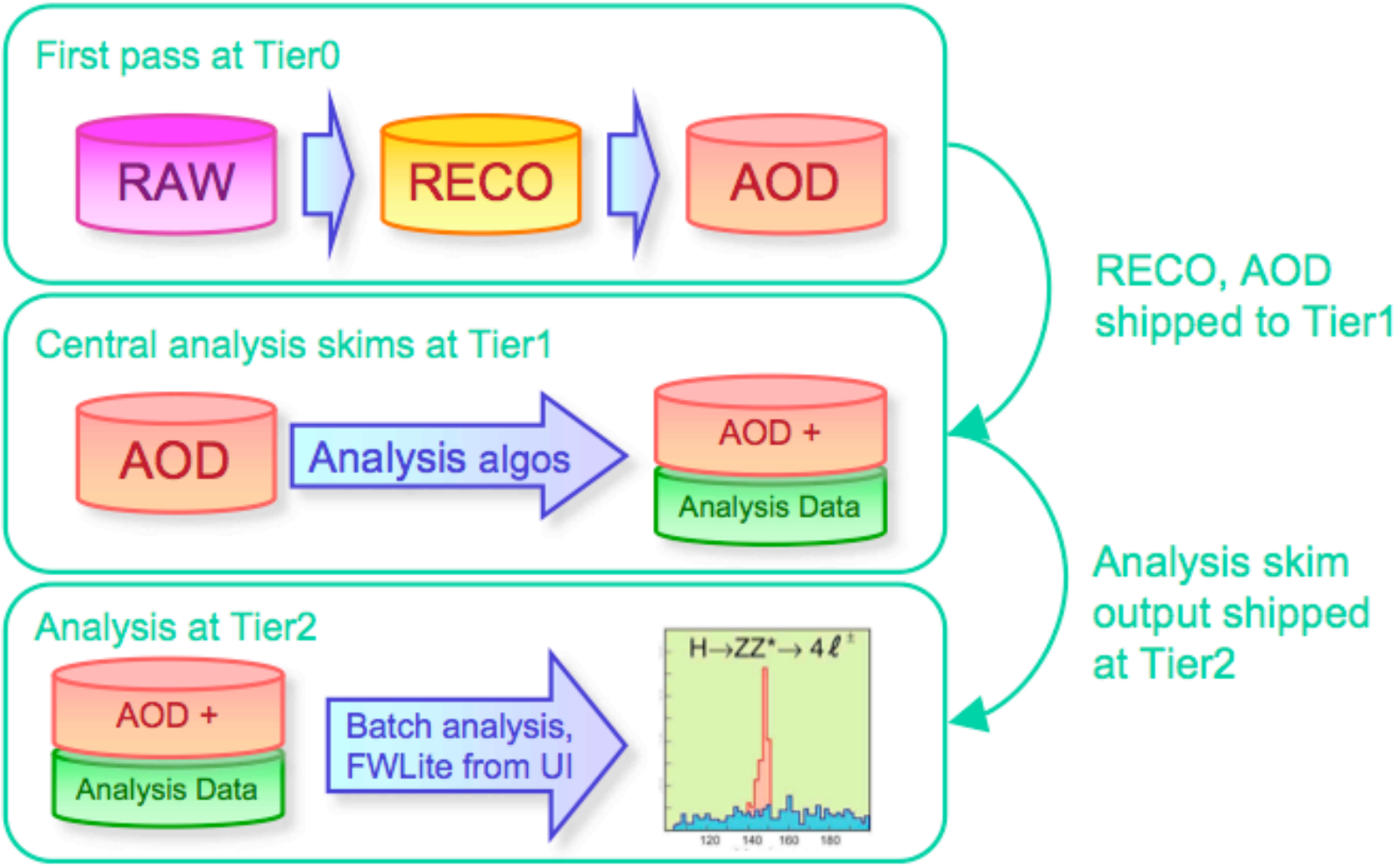
What is stored in the event files?

Different file content types

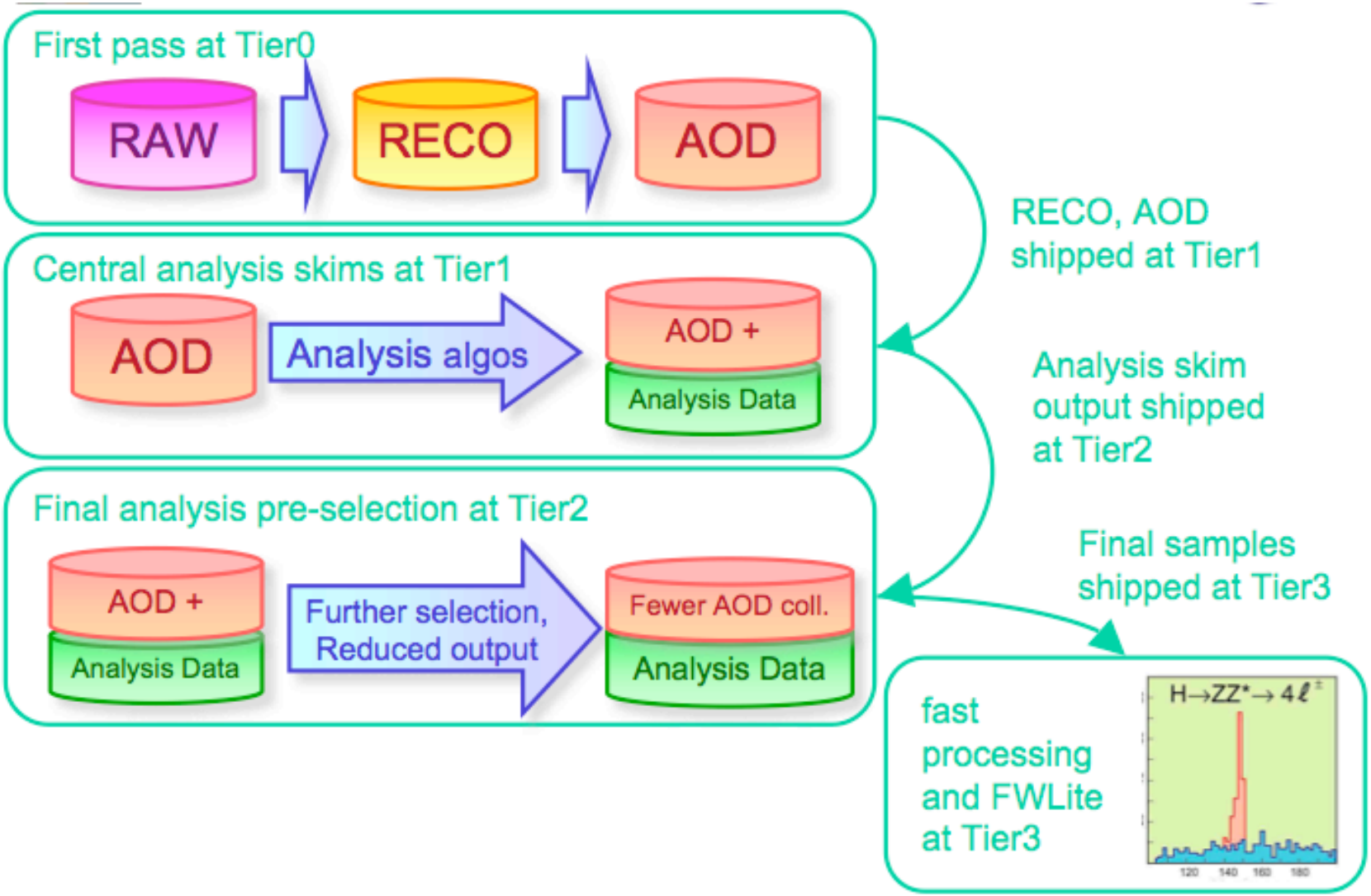
- FEVT: Full EVenT
- RECO: RECOnstruction
- RECOSIM: RECOnstruction + selected simulation information
- AOD: Analysis Object Data (a compact subset of RECO format)
- AODSIM: AOD + generator information



Analysis scenario

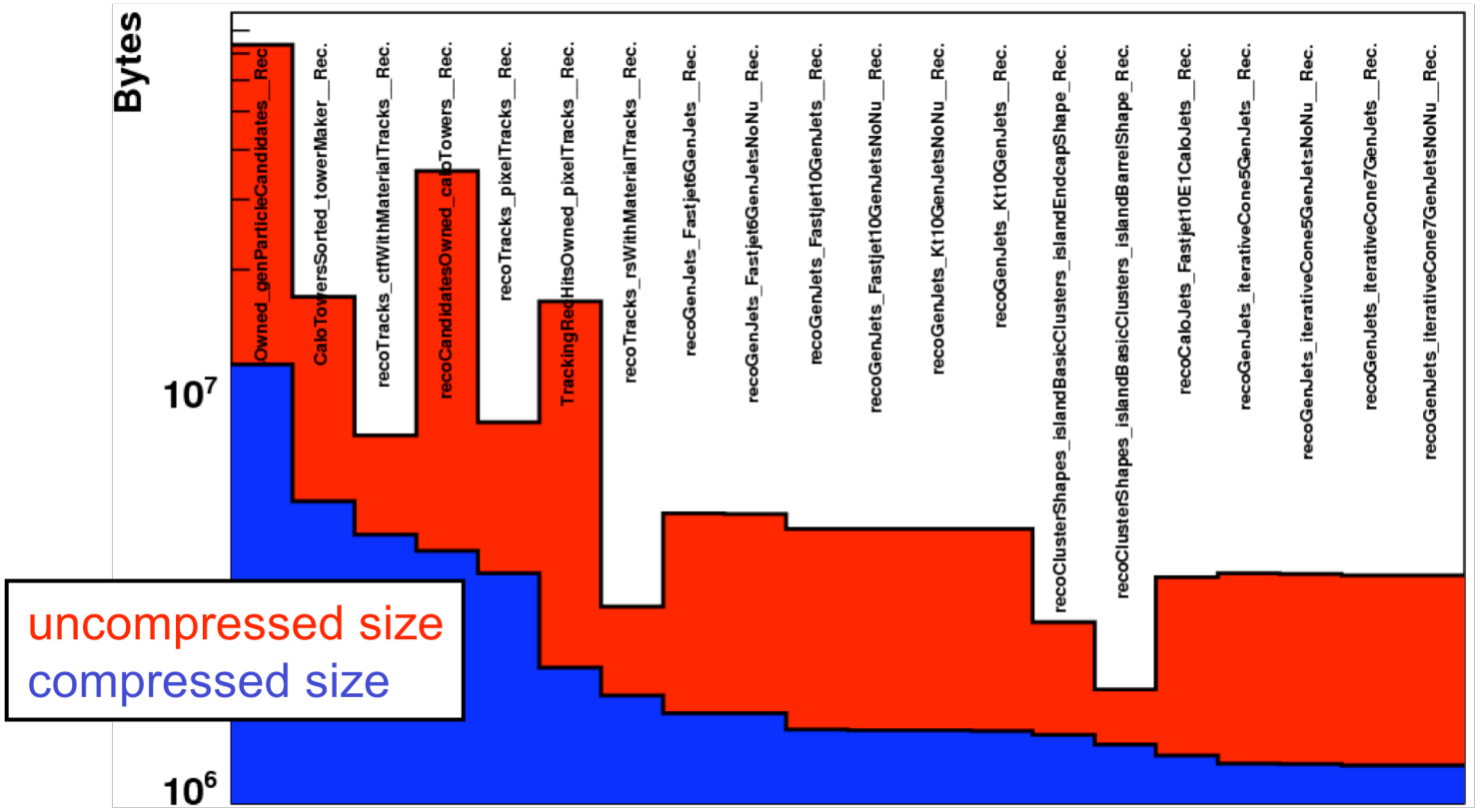


Analysis scenario



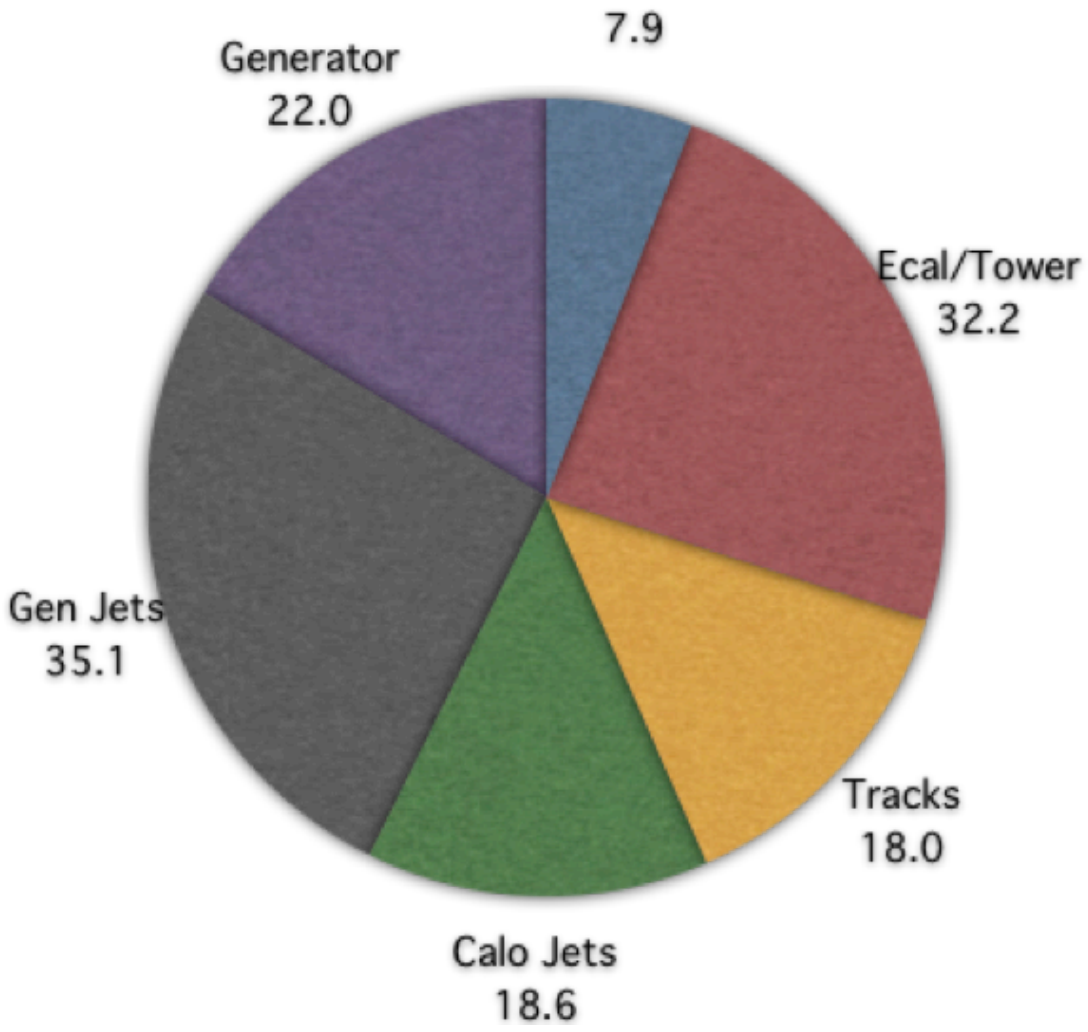
the AOD size

- 134 kB/ev
- 116 kB/ev without header



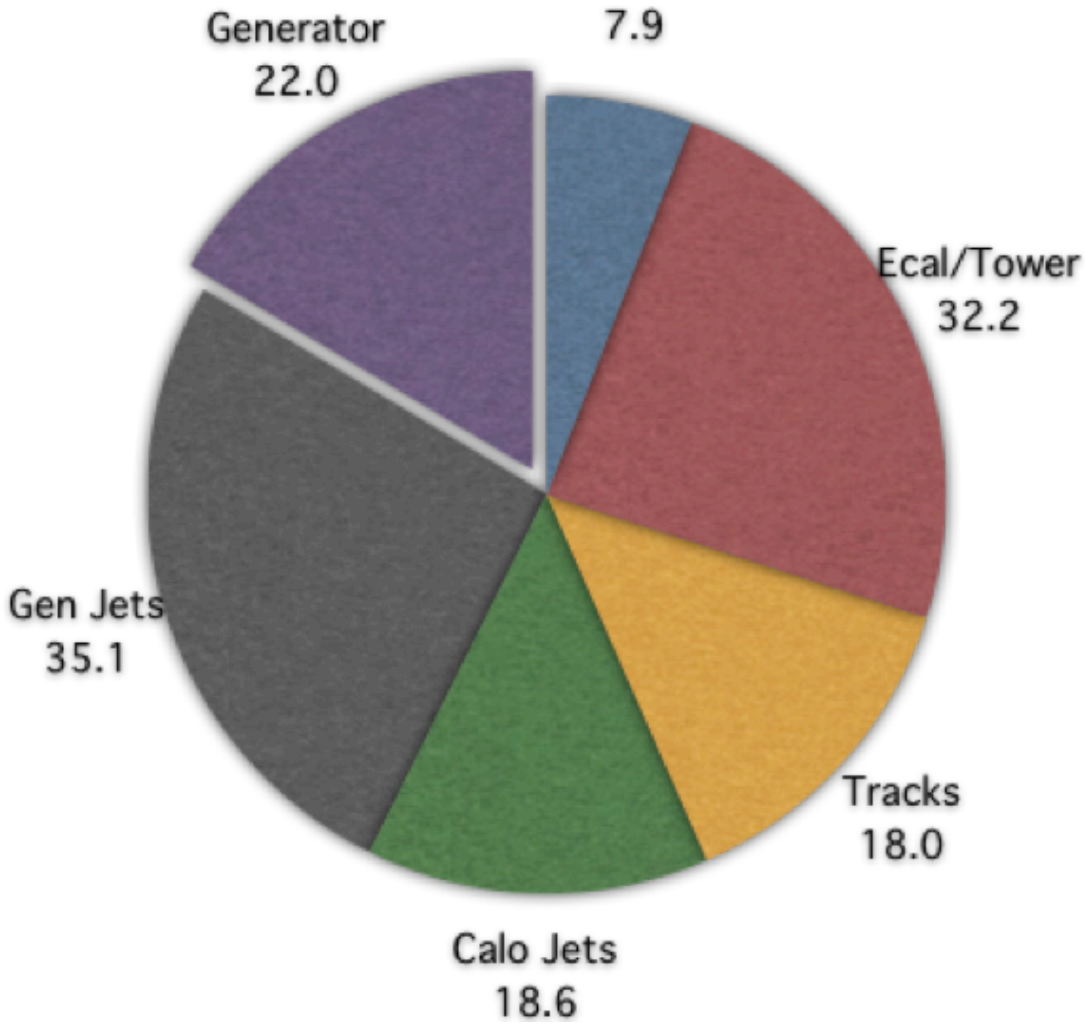

```
$ edmEventSize
```

Content breakdown



Generator information

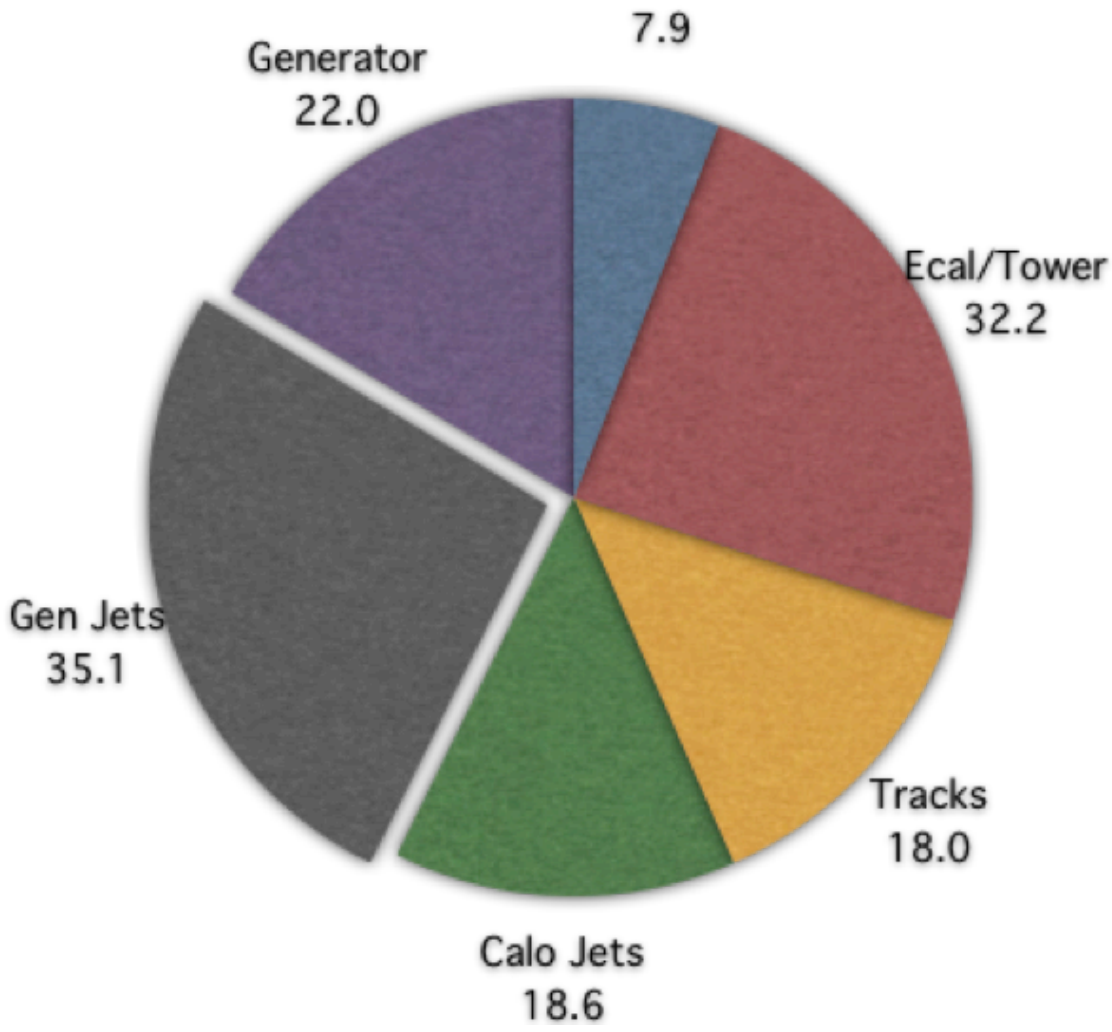
HepMC was much bigger and is now replaced by GenParticleCandidates (factor 2!)



Generator jets

14 jet types

iterativeCone7GenJets
midPointCone7GenJets
iterativeCone5GenJets
midPointCone5GenJets
(Kt10GenJets)
Fastjet10GenJets
Fastjet6GenJets
+
the same jets without invisible particles

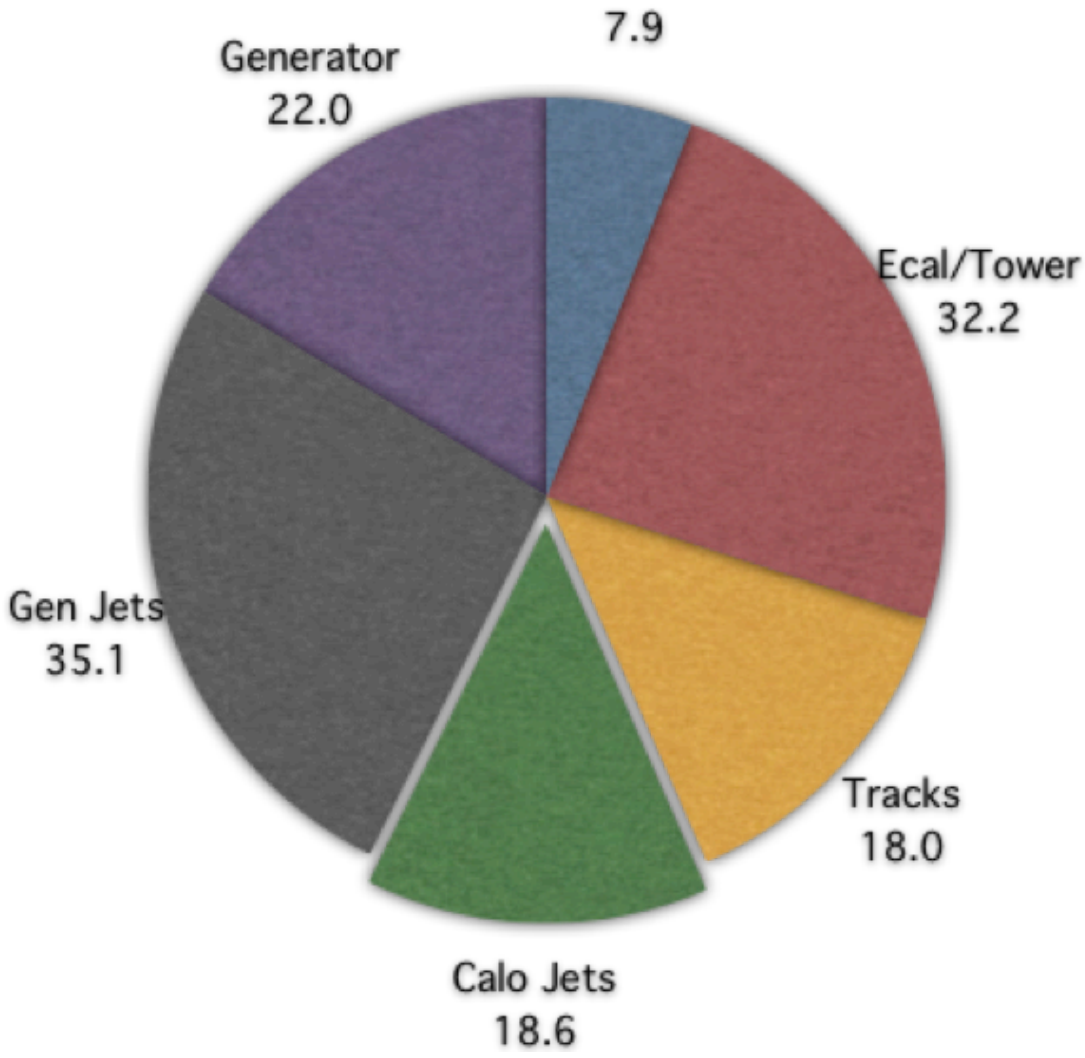


Calorimeter jets

8 jet types

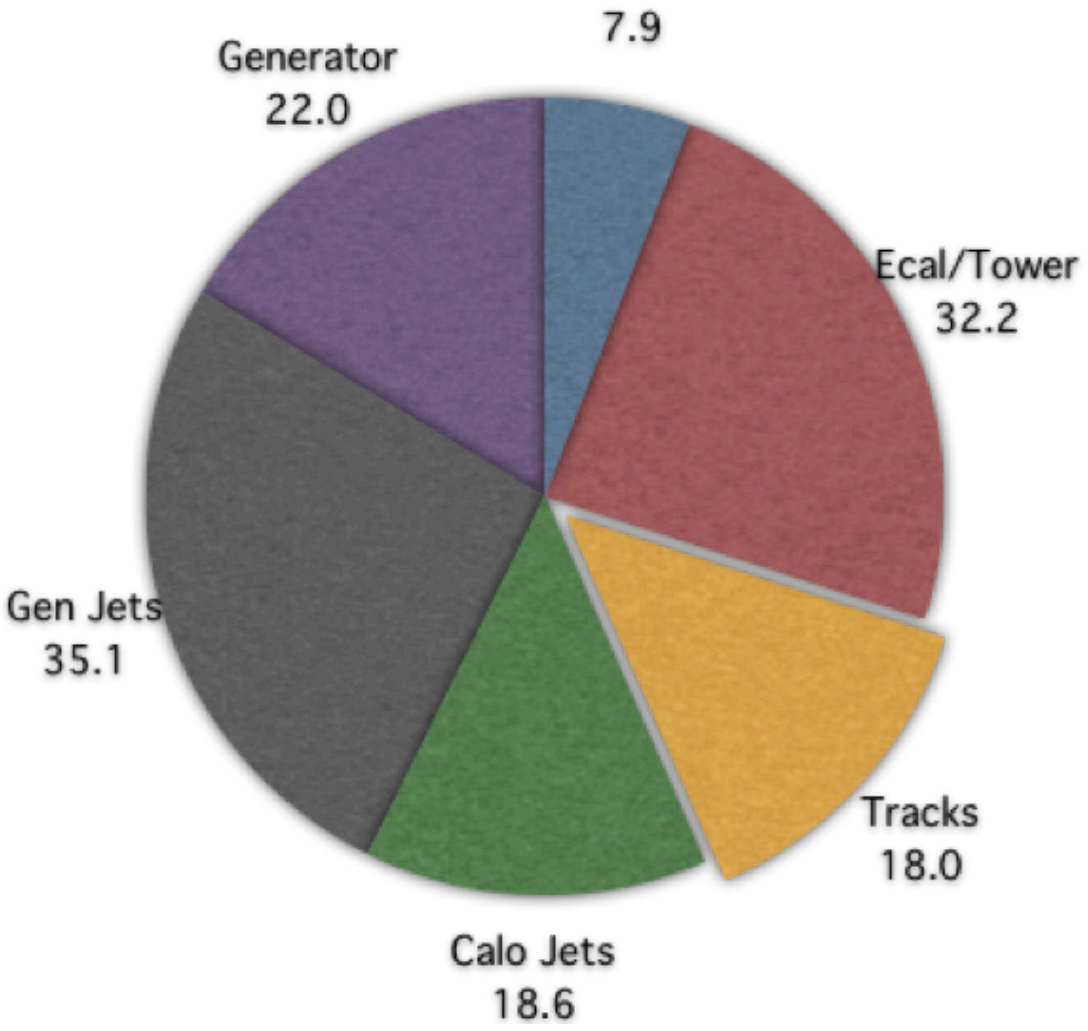
iterativeCone7CaloJets
midPointCone7CaloJets
iterativeCone5CaloJets
midPointCone5CaloJets
(Kt10CaloJets)
Fastjet10CaloJets
Fastjet6CaloJets
Fastjet10E1CaloJets

!
all information for jet and met re-reconstruction included



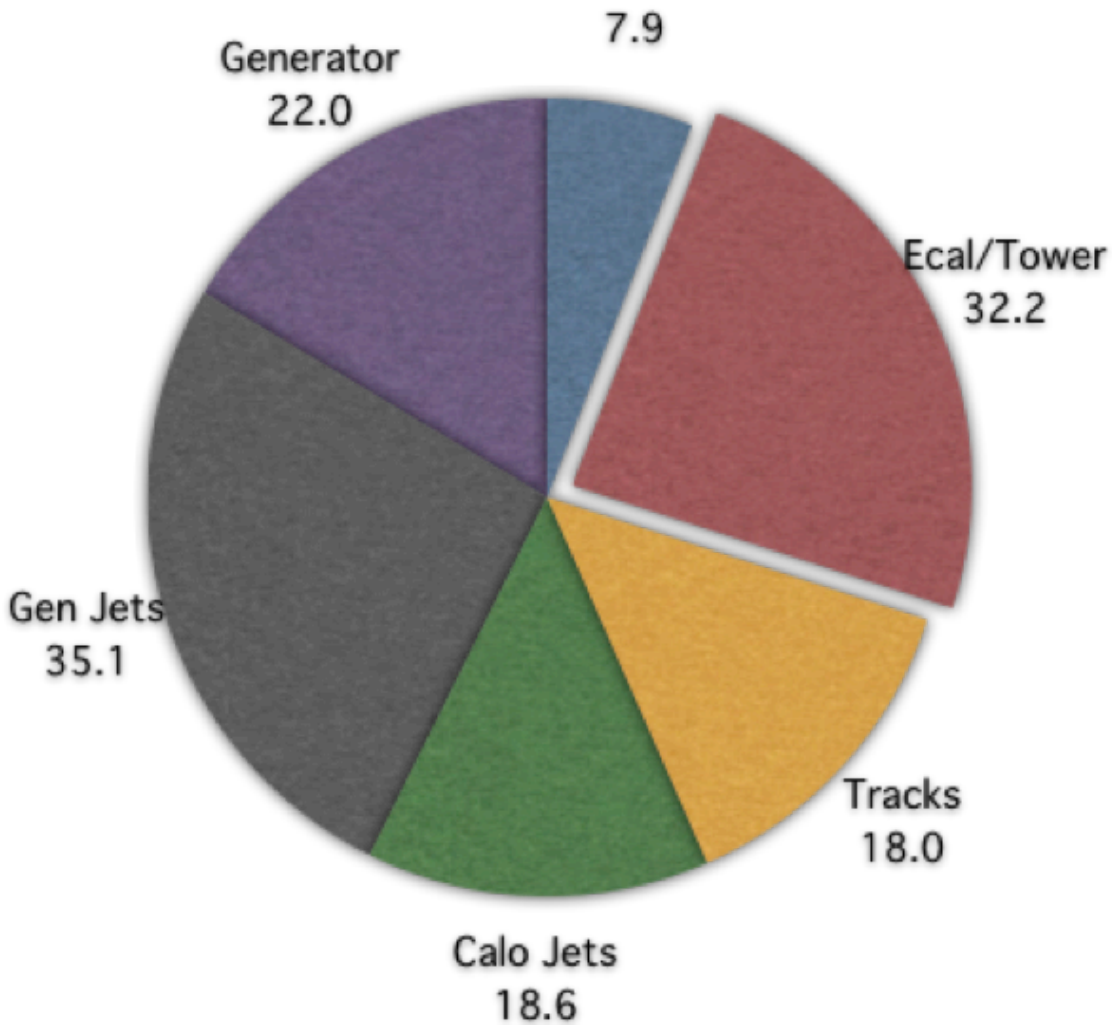
Track information

```
ctfWithMaterialTracks
rsWithMaterialTracks
pixelTracks
```



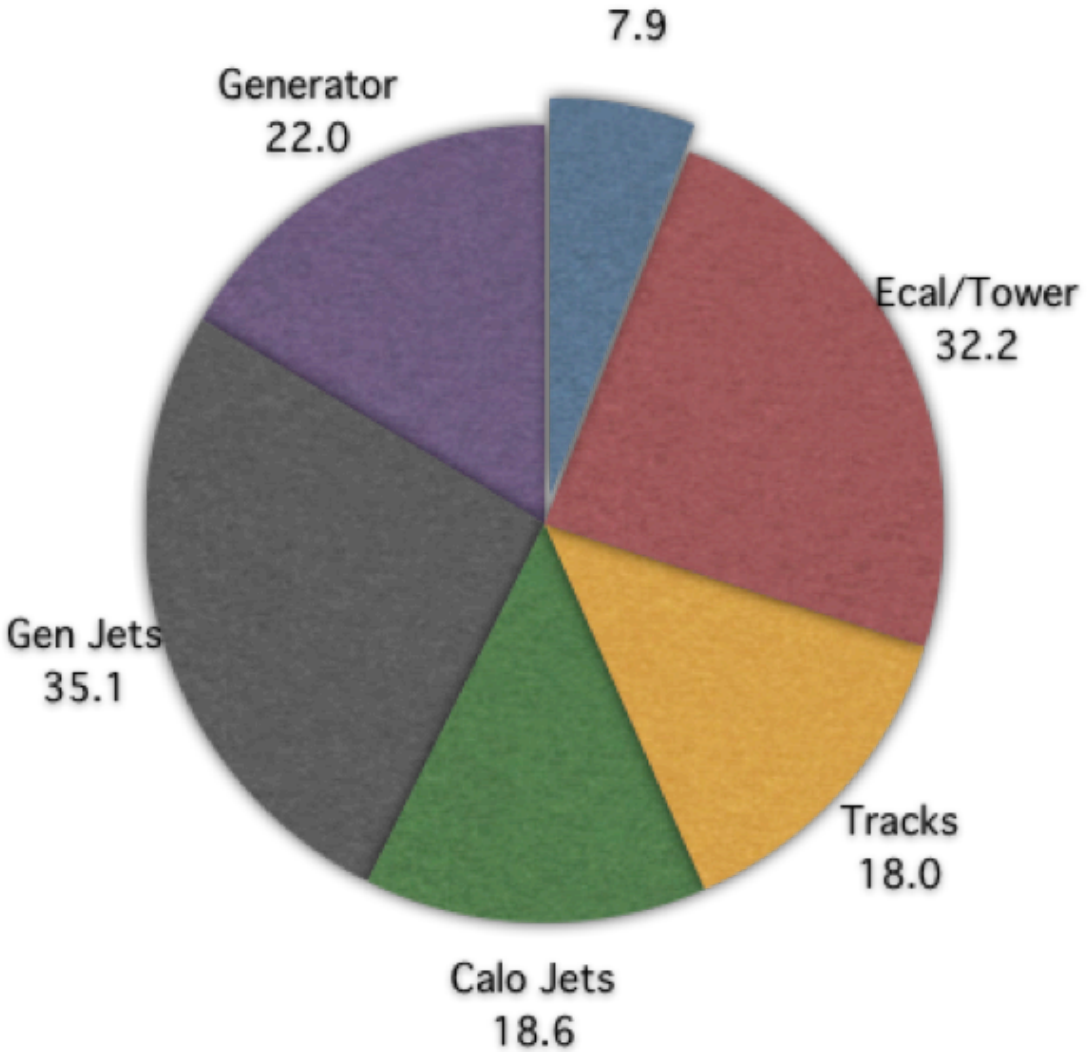
Ecal, egamma, caloTowers...

```
caloTowers
4 * islandBasicClusters
3 * hybridSuperClusters
3 * special clusters
--------------------------
siStripElectrons
pixelMatchGsfElectrons
pixelMatchGsfFitBarrel
convertedPhotons
correctedPhotons
photons

each between 0.8 - 2.6 kB/ev

              +
    some special tracks
```



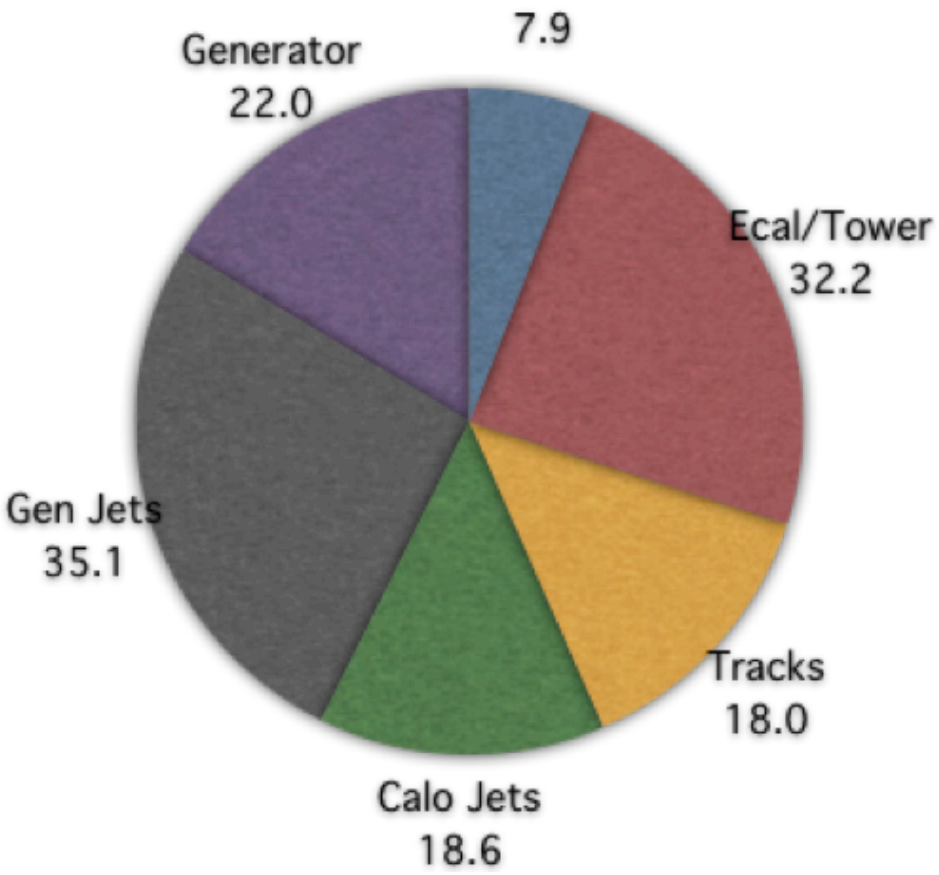
Other content

```
met
genMet
genMetNoMu
globalMuons
standaloneMuons
trigger
...
```

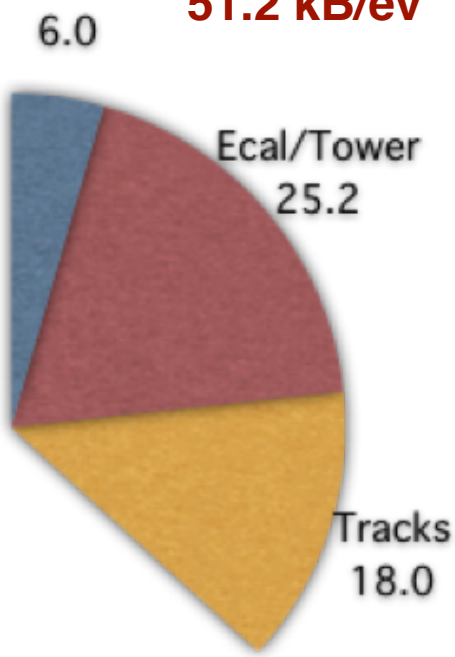


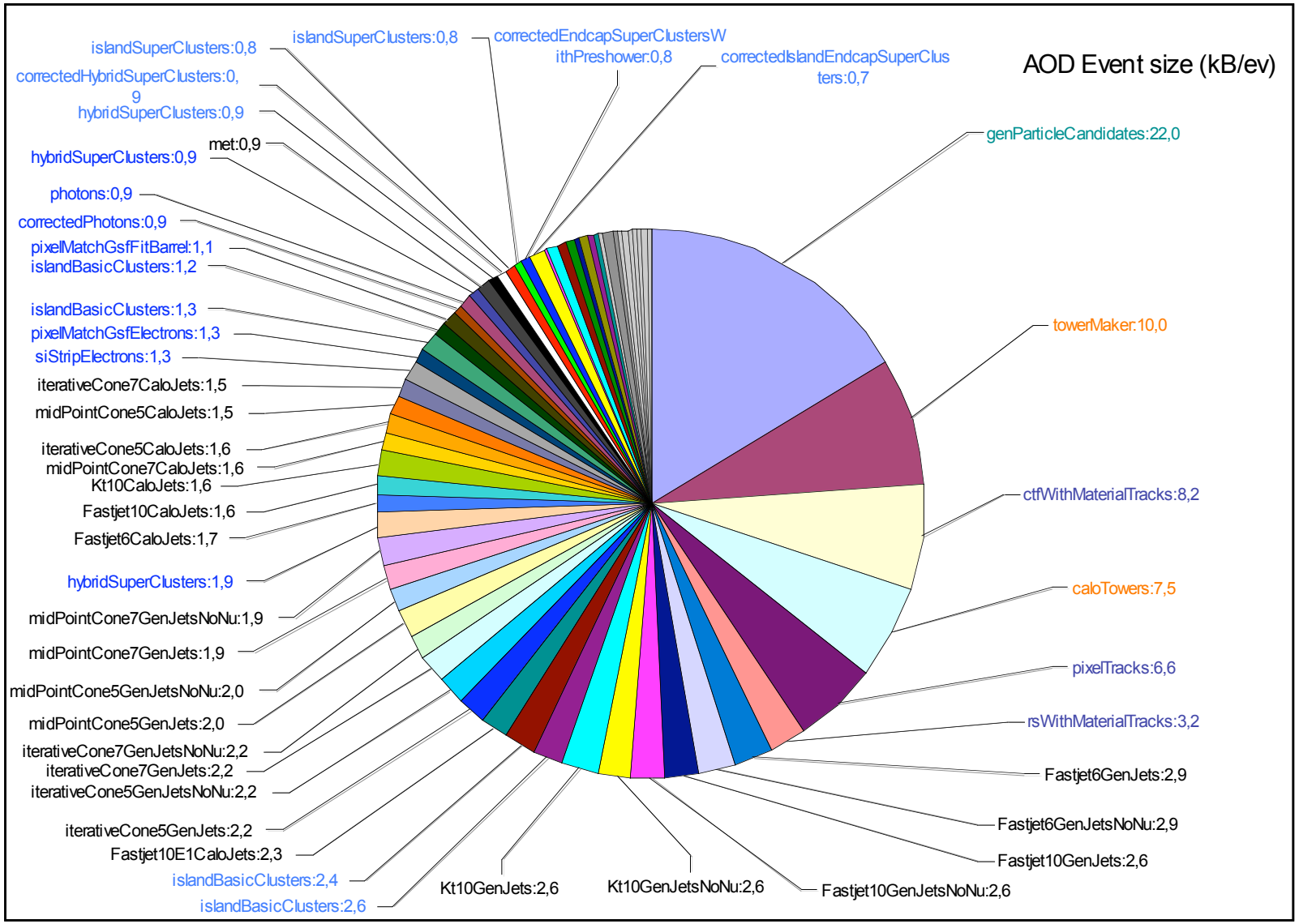
AOD without generator information and "redundancies" (at least how I understood it)

133 kB/ev



51.2 kB/ev




AOD Event size (kB/ev)
islandSuperClusters:0,8
islandSuperClusters:0,8
correctedEndcapSuperClustersWithPreshower:0,8
correctedIslandEndcapSuperClusters:0,7
correctedHybridSuperClusters:0,9
hybridSuperClusters:0,9
met:0,9
hybridSuperClusters:0,9
photons:0,9
correctedPhotons:0,9
pixelMatchGsfFitBarrel:1,1
islandBasicClusters:1,2
islandBasicClusters:1,3
pixelMatchGsfElectrons:1,3
siStripElectrons:1,3
iterativeCone7CaloJets:1,5
midPointCone5CaloJets:1,5
iterativeCone5CaloJets:1,6
midPointCone7CaloJets:1,6
Kt10CaloJets:1,6
Fastjet10CaloJets:1,6
Fastjet6CaloJets:1,7
hybridSuperClusters:1,9
midPointCone7GenJetsNoNu:1,9
midPointCone7GenJets:1,9
midPointCone5GenJetsNoNu:2,0
midPointCone5GenJets:2,0
iterativeCone7GenJetsNoNu:2,2
iterativeCone7GenJets:2,2
iterativeCone5GenJetsNoNu:2,2
iterativeCone5GenJets:2,2
Fastjet10E1CaloJets:2,3
islandBasicClusters:2,4
islandBasicClusters:2,6
Kt10GenJets:2,6
Kt10GenJetsNoNu:2,6
Fastjet10GenJetsNoNu:2,6
Fastjet10GenJets:2,6
Fastjet6GenJetsNoNu:2,9
Fastjet6GenJets:2,9
rsWithMaterialTracks:3,2
pixelTracks:6,6
caloTowers:7,5
ctfWithMaterialTracks:8,2
towerMaker:10,0
genParticleCandidates:22,0

Quoting Luca Lista:

- Caveat on Tagging
  - Tagging collections are now of very small size (~2kB/ev) because very optimized for disk space
  - A change in the container is foreseen in 150 to improve the existing container interface, expected to potentially increase the size
  - Working at the moment to deliver a new generic container that fits both the requested interface and optimizes disk space
    - Being developed, aiming for 150, need integration with b/tau tags