ACD Data Structures

ACD Data: Present & Future

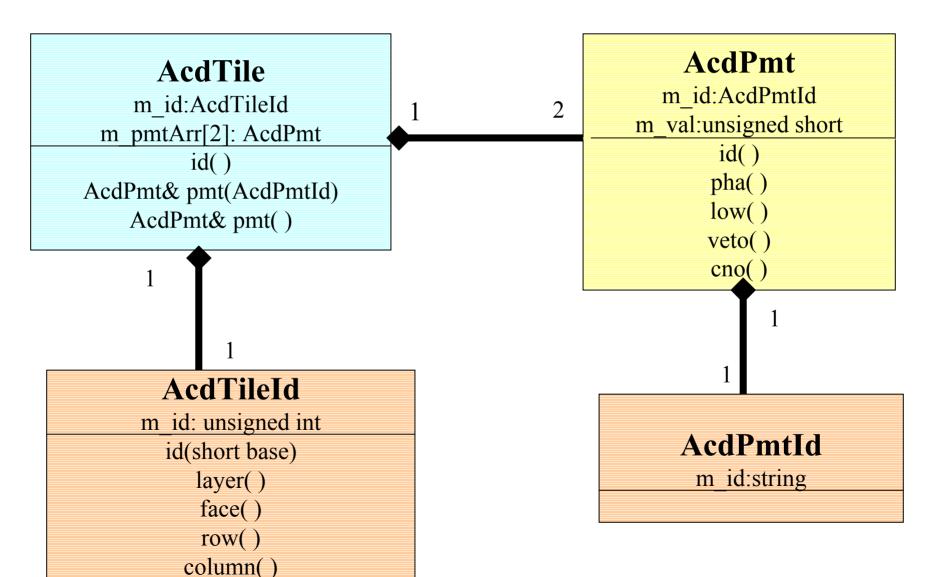
Current Status

- ACD output currently consists of
 - Digitization data available from tests
 - Beam test & Balloon & their simulated data
 - List of "hit" ACD tiles, consisting of:
 - Id, PHA, Discriminators: Veto and High (CNO)
 - Ntuple output
 - ACD_TotEnergy, ACD_TileCount, ACD_ActDist ACD_DOCA, ACD_ThrottleBits, ACD_No_FaceN ACD_No_SideRowN

Proposed Digitization Updates

- Each ACD Tile has 2 PMTs.
 - Each PMT has its own unique identifier
 - Create a new AcdPmtId class
 - Modify AcdTile class to store
 - AcdTileId
 - 2 PMT objects, class name AcdPmt
 - Each PMT object contains
 - AcdPmtId
 - 16 bit word
 - 12 bits for PHA, 4 "extra" bits for discriminators

Proposed Digi Diagram



Ntuple Updates

- It would be nice if the ACD Recon output stored enough data to recalculate any of the provided ntuple quantities.
 - It would be that much easier to experiment with new quantities
- Example: ACD_EnergyDeposit_Max

Proposed Recon

- List of AcdTiles and est. energy deposition
- AcdActiveDistance class contains
 - TrackId
 - DOCA value

Proposed Recon Diagram

AcdRecon

```
m tiles:vector<AcdReconTile>
 unsigned int tileCount(type )
     float maxEnergy()
AcdDoca& gammaDoca(type)
 AcdDoca& trackDoca(type)
```

AcdReconTile

```
m id:AcdTileId
          m energy:float
            m hit:bool
           m cno:bool
m docas:vector<AcdActiveDistance>
```

AcdTileId& id()

bool hit()

bool cno()

float energy()

activeDistance(trackId)

AcdActiveDistance

m value:float m track:TrackId float activeDistance() TrackId& track()

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