

# ACD Data Structures

ACD Data: Present & Future

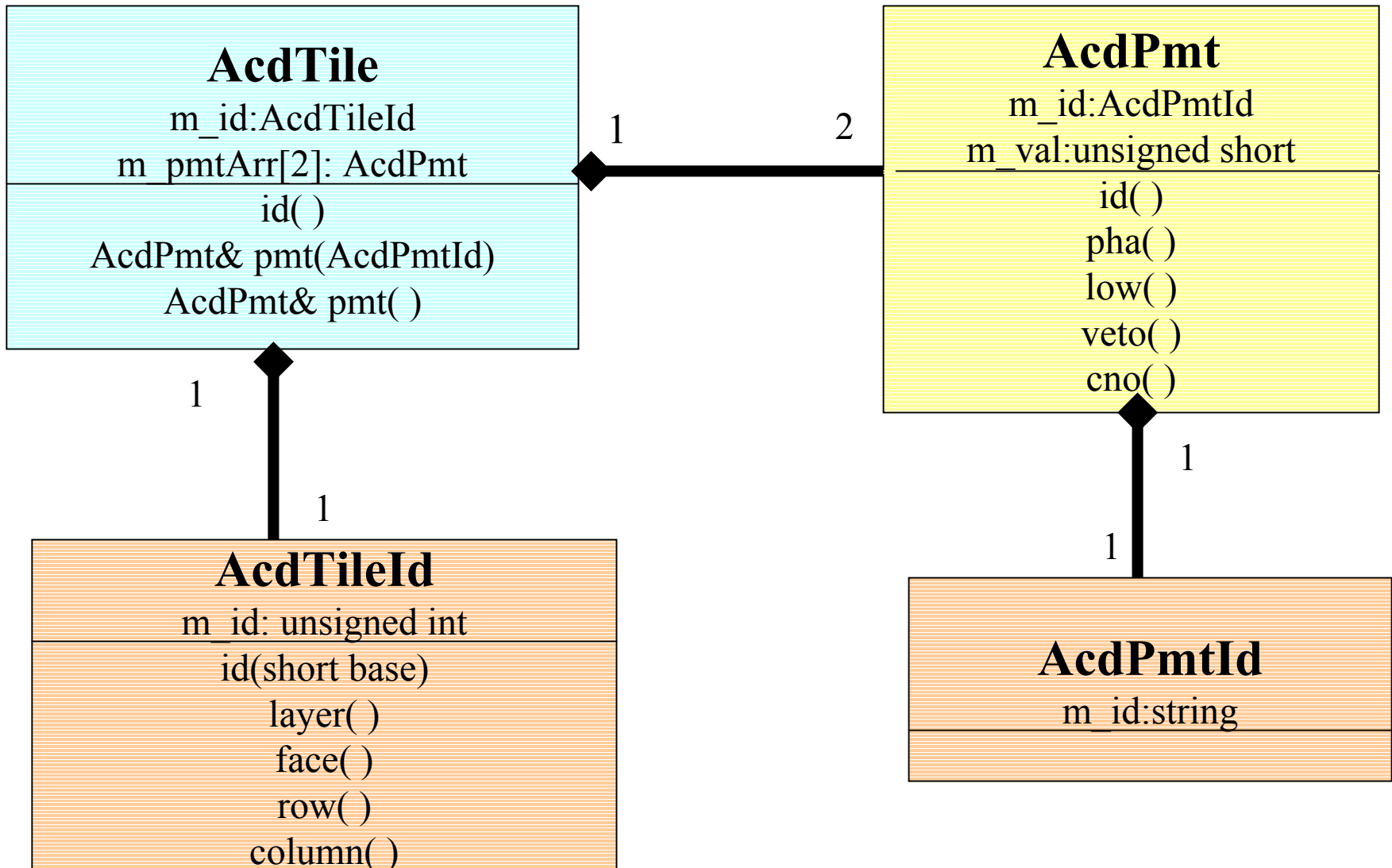
# Current Status

- 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

