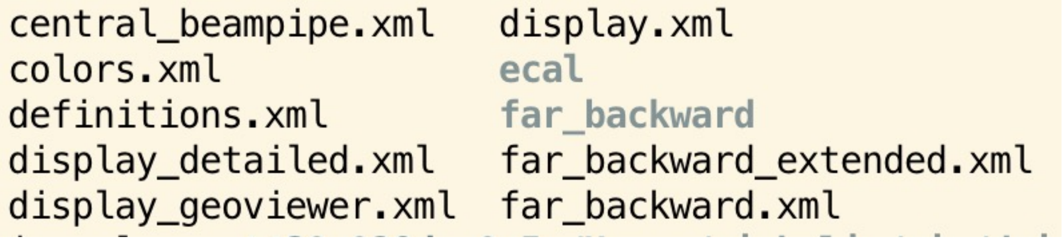
Detector Geometry Locations

Sub-components

Dimensions etc. handled by xml files

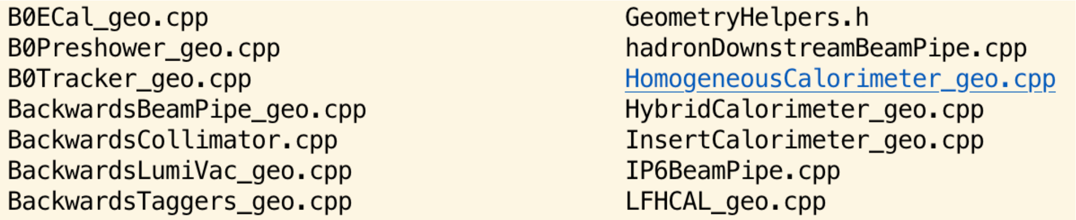
Code lives in epic/compact



```
central_beampipe.xml   display.xml
colors.xml             ecal
definitions.xml        far_backward
display_detailed.xml   far_backward_extended.xml
display_geoviewer.xml  far_backward.xml
```

C++ (Geant4) implementation

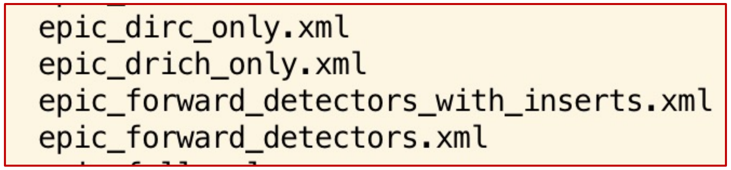
Code lives in epic/src



```
B0ECal_geo.cpp                GeometryHelpers.h
B0Preshower_geo.cpp           hadronDownstreamBeamPipe.cpp
B0Tracker_geo.cpp             HomogeneousCalorimeter_geo.cpp
BackwardsBeamPipe_geo.cpp     HybridCalorimeter_geo.cpp
BackwardsCollimator.cpp       InsertCalorimeter_geo.cpp
BackwardsLumiVac_geo.cpp      IP6BeamPipe.cpp
BackwardsTaggers_geo.cpp      LFHCAL_geo.cpp
```

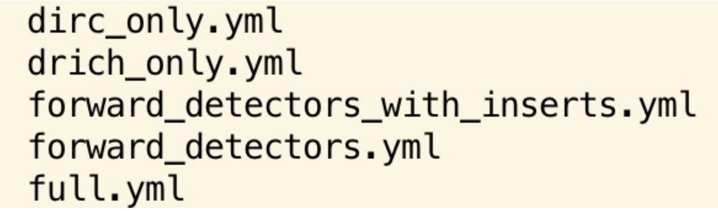
Configurations:

.xml files live in the top directory but that is **not** where to make changes.



```
epic_dirc_only.xml
epic_drich_only.xml
epic_forward_detectors_with_inserts.xml
epic_forward_detectors.xml
```

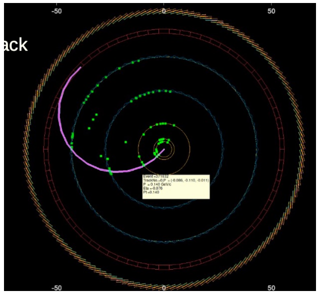
Instead use .yml files that auto-generate these (using build.sh)



```
dirc_only.yml
drich_only.yml
forward_detectors_with_inserts.yml
forward_detectors.yml
full.yml
```

Code lives in epic/configurations

From Geant4 to Reconstruction



From Geant4:

Simulated Hits
Location
Energy deposition
Time

CalorimeterHitDigi
Summed energy → ADC
Time and cellId from most energetic hit

SiliconTrackerDigi
Mostly 1-1
Uses energy deposition
Rare multiple hits in a cell are summed

PhotoMultiplierHitDigi
…

HitDigi == HitRaw, the terms are used interchangeably

Code lives in
`eicrecon/src/algorithms/digi/`

Re-translation ADC
→ physical value

***RecHits**
Vertex, Tracker,
Barrel, Endcap, …

***RecHits**
HCal, Ecal,
Barrel, Endcap, …

PID Hypothesis

Track Reco

Jet Finding

Clustering

Particle Flow

…

We use **pedestal and σ XOR nσ threshold**

Code lives in
`eicrecon/src/detectors/*/`

From here on, there is (should be) no differentiation between data and simulation