



GEAR Extension Proposal

Introducing new Classes:

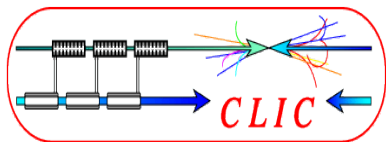
- DetectorElement
- CylindricalDetElement
- DiskDetElement
- BoxDetElement

Using them for sub-detectors:

- TPC: CylindricalDetElement
- FTD: DiskDetElement

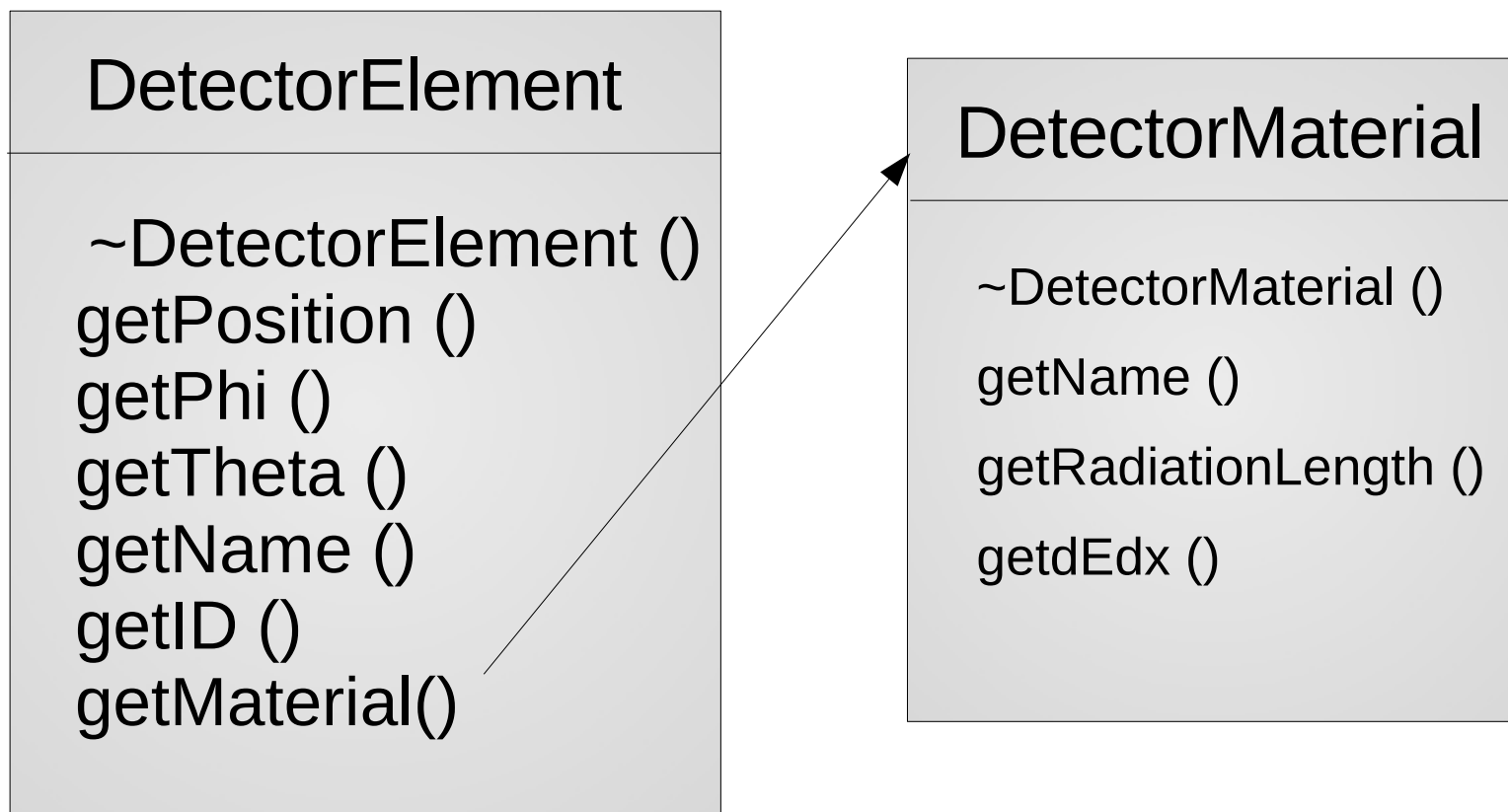
Astrid Muennich

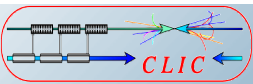
Geometry Meeting, CERN, 24th February



Detector Element

Provides generic base class for sub-detectors with information common to all:





Shaped Detector Elements

Implementation of specific shapes inheriting from DetectorElement:

CylindricalDetElement

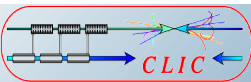
```
~CylindricalDetElement ()  
getInnerRadius ()  
getOuterRadius ()  
getLength ()  
getRadiationLength ()
```

DiskDetElement

```
~DiskDetElement ()  
getInnerRadius ()  
getOuterRadius ()  
getThickness ()  
getRadiationLength ()
```

BoxDetElement

```
~BoxDetElement ()  
getX ()  
getY ()  
getZ ()  
getRadiationLength ()
```



Use of Extension I: TPC

The TPC now has 2
CylindricalDetElements:

- ◆ InnerFieldcage
- ◆ OuterFieldcage

and 3 DiskDetElements:

- ◆ EndplatePlusZ
- ◆ EndplateMinusZ
- ◆ Cathode

and some gas properties

```
gear::TPCParameters

+ ~TPCParameters()
+ getModule()
+ getNModules()
+ getNearestModule()
+ getMaxDriftLength()
+ getInnerFieldcage()
+ getOuterFieldcage()
+ getEndplatePlusZ()
+ getEndplateMinusZ()
+ getCathode()
+ isInsideModule()
+ isInsidePad()
+ getNearestPad()
+ getPlaneExtent()
+ getCoordinateType()
+ getModules()
+ getPadLayout()
+ getDriftVelocity()
+ getReadoutFrequency()
+ getGasRadiationLength()
+ getGasdEdx()
+ getIonPotential()
```

NEW

Use of Extension II: FTD

FTD is build from several DiskSubDets contained in vector

```
gear::FTDParameters
+ ~FTDParameters()
+ getDisk()
+ getNDisks()
+ getDisks()
+ addDisk()
```

Extension needs INPUT from
ALL sub-detector groups!!!