

Atlantis status for SCT and Pixel commissioning

Qiang Lu, Juergen Thomas, Peter Watkins (Birmingham)

Hans Drevermann (CERN)

Andrew Haas (Columbia)

Eric Jansen, Peter Klok, Charles Timmermans (Nijmegen)

Nikos Konstantinidis, **Janice Drohan**, **Zdenek Maxa (UCL)**

Outline

- New feature for SCT commissioning – colour SiClusters by error
- Features for Pixel commissioning – done / underway
 - detailed Pixel geometry (wafer lines)
 - geometry of Pixel scintillator setup
 - scintillator hits
- Sources

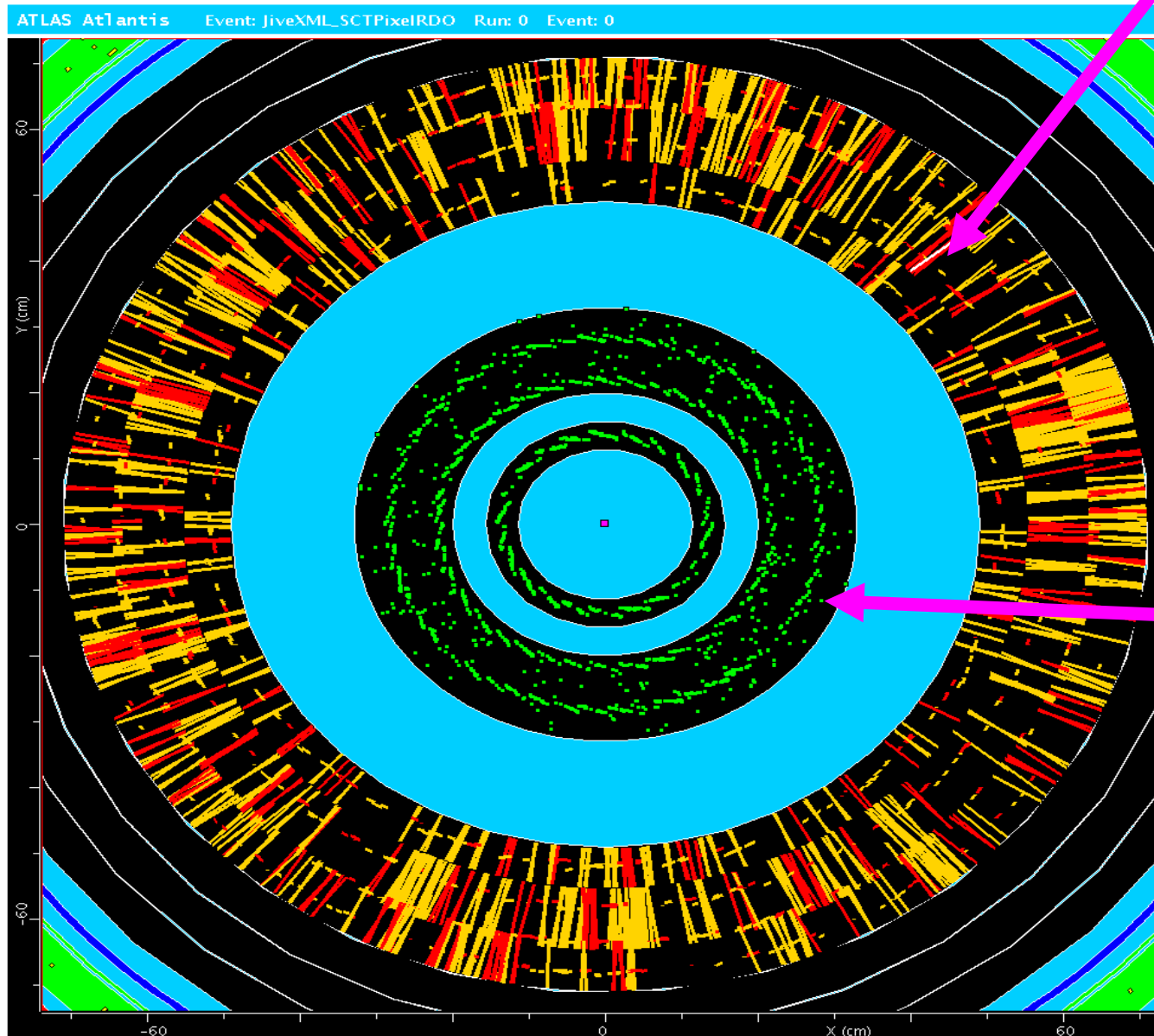
SiClusterRDO coloured by error

RDO Pick info:

SiClusterRDO = 138558081
orientation = 0
x = 24.407995 33.26811
y = 23.522753 31.296148
z = -110.876755 -110.876755
 ρ = 33.897354 45.674534
 η module = 1
 Φ module = 4
BCID error = 0
first hit error = 0
formatter error = 0
lv1 error = 0
preamble error = 1
second hit error = 0
sync error = 0
time bin = 2

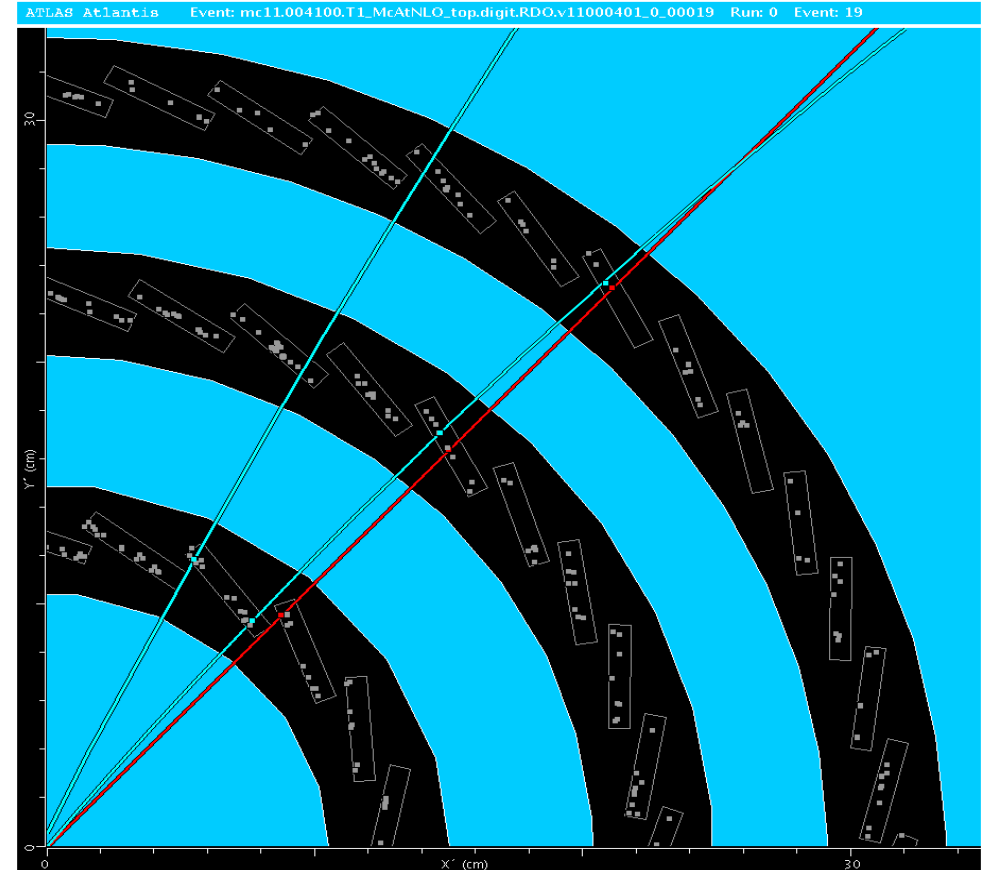
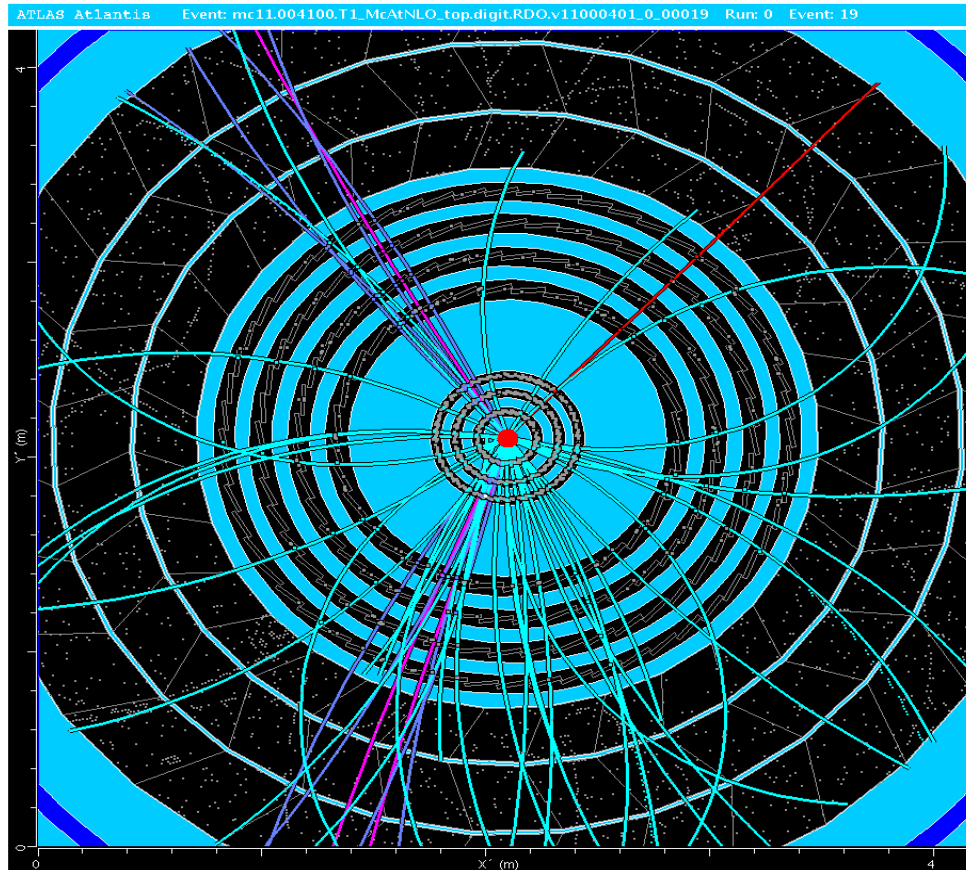
PixelRDO = -1456821247
 ρ = 8,811 cm
 Φ = 90,412°
z = -9,181 cm
 η module = -1
 Φ module = 9

... additional information
can be added for
PixelRDOs



Displaying detailed InDet geometry

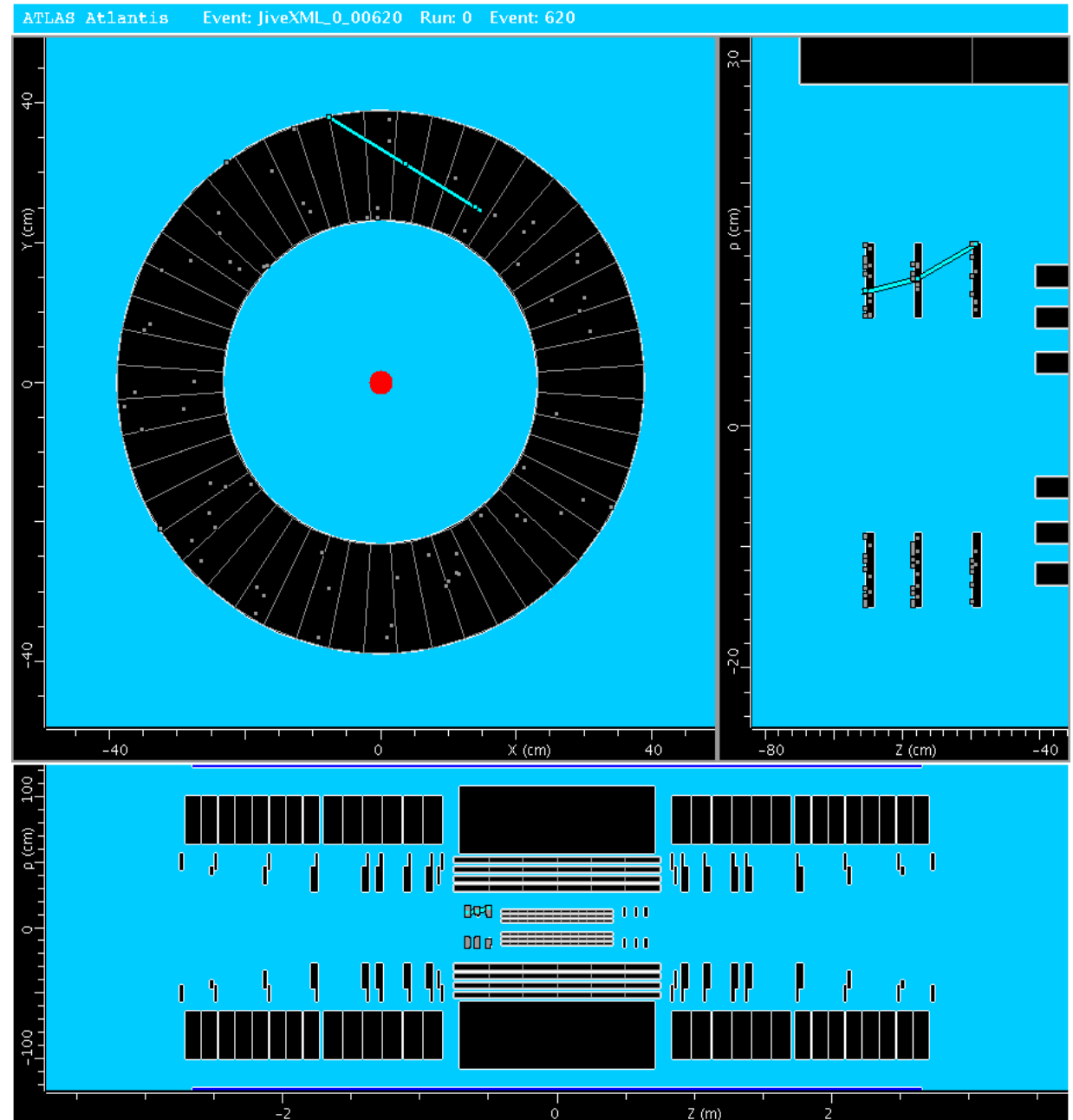
- 3 layers of Pixel wafers
- 4 layers of SCT wafers
- TRT sectors
- Atlantis option: ATLAS->Detector->InDet Detail



Modifications for Pixel setup

Pixel Endcap only

- Geometry:
 - JiveXML can create geometry file for Atlantis by querying GeoModel
 - Running PixelEndCapCCosmicReconstruction returns InDet geometry, example event shown (assoc. hits coloured by Track)
 - Possible to create static geometry file with only scintillators and Pixel endcaps by hand



Pixel scintillator geometry

- JiveXML retrieves geometry for Atlantis from GeoModel, but Pixel scintillator geometry doesn't exist in GeoModel
- Solutions
 - GeoModel gets updated
 - Pixel scintillator geometry file for Atlantis will be created by hand based on one of the currently 7 cosmic setups in the file [offline/Simulation/G4Atlas/G4AtlasApps/python/atlas_cosmics.py](#)

```
....  
if(cosmicSetup==1):  
    DF.df.SetDx(500.)  
    DF.df.SetDy(2.5)  
    DF.df.SetDz(700.)  
    DF.df.MoveTo(AtlasG4Eng.G4Eng.gbl.CLHEP.Hep3Vector(0.,1150.,0.))  
elif(cosmicSetup==2):  
    DF.df.SetDx(250.)  
    DF.df.SetDy(2.5)  
    DF.df.SetDz(700.)  
    DF.df.RotateZ(0.3925)  
    DF.df.MoveTo(AtlasG4Eng.G4Eng.gbl.CLHEP.Hep3Vector(440.,1063.,0.))  
....
```

Pixel scintillator hits

- Displaying Scintillator Hits:
 - add DataRetriever for scintillator hits to JiveXML
 - implementing scintillator hits in Atlantis
 - planned activity

Sources

- www.cern.ch/atlantis
 - plenty of documentation, startup guides
 - help files from Atlantis
- comprehensive online help in Atlantis accessible by Help > Online Help System or right click on a particular component in the GUI (most of them)
- www.hep.ucl.ac.uk/atlas/JiveXML/JiveXML.shtml
- atlantis.support@cern.ch