

# ZDC simulation

Changes to be merged into bmnroot

- Related bug fixes
  - Directory `ssd/aux` renamed to `ssd/auxx`
  - Fixed file name length issue in `BmnTof2Raw2DigitNew`
- Setter for Birks' constant added to `BmnZdc` class
- ZDC digitizer class created to be used in `run_sim_bmn.C`
- ZDC data analysis for event reconstruction
  - Store class `BmnZDCEventData` created
  - Added `BmnZdcAnalyzer` class to be used in `run_reco_bmn.C`

# Renaming aux to auxx allowed to clone bmnroot repo on Windows

## Directory `ssd/aux` renamed to `ssd/auxx`

parent `e3ec9de4` `P dev_eca1`

No related merge requests found

Changes **33**

Showing **33** changed files with **18** additions and **18** deletions

Hide whitespace changes

Inline

Side-by-side

QA/CMakeLists.txt

View file @ 016a40c2

```
...    ...    @@ -12,7 +12,7 @@ set(INCLUDE_DIRECTORIES
12    12    ${CMAKE_SOURCE_DIR}/csc
13    13    ${CMAKE_SOURCE_DIR}/silicon
14    14    ${CMAKE_SOURCE_DIR}/ssd
15    -    ${CMAKE_SOURCE_DIR}/ssd/aux/data
15    +    ${CMAKE_SOURCE_DIR}/ssd/auxx/data
16    16    ${CMAKE_SOURCE_DIR}/sts
17    17    ${CMAKE_SOURCE_DIR}/globaltracking
18    18    ${CMAKE_SOURCE_DIR}/OA
```

# Geo file name may be more than 128 chars in BmnTof2Raw2DigitNew

Fixed file name length issue

parent d35fdd26 Pdev\_ecal

No related merge requests found

Changes 2

Showing 2 changed files with 9 additions and 9 deletions

Hide whitespace changes Inline Side-by-side

decoder/BmnTof2Raw2DigitNew.cxx

```
...   ...   @@ -345,7 +345,7 @@ BmnTof2Raw2DigitNew::BmnTof2Raw2DigitNew(TString mappingFile, TString RunFile, I
345   345       }
346   346       if(Offsets_read()) return;
347   347   }
348   - readGeom((char *)geomFile.Data());
348   + readGeom(geomFile.Data());
349   349
350   350   // read Left-Right offsets
351   351   for (int c=0; c<TOF2_MAX_CHAMBERS; c++)
...   ...   @@ -1296,7 +1296,7 @@ void BmnTof2Raw2DigitNew::readSlewing(Bool_t update)
1296  1296   }
1297  1297   else
1298  1298   {
1299  - LOG(FATAL)<<"Error open slewing file " << filnr << " - exit!" << FairLogger::endl;
1299  + LOG(FATAL)<<"Error open slewing file " << filnr << " - exit!";
1300  1300   return;
1301  1301   }
1302  1302   }
...   ...   @@ -3468,9 +3468,9 @@ void BmnTof2Raw2DigitNew::drawproft0()
3468  3468   }
3469  3469
3470  3470
3471  - int BmnTof2Raw2DigitNew::readGeom(char *geomfile)
3471  + int BmnTof2Raw2DigitNew::readGeom(const char *geomfile)
3472  3472   {
3473  - char fname[128];
3473  + const char * fname;
```

# It's now possible to control Birks' effect

Setter for Briks' constant added to BmnZdc class

parent 016a40c2 P dev\_eca1

No related merge requests found

Changes 3

Showing 3 changed files with 15 additions and 1 deletion

Hide whitespace changes Inline Side-by-side

macro/run/geometry\_run/geometry\_run7.C

```
...    ...    @@ -56,6 +56,7 @@ void geometry(FairRunSim *fRun)
56    56        fRun->AddModule(eca1);
57    57
58    58        BmnZdc* zdc = new BmnZdc("ZDC", kTRUE);
59    59 +        //zdc->SetBirk();
59    60        zdc->SetGeometryFileName("ZDC_RunSpring2018.root");
60    61        fRun->AddModule(zdc);
61    62    }
```

zdc/BmnZdc.cxx

```
...    ...    @@ -147,7 +147,7 @@ Bool_t BmnZdc::ProcessHits(FairVolume* vol) {
147   147        //((0.126 mm/MeV - from Wikipedia, 0.07943mm/MeV in Geant4)
148   148
149   149        //fELoss += eLoss;
150   150 -        fELoss += eLoss / (1. + 7.943 / gMC->TrackStep() * eLoss); // Birk;
150   150 +        fELoss += eLoss / (1. + fBirksConstant / gMC->TrackStep() * eLoss); // Birk;
151   151    }
```

# BmnZdcPoint to BmnZDCDigit converter to be used at sim time

## Digitizer for ZDC MC points added

parent 20c83a3d P dev\_ecal

No related merge requests found

Changes 6

Showing 6 changed files with 170 additions and 6 deletions

Hide whitespace changes

Inline

Side-by-side

macro/run/run\_sim\_bmn.C

View file @ d35fdd26

```
...      ...      @@ -162,6 +162,12 @@ void run_sim_bmn(TString inFile = "/opt/data/ArCu_3.2AGeV_mb_156.r12", TString o
162      162      cscDigit->SetOnlyPrimary(kFALSE);
163      163      cscDigit->SetStripMatching(kTRUE);
164      164      fRun->AddTask(cscDigit);
165      165      +
166      166      + // ZDC-Digitizer
167      167      + BmnZdcDigitizer * zdcDigit = new BmnZdcDigitizer();
168      168      + zdcDigit->SetScale(39e3);
169      169      + zdcDigit->SetThreshold(500.);
170      170      + fRun->AddTask(zdcDigit);
165      171
166      172      fRun->Init();
167      173      magField->Print();
...      ...
```



## Added class BmnZdcAnalyzer to be used in run\_reco\_bmn.C

```
BmnZdcAnalyzer * zdcAna = new BmnZdcAnalyzer ();  
fRunAna->AddTask (zdcAna) ;
```

### TODO:

1. Improve BmnZdcEventData if needed
2. Merge this changes to origin/dev
3. Add parameters to BmnZdcAnalyzer