

GEANT4

Detector Fine Alignment

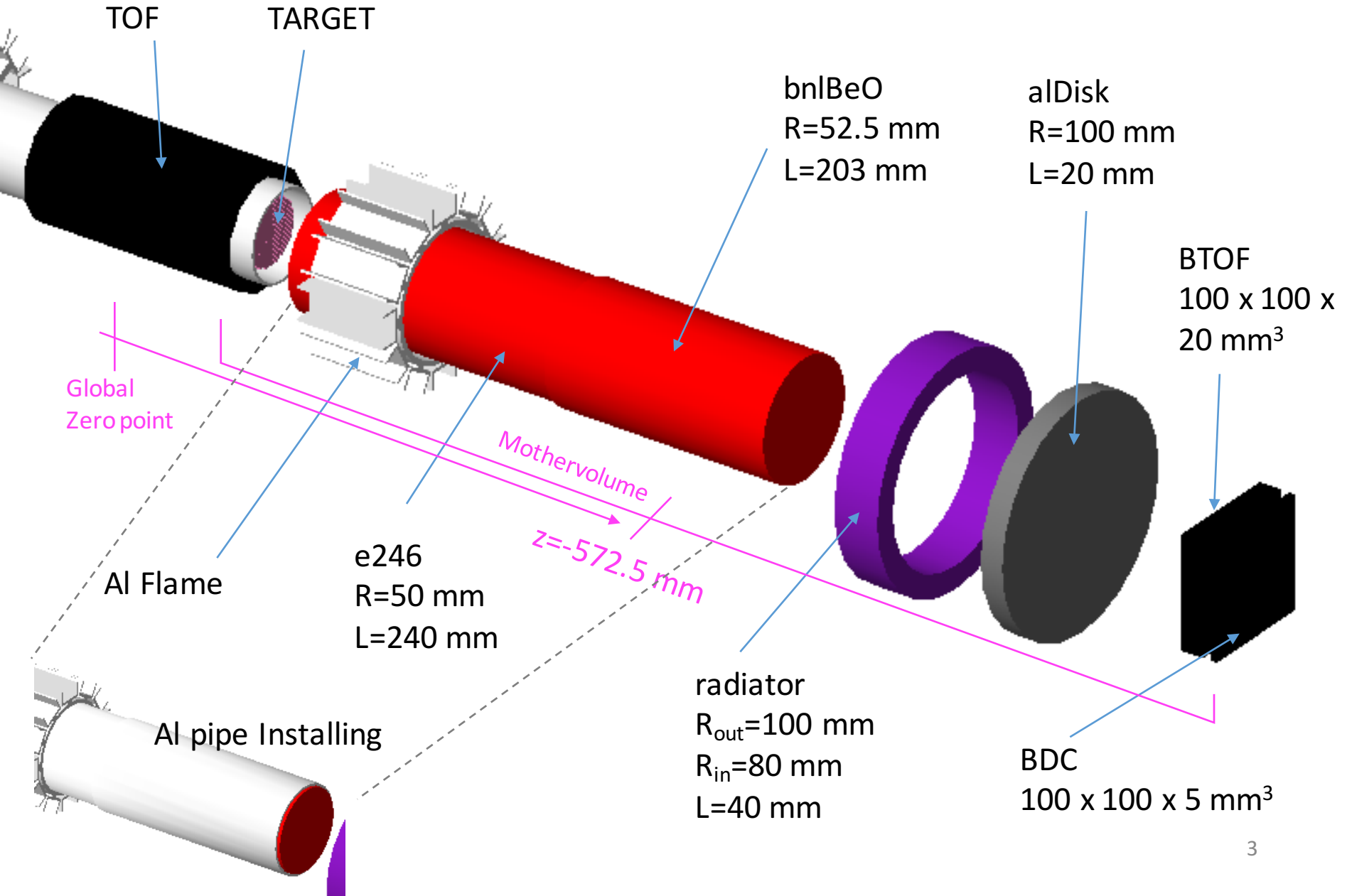
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G4 Detector Fine Alignment with J.I. at KEK

Summary

- Degrader, C2, C3, C4, Target, TTC were aligned in detail.
- Debug to set in 12 Gap loop seriously.
 - C2, C3, C4, TTC, PGC, GV were completed for the debug.

Degrader



MWPC C2, C3, C4

C3; S=240 x 680 mm²

C4; S=260 x 820 mm²

C2; S=200 x 620 mm²



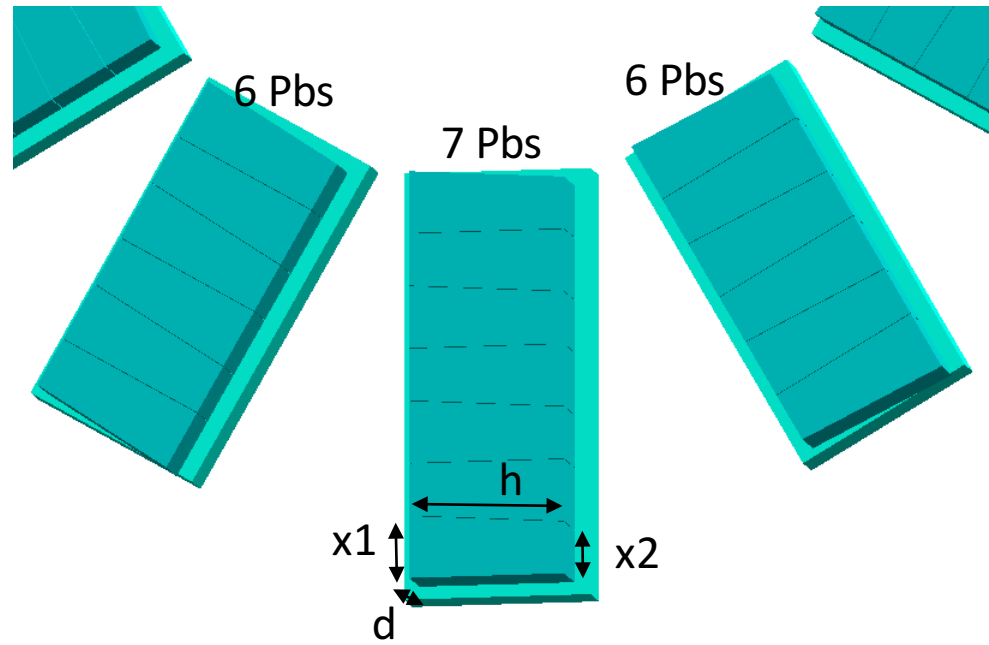
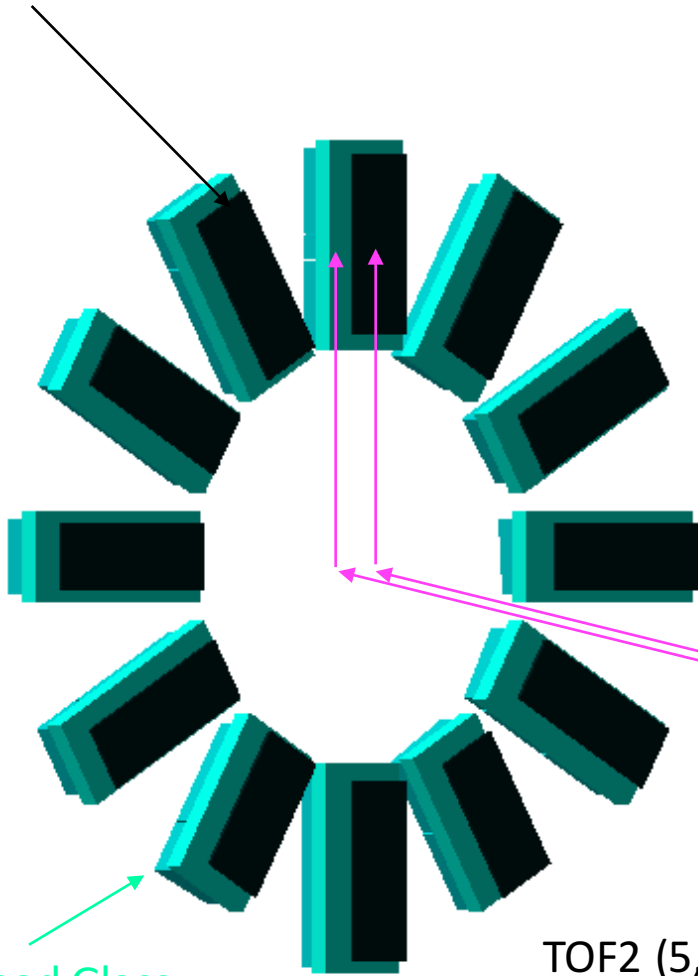
Structure

- (1) Mylar Window (12 micron)
- (2) Drift Gap out (10.6 mm)
- (3) Cu Strip (18 micron)
- (4) Kap Strip (25 micron)
- (5) Drift Gap in (6 mm)
- (6) Anode (20 micron)
- (7) Drift Gap in (6 mm)
- (8) Kap Strip (25 micron)
- (9) Cu Strip (18 micron)
- (10) Drift Gap out (10.6 mm)
- (11) Mylar Window (12 micron)

Without Al flame

PGC + TOF2

TOF2 800x300x20 mm²



$Z_{TOF2}=1600$ mm
 $Z_{PGC}=1774.9$ mm

PGC G4Trap
 $x1=135$ mm
 $x2=113$ mm
 $h=340$ mm
 $d=122$ mm

TOF2 (5,7Gap) 680x300x20 mm²

PGC Lead Glass

PGC Polyethylene

2017/08/04

Debug to set in 12 Gap loop

Before

C2, C3, C4, TTC, PGC, GV

After

```

for(G4int i = 0; i < 12; i++){
  G4double phi = 30.*degree;
  rm.rotateZ(phi);
  ta.setX(xpos); ta.setY(ypos); ta.setZ(zpos - 114.51*mm);
  TrekPGCassV->AddPlacedVolume(TrekPolyethLV(), ta, &rt);
  for (G4int n = 0; n < 2; n++){
    ta.setX(xpos+(251*mm)*n); ta.setY(ypos); ta.setZ(zpos);
    TrekPGCassV->AddPlacedVolume(TrekPGCLV(), ta, &rt);
  }
  ta.setX(xpos-(251*mm)); ta.setY(ypos); ta.setZ(zpos);
  TrekPGCassV->AddPlacedVolume(TrekPGCLV(), ta, &rt);
  for (G4int t = 0; t < 2; t++){
    ta.setX(ppos+(251*mm)*t); ta.setY(ypos); ta.setZ(zpos);
    TrekPGCassV->AddPlacedVolume(TrekPGCLV(), ta, &ra);
  }
  for (int n = 0; n < 2; n++){
    ta.setX(npos-(251*mm)*n); ta.setY(ypos); ta.setZ(zpos);
    TrekPGCassV->AddPlacedVolume(TrekPGCLV(), ta, &ra);
  }
  TrekPGCassV->MakeImprint(pMotherPGCLV, tm, &rm, 0, false);
}
    
```

```

// Loop 12 gap
for(G4int i = 0; i < 12; i++){
  //
  // Polyethylene Box Placement
  //
  ta.setZ(zpos - 114.51*mm+pgc_posZ+dzpos[i]*mm);
  sprintf(name, "TrekPolyethLV%d", i);
  if(i!=8 && i!=10){
    ta.setX(xpos*cos(phi*i));
    ta.setY(xpos*sin(phi*i));
    G4Transform3D trans1=G4Transform3D(rm,ta);
    new G4PVPlacement(trans1,
      TrekPolyethLV(), name, pMotherLogical, false, 0);
  }
  else{
    ta.setX((xpos-(poly_x-poly57_x)/2)*cos(phi*i));
    ta.setY((xpos-(poly_x-poly57_x)/2)*sin(phi*i));
    G4Transform3D trans1=G4Transform3D(rm,ta);
    new G4PVPlacement(trans1,
      TrekPolyeth57LV(), name, pMotherLogical, false, 0);
  }
}
    
```

