

# Inner Detector Services

Release 17

“Cables - Segment 1”

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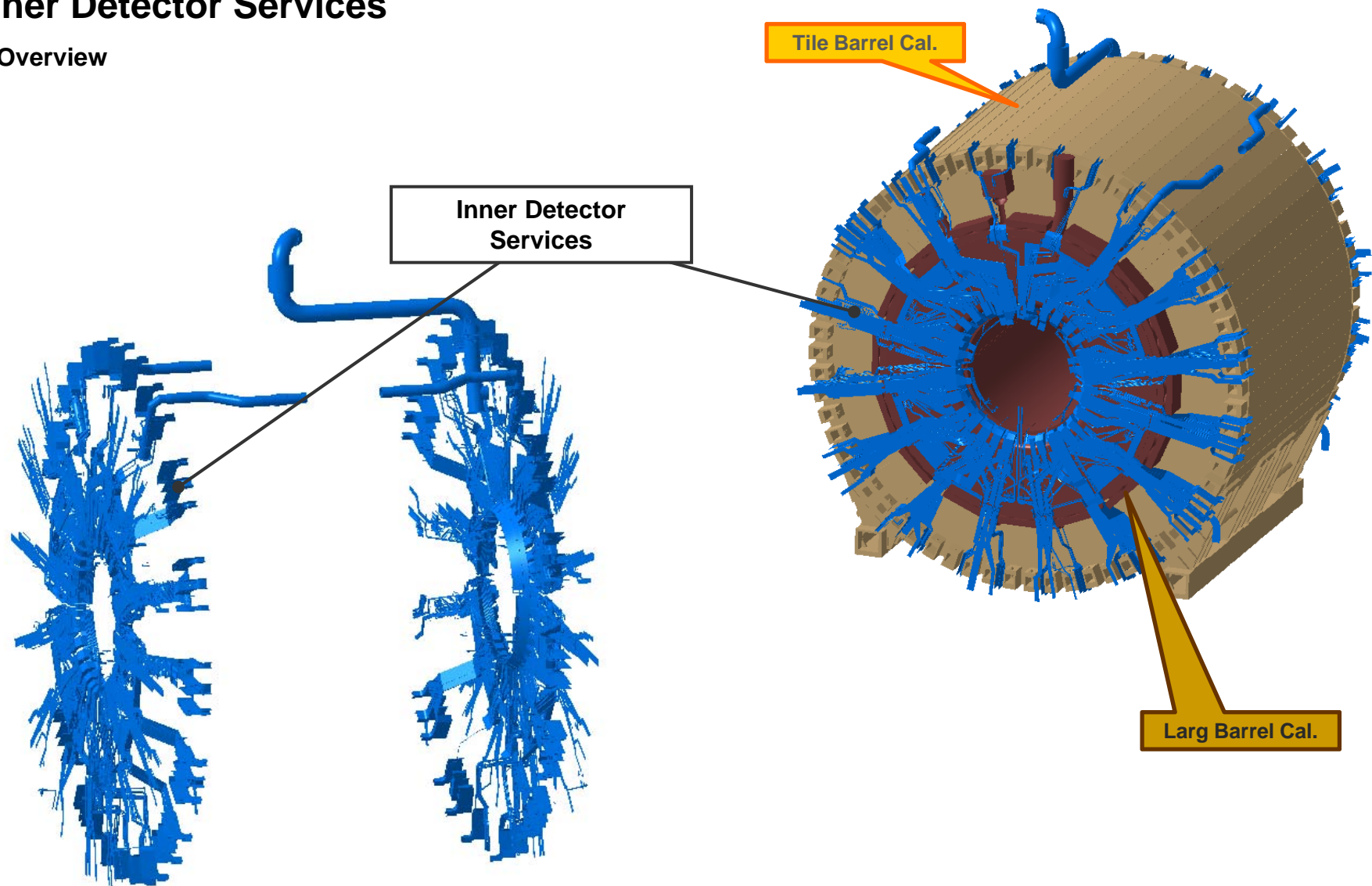
*Archil Surmava*

*Besik Kekelia*

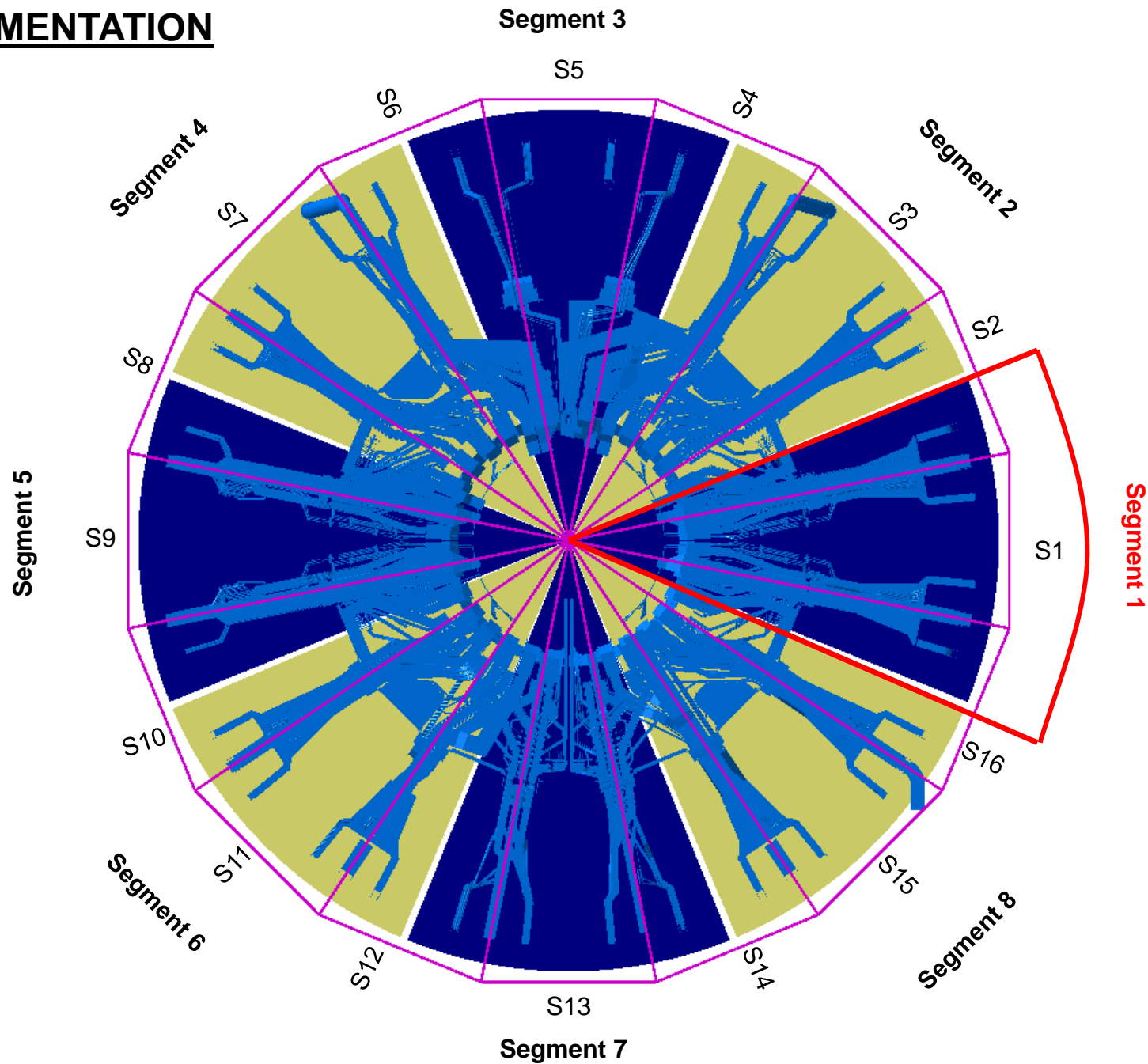
*GCCEC [www.cadcam.ge](http://www.cadcam.ge)*

# Inner Detector Services

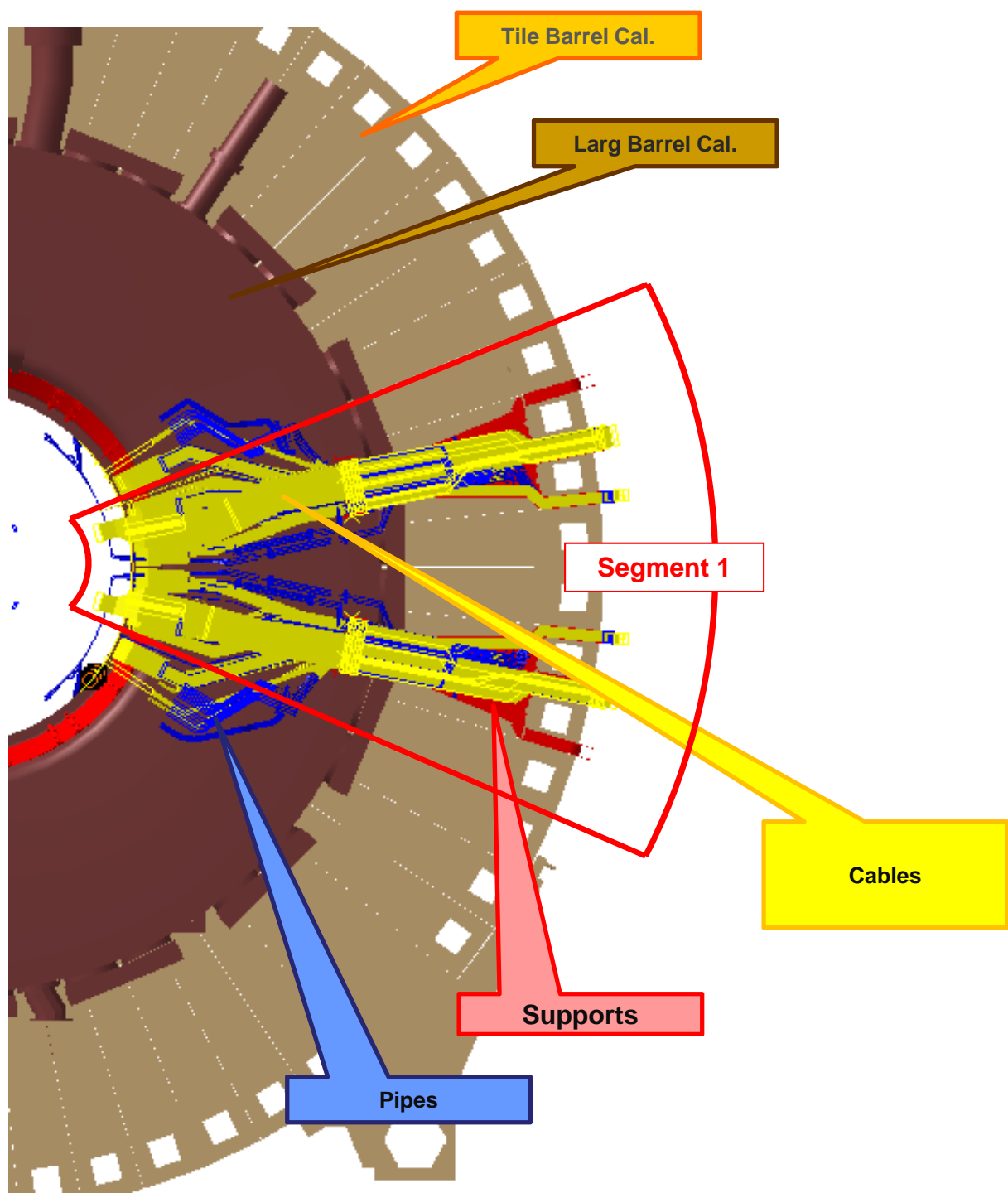
## Overview



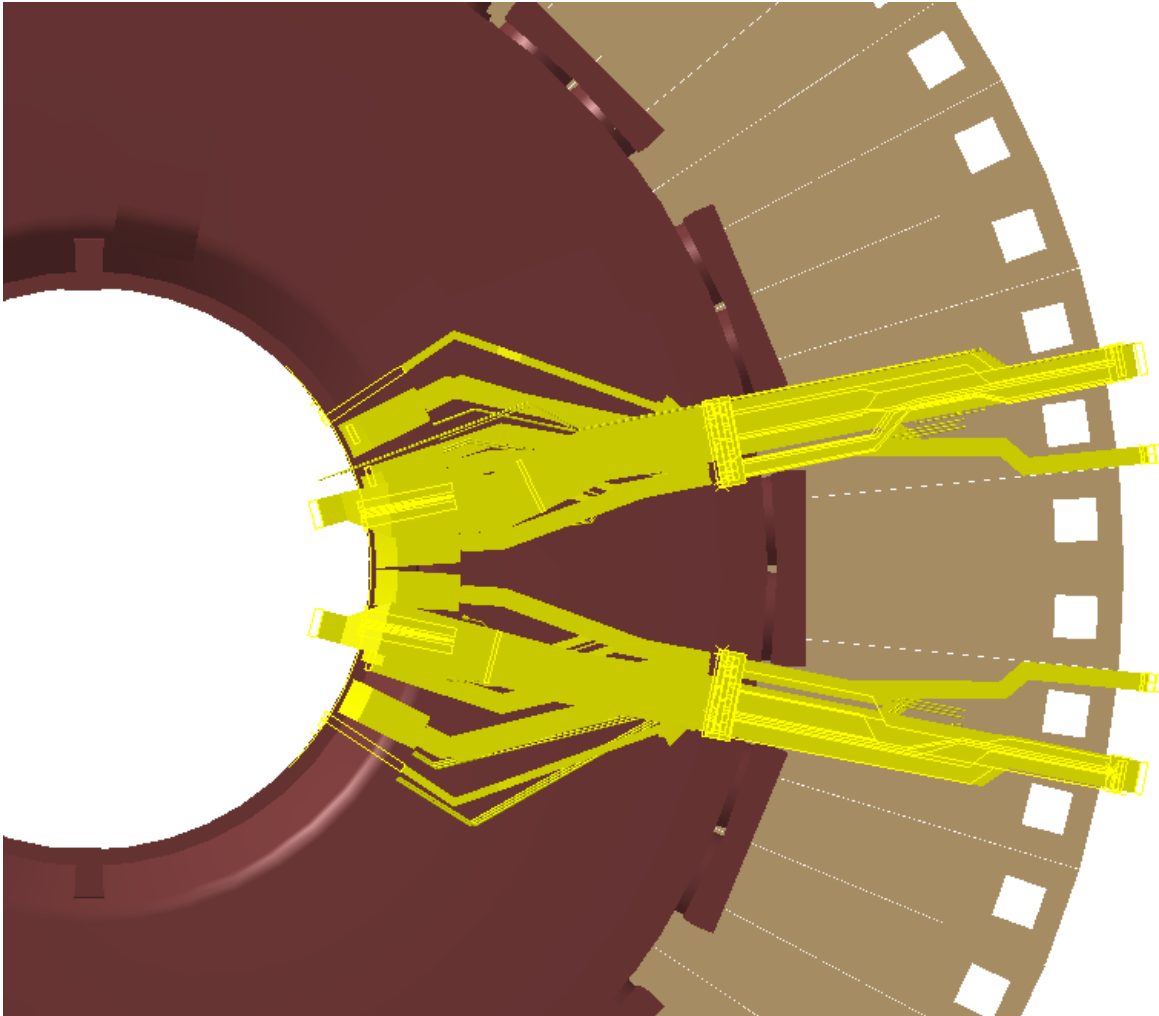
# SEGMENTATION



# GROUP

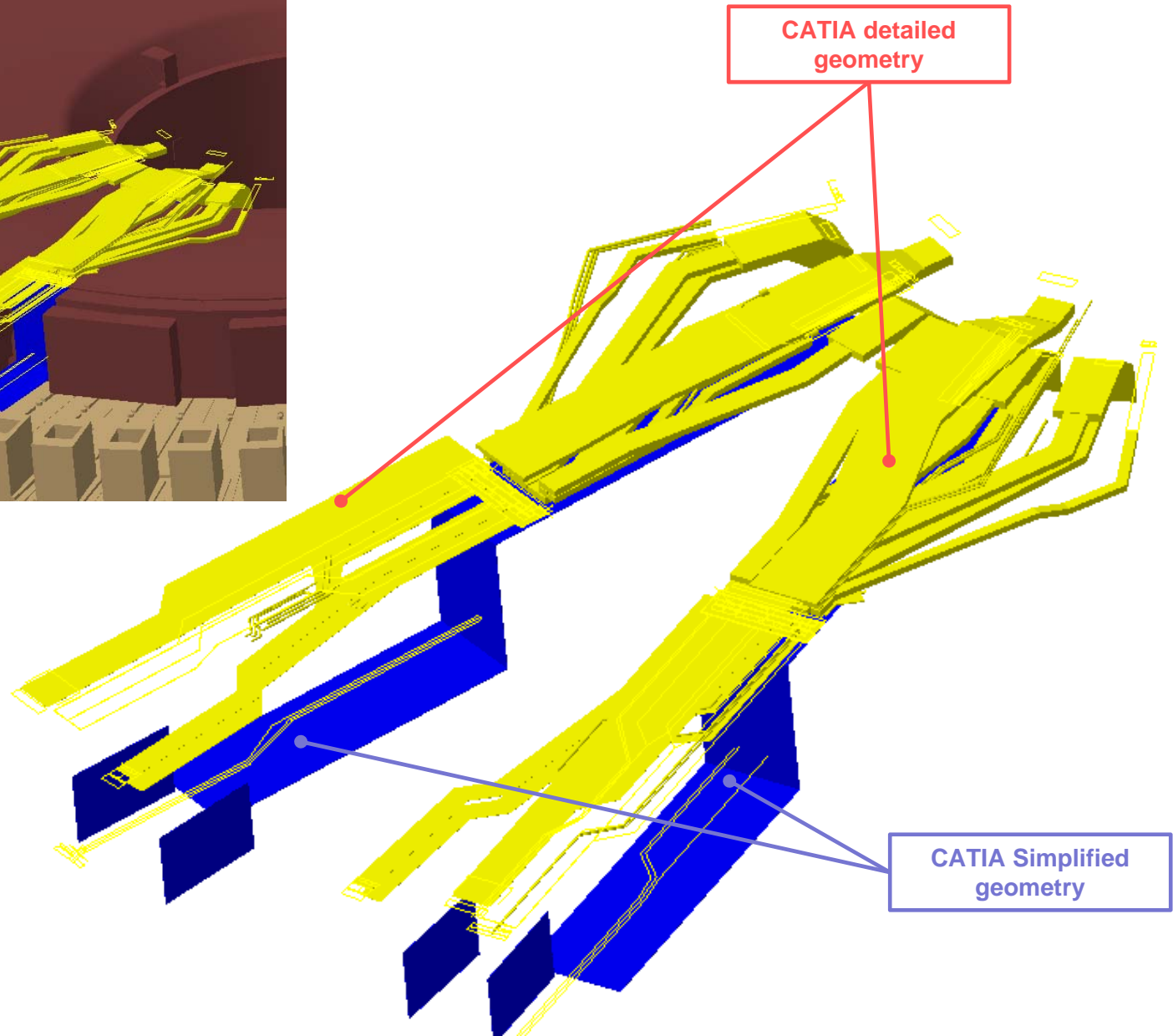
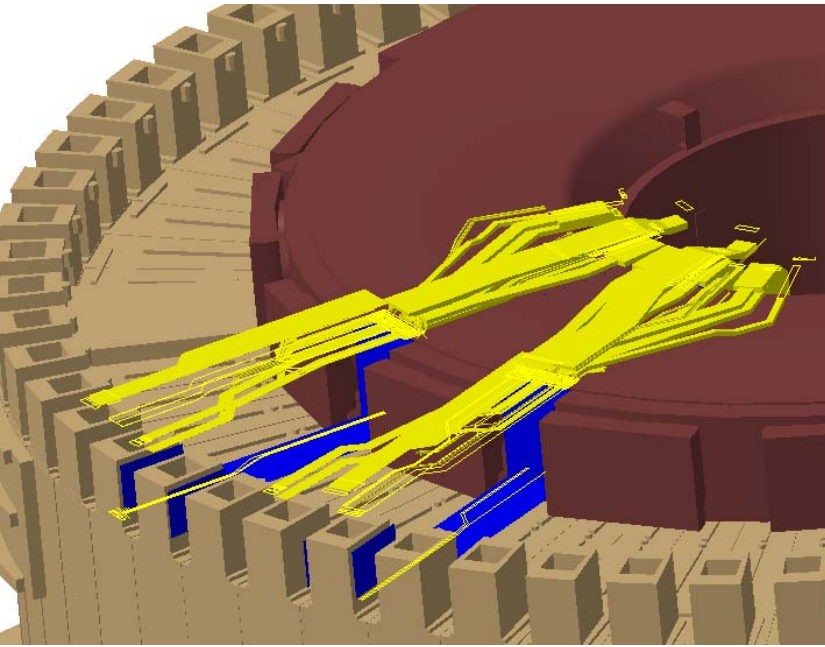


## Cables / Segment 1



**Material: Copper**

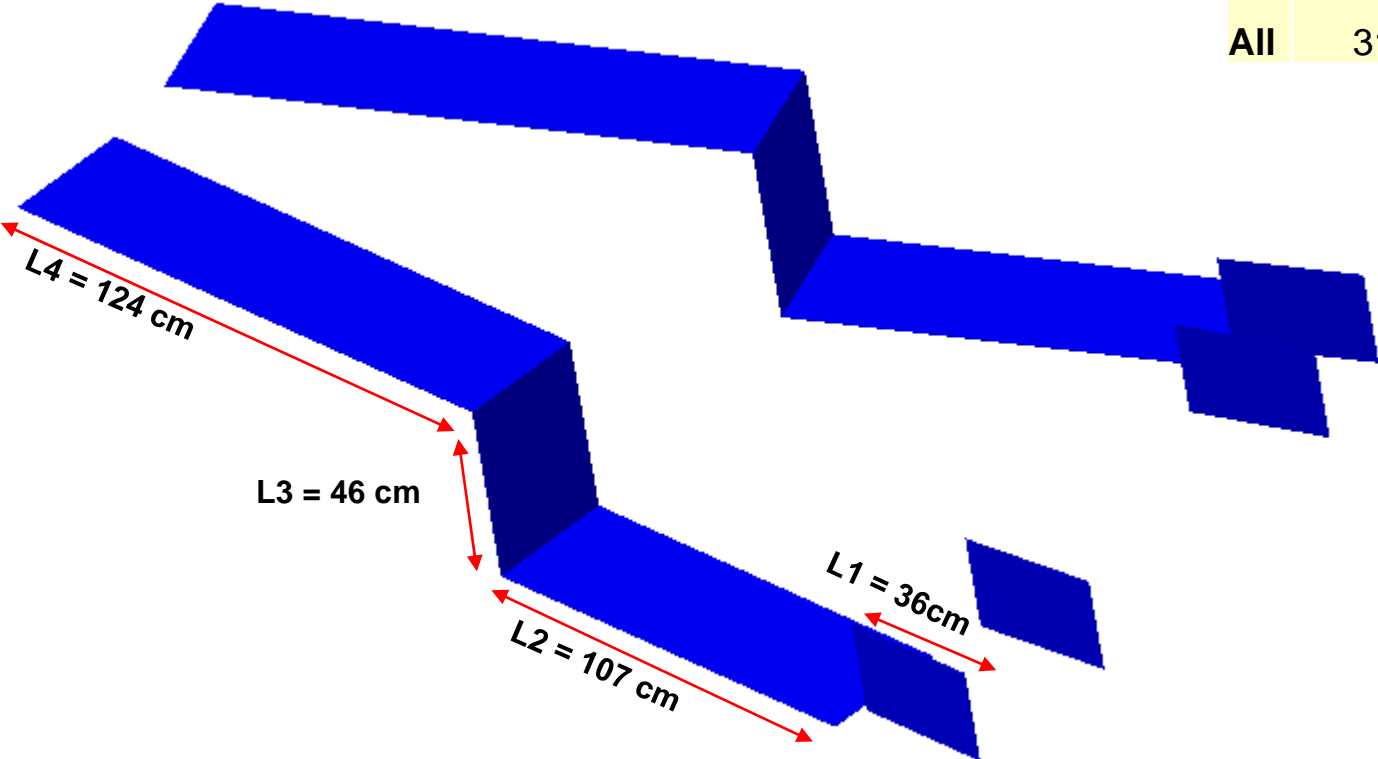
# Cables / Segment 1



# Cables

Simplification

	Length	Volume
L1	36	590
L2	107	1753
L3	46	753
L4	124	2031
All	313cm	5127cm <sup>3</sup>



Material: Aluminum

# Geant4 code

```
//-----//  
//@#$/ R17 - Cables Sector1 //-----//  
//-----//
```

```
G4ThreeVector GLVect(0.,0.,0.);  
G4ThreeVector PRVect_10(3258.94*mm, 650.037*mm, 2940.89*mm);  
G4ThreeVector PRVect_11(-531.21*mm, 0*mm, 229.785*mm);  
G4ThreeVector PRVect_12(-1254.92*mm, 0*mm, 459.385*mm);  
G4ThreeVector PRVect_21(717.89*mm, -63.07*mm, 111.61*mm);  
G4ThreeVector PRVect_22(713.42*mm, -337.21*mm, 111.61*mm);  
G4ThreeVector PRVect_23(386.82*mm, -1604.84*mm, 111.61*mm);  
G4ThreeVector PRVect_24(534.11*mm, -1236.44*mm, 111.61*mm);  
G4ThreeVector PRVect_31(-252.285*mm, -1271.84*mm, 0*mm);  
G4ThreeVector PRVect_32(-743.06*mm, -1068.56*mm, 229.785*mm);  
G4ThreeVector PRVect_33(-1411.68*mm, -791.6*mm, 459.385*mm);
```

```
G4RotationMatrix* P3RotObj_10 = new G4RotationMatrix(G4ThreeVector( 0*mm, 0*mm, 1*mm), 11.25*deg);  
G4RotationMatrix* P3RotObj_22 = new G4RotationMatrix(G4ThreeVector( 0*mm, 0*mm, 1*mm), 5.625*deg);  
G4RotationMatrix* P3RotObj_23 = new G4RotationMatrix(G4ThreeVector( 0*mm, 0*mm, 1*mm), 22.5*deg);  
G4RotationMatrix* P3RotObj_24 = new G4RotationMatrix(G4ThreeVector( 0*mm, 0*mm, 1*mm), 16.875*deg);
```

```
//----- Space
```

```
G4Box* CablS1_10= new G4Box("CablS1_20",532.5*mm,160*mm,1.285*mm);  
G4Box* CablS1_11= new G4Box("CablS1_21",1.29*mm,160*mm,228.5*mm);  
G4Box* CablS1_12= new G4Box("CablS1_22",725*mm,160*mm,1.1*mm);  
G4Box* CablS1_21= new G4Box("CablS1_31",180*mm,0.985*mm,122.5*mm);  
G4Box* CablS1_22= new G4Box("CablS1_33",180*mm,0.686*mm,122.5*mm);
```

```
G4VSolid* CablS1_S_Un1= new G4UnionSolid("CablS1_S_Union1", CablS1_10, CablS1_11, 0, PRVect_11);  
G4VSolid* CablS1_S_Un2= new G4UnionSolid("CablS1_S_Union2", CablS1_S_Un1, CablS1_12, 0, PRVect_12);  
G4VSolid* CablS1_S_Un3= new G4UnionSolid("CablS1_S_Union3", CablS1_S_Un2, CablS1_S_Un2, P3RotObj_23, PRVect_31);  
G4VSolid* CablS1_S_Un4= new G4UnionSolid("CablS1_S_Union4", CablS1_S_Un3, CablS1_21, 0, PRVect_21);  
G4VSolid* CablS1_S_Un5= new G4UnionSolid("CablS1_S_Union5", CablS1_S_Un4, CablS1_22, P3RotObj_22, PRVect_22);  
G4VSolid* CablS1_S_Un6= new G4UnionSolid("CablS1_S_Union6", CablS1_S_Un5, CablS1_21, P3RotObj_23, PRVect_23);  
G4VSolid* CablS1_S_Un7= new G4UnionSolid("CablS1_S_Union7", CablS1_S_Un6, CablS1_22, P3RotObj_24, PRVect_24);
```

```
G4LogicalVolume* CablS1_S_log = new G4LogicalVolume(CablS1_S_Un7, GCalorMaterials::GetMat("AIR"), "CablS1_S_log", 0, 0, 0);  
CablS1_S_log->SetVisAttributes(airVisAtt);  
G4AssemblyVolume* CablS1_S_AV = new G4AssemblyVolume(CablS1_S_log, GLVect, 0);
```

```
//--- Cables Segment 1 (Copper)
```

```
G4LogicalVolume* CablS1_1_log = new G4LogicalVolume(CablS1_S_Un7, GCalorMaterials::GetMat("COPPER"), "CablS1_1_log", 0, 0, 0);  
CablS1_1_log->SetVisAttributes(SSVisAtt);  
CablS1_S_AV->AddPlacedVolume( CablS1_1_log, GLVect, 0);
```

```
CablS1_S_AV->MakelMprint(AtlasMother, PRVect_10, P3RotObj_10);
```