

The Hidden Secrets of the Geometry World

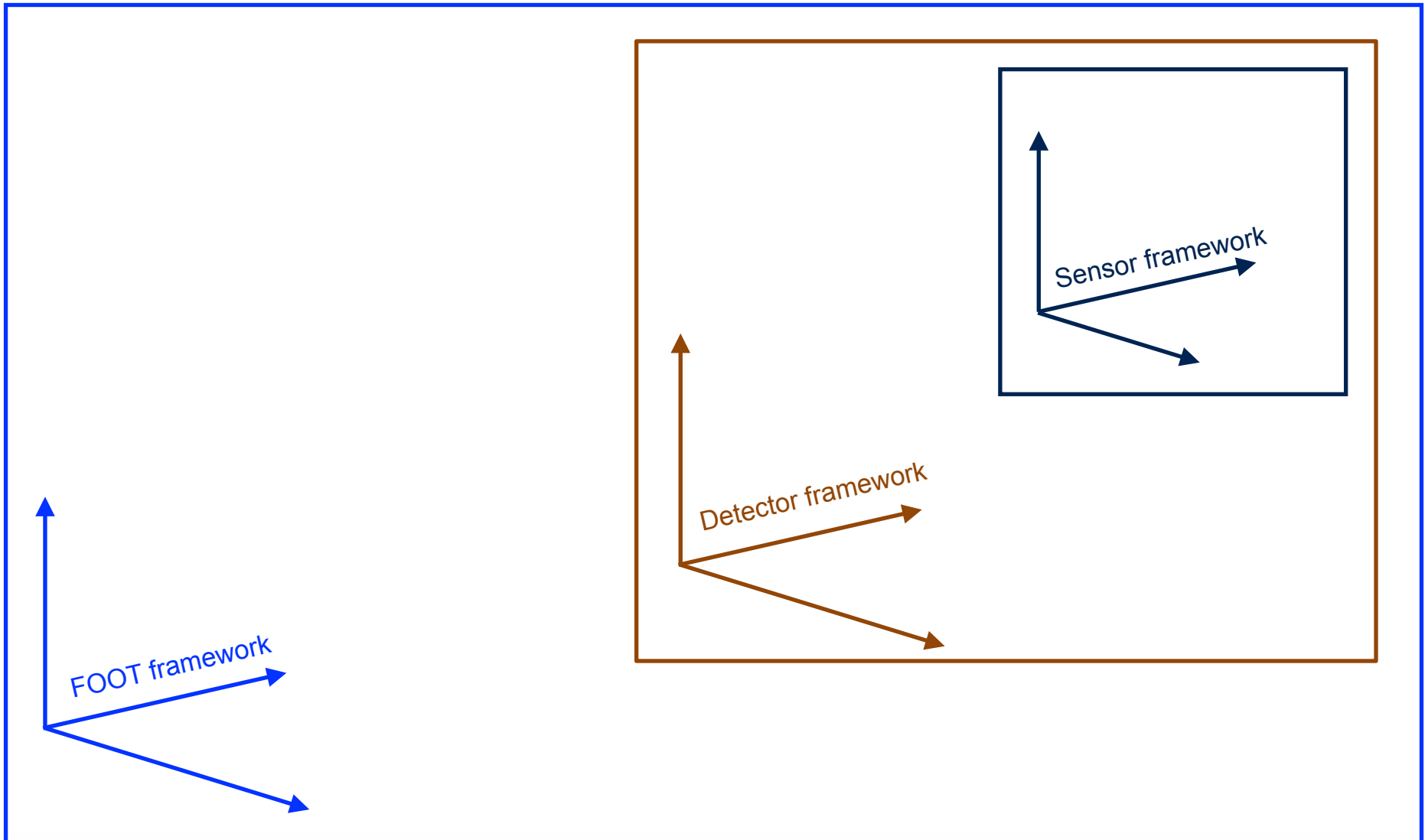
Introduction

Detectors

FOOT

Introduction

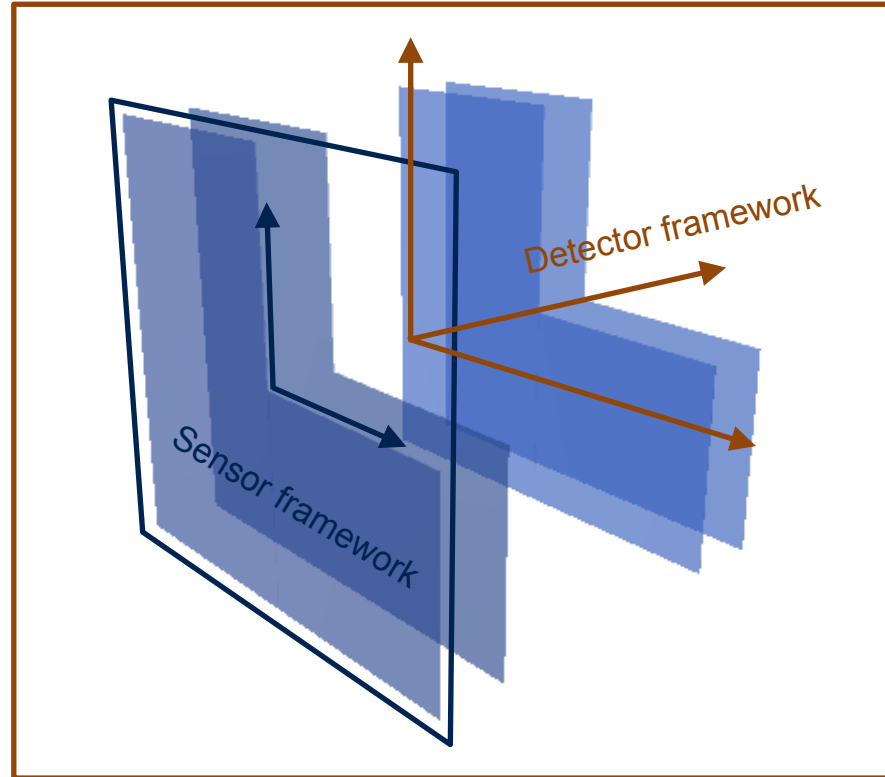
□ Frameworks:



Detectors

Detector Geometry (i)

☐ Sensor - detector framework:



• Transformations:

- `TVector3 TA*parGeo::Sensor2Detector(..., TVector3 vec)`, from sensor to detector
- `TVector3 TA*parGeo::Detector2Sensor(..., TVector3 vec)`, from detector to sensor

➡ Detector's geometry built in the detector framework

Detector Geometry (ii)

❑ Example for ST: TASTdetector.geo

```
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
//
// Geometry file for FOOT start counter
//
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
// Parameters of the start counter
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
SizeX:      2.6           SizeY: 2.6           SizeZ: 0.025
Material:    "EJ232"
Density:     1.023

SupportInfo: 1

FrameMat:    "Al"
FrameDensity: 2.7
FrameSizeX:  7.0      FrameSizeY: 7.0      FrameSizeZ: 1.0

FoilMat:     "Mylar"
FoilDensity:  1.4
FoilThick:   0.001
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
// End of geometry File
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
```

Detector Geometry (iiia)

❑ Example for BM: TABMdetector.geo (i)

```
// Geometry file for FOOT BM
//
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
// Parameters of the BM
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
WireLayers: 21
Layers: 6
Senses: 3

SenseRad: 0.0015; // Anode
SenseMat: "W"
SenseDensity: 19.3
FieldRad: 0.0045; // cathode
FieldMat: "Al"
FieldDensity: 2.6989

FoilThick: 0.0025
FoilMat: "Mylar"
FoilDensity: 1.4

Step: 0.5;
CellWide: 0.8;
DeltaPlane: 0.3;

GasMixture: "Ar/CO2"
GasDensities: "0.001662/0.00187"
GasProportion: "0.8/0.2"
GasDensity: 0.001677136
ShieldingThick: 1.5
```

Materials parameters

Detector Geometry (iiib)

- Example for BM: TABMdetector.geo (ii)

```
//
// +-----+
// Parameter of the BM (cm)
// +-----+
Height:          11.2      Width:          11.2      Length:          21.00
DeltaX:           2.8      DeltaY:           2.8      DeltaZ:           2.85

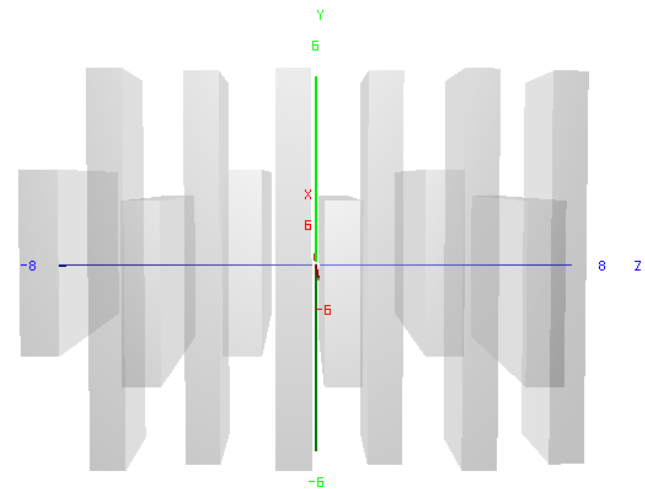
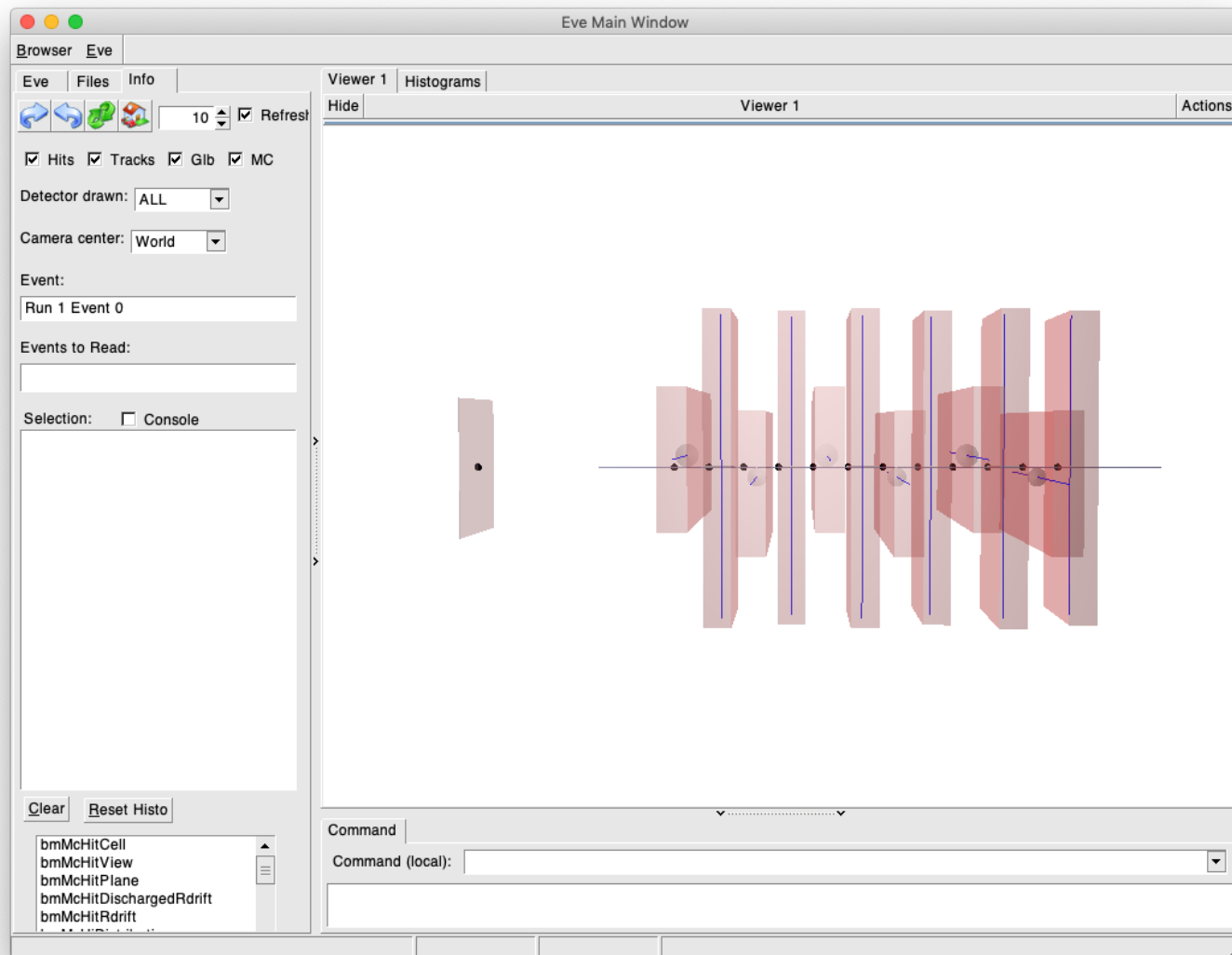
// +-----+
// Alignment parameters of sense wires (cm, degree)
// +-----+

//wireid=0
Plane:           0        View:           0        Cell:           0
PositionsX:       0.000    PositionsY:     0.000    PositionsZ:     0.000
Tilt1:            0.000    Tilt2:           0.000    Tilt3:           0.000

//wireid=1
Plane:           0        View:           0        Cell:           1
PositionsX:       0.000    PositionsY:     0.000    PositionsZ:     0.000
Tilt1:            0.000    Tilt2:           0.000    Tilt3:           0.000
```

Detector Geometry (iv)

- Start counter and beam monitor event display



Detector Geometry (v)

Example for target/beam geometry: TAGdetector.geo

[illegible]

Detector Geometry (via)

❑ Example for VT geometry: TAVTdetector.geo (i)

```
// Mapping file for FOOT Vertex Detector
//
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
// Parameters of the Sensors
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
Sensors:          4
Types:            1
```

```
// M28
TypeName:         "M28"
TypeNumber:       0
PixelsNx:         960
PixelsNy:         928
PitchX:           0.00207
PitchY:           0.00207
TotalSizeX:       2.0240  TotalSizeY:  2.27100  TotalSizeZ:  0.0050
EpiSizeX:         1.9884  EpiSizeY:   1.92096  EpiSizeZ:   0.0014
EpiOffsetX:       0.0356  EpiOffsetY:  0.32800  EpiOffsetZ:  0.0000
```

Sensor properties

```
EpiMat:           "Si"
EpiMatDensity:    2.329
PixThickness:     6.4
PixMat:           "SiO2/Al"
PixMatDensities:  "2.65/2.70"
PixMatProp:       "0.89/0.11"
PixMatDensity:    2.3
```

Sensor materials

. . .

Detector Geometry (via)

- Example for VT geometry: TAVTdetector.geo (ii)

```
SupportInfo:      3
//
EpoxyMat:         "Epoxy"
EpoxyMatDensity:  1.18
EpoxyMat:         "Eg"
EpoxyMatDensity:  2.61
PCBMat:           "Epoxy/Eg"
PCBDensities:     "2.61/1.19"
PCBProp:          "0.6/0.4"
PCBDensity:       1.85
PCBSizeX:         6.95   PCBSizeY:      9.8   PCBSizeZ:      0.13
PCBOffsetX:       0.0    PCBOffsetY:    0.000  PCBOffsetZ:    0.0
PCBHoleSizeX:     1.9884 PCBHoleSizeY:  1.92096 PCBHoleSizeZ: 0.13
BoxMat:           "Al"
BoxDensity:       2.7
Box1SizeX:        19.8   Box1SizeY:     19.8   Box1SizeZ:     2.5
Box2SizeX:        19.8   Box2SizeY:     19.8   Box2SizeZ:     0.2
BoxOffX:          0.0    BoxOffY:       0.0    BoxOffZ:       0.0
BoxHole1X:        2.2    BoxHole1Y:     2.2    BoxHole1Z:     0.3
BoxHole2X:        5.0    BoxHole2Y:     5.0    BoxHole2Z:     0.2
. . .
```

Support properties

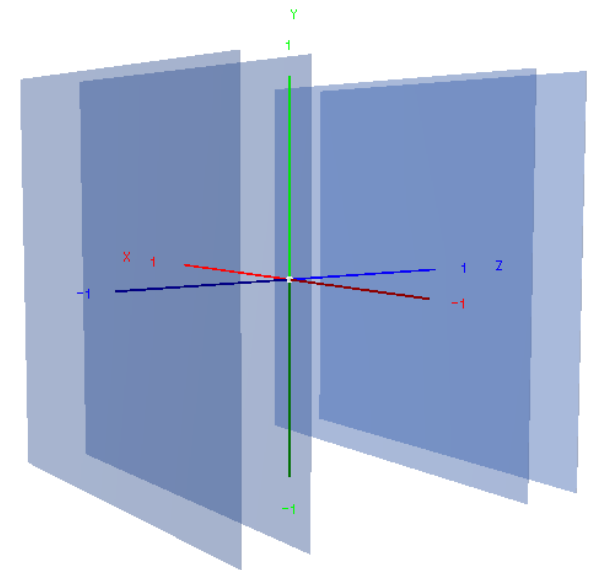
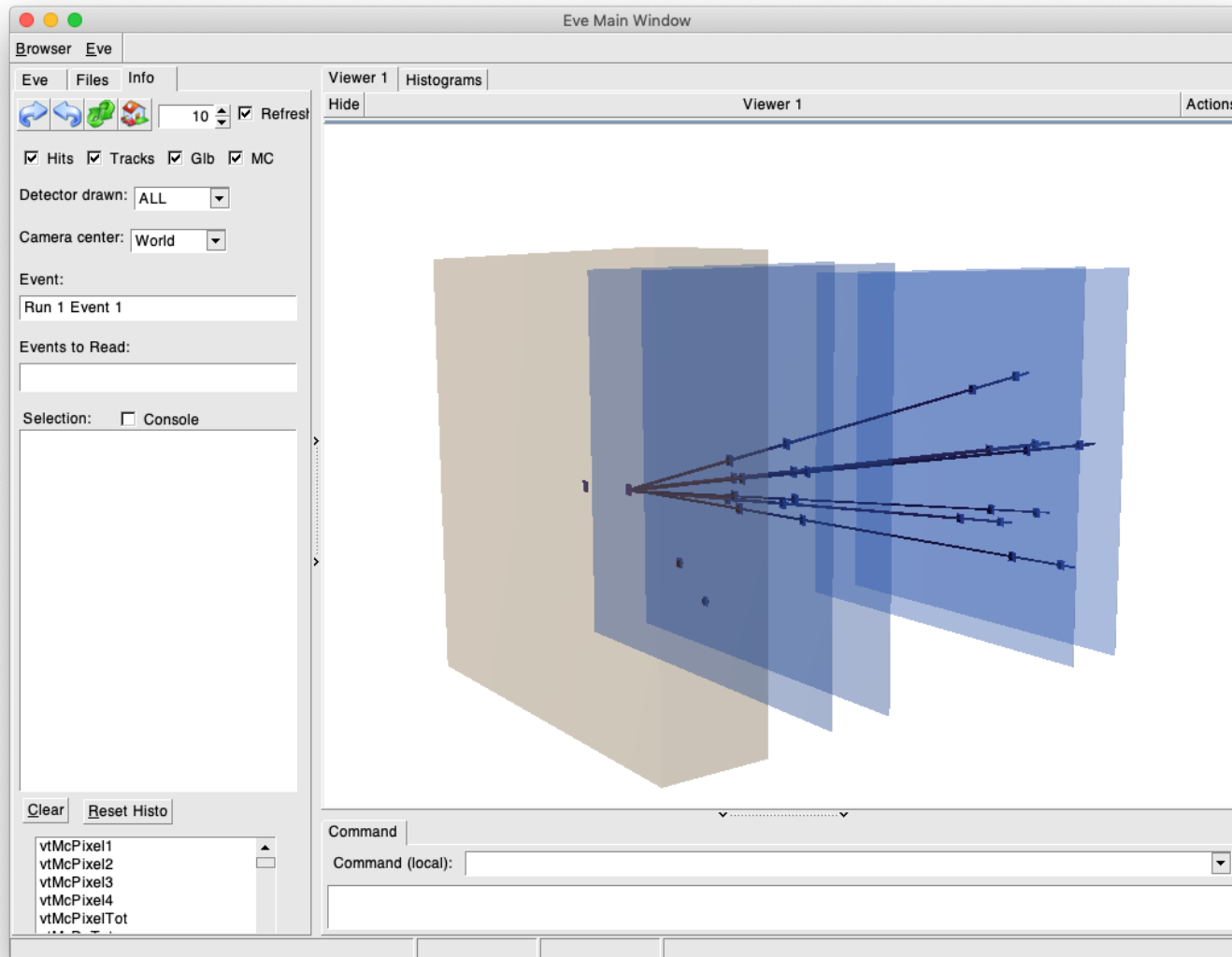
Detector Geometry (vic)

- Example for VT geometry: TAVTdetector.geo (iii)

```
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
// Parameter of the Detector Planes used in the run
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
// -*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-
Inputs:      1                                     Sensor positions
Type:        0
PositionsX:  0.0000  PositionsY:  0.0000  PositionsZ:  -0.85
Tilt1:       0.0000  Tilt2:       0.000  Tilt3:       90.000
AlignmentU:  0.000
AlignmentV:  0.000                                     Sensor alignment
AlignmentTilt: 0.000
. . .
```

Detector Geometry (vii)

Target and Vertex display



Detector Geometry (viiia)

❑ Example for IT geometry: TAITdetector.geo (i)

```
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
//
// Mapping file for FOOT Inner Tracker Detector
//
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
// Parameters of the Sensors
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
Sensors:                32
```

```
// M28
TypeName:                "M28"
TypeNumber:              0
PixelsNx:                960
PixelsNy:                928
PitchX:                  0.00207
PitchY:                  0.00207
TotalSizeX:              2.0240  TotalSizeY:  2.27100  TotalSizeZ:  0.0050
EpiSizeX:                1.9972  EpiSizeY:  1.92096  EpiSizeZ:  0.0014
EpiOffsetX:              0.0356  EpiOffsetY:  0.32800  EpiOffsetZ:  0.0000
```

Sensor properties

```
EpiMat:                  "Si"
EpiMatDensity:           2.329
PixThickness:            6.4
PixMat:                  "SiO2/Al"
PixMatDensities:         "2.65/2.70"
PixMatProp:              "0.89/0.11"
PixMatDensity:           2.3
```

Sensor materials

Detector Geometry (viiib)

□ Example for IT geometry: TAITdetector.geo (ii)

```
SupportInfo:      1
FoamSizeX:        1.9972   FoamSizeY:      1.92096   FoamSizeZ:      0.2
FoamMat:           "SiC/AIR"
FoamMatDensities:  "3.22/1.29e-3"
FoamMatProp:       "0.04/0.96"
FoamMatDensity:    0.1288
```

Support properties

```
KaptonThickness:  0.005
KaptonMat:         "Kapton"
KaptonMatDensity:  1.42
```

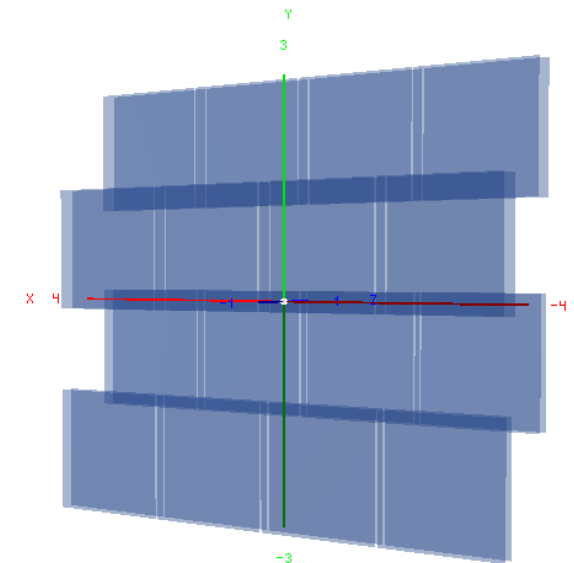
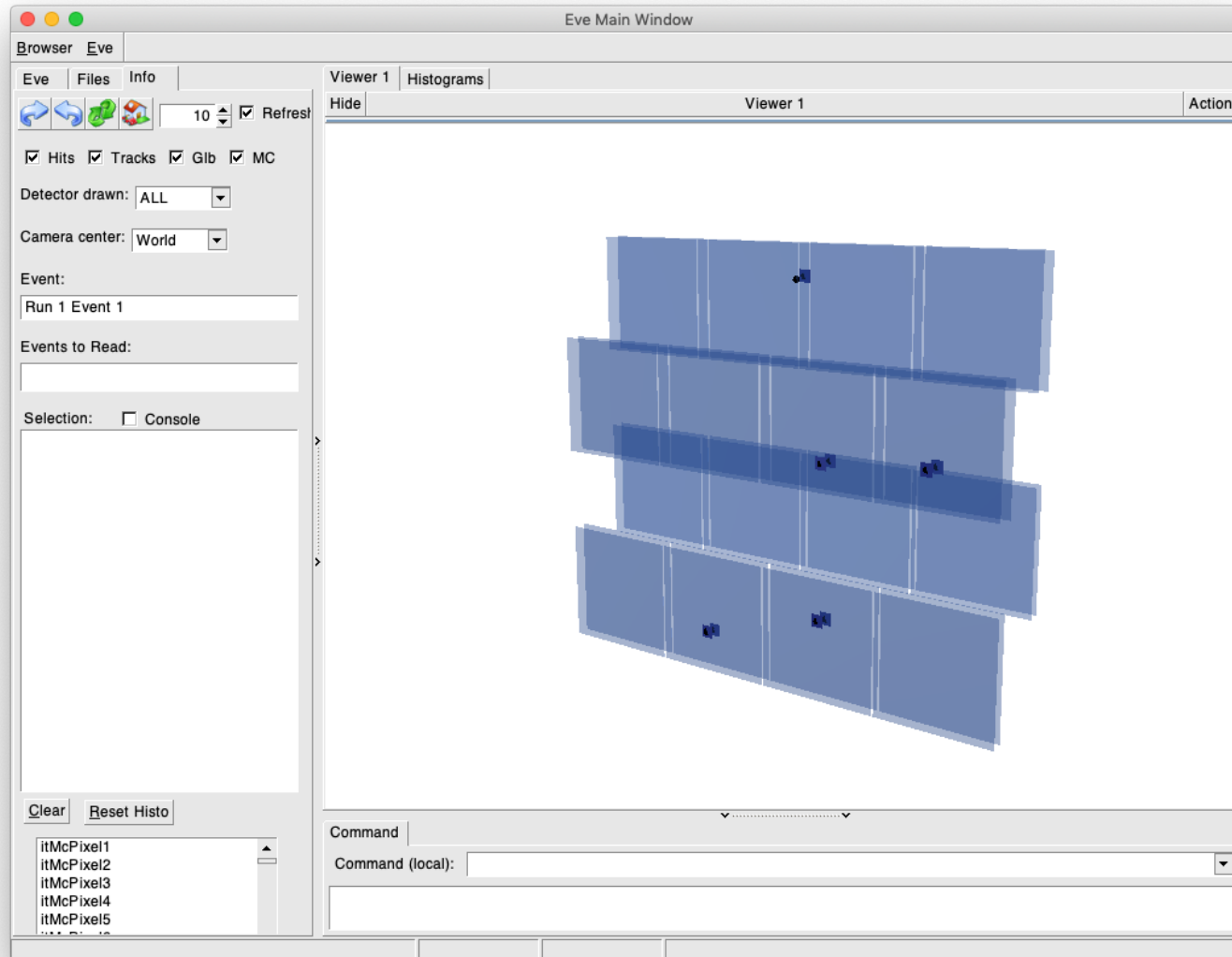
```
EpoxyThickness:   0.001
EpoxyMat:          "Epoxy"
EpoxyMatDensity:   1.18
```

```
AlThickness:       0.001
AlMat :            "Al"
AlMatDensity:       2.6989
```

```
/ -+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
// Parameter of the Detector Planes used in the run
// -+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
// -*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-
Inputs:            1
Type:              0
PositionsX:        3.4065   PositionsY:    -3.0330   PositionsZ:    -0.4290
Tilt1:             0.0000   Tilt2:         0.0000   Tilt3:         0.00
AlignementU:       0.000
AlignementV:       0.000
AlignementTilt:    0.000
```

Detector Geometry (ix)

Inner Tracker display



Detector Geometry (xa)

Example for MSD geometry: TAMSDdetector.geo (i)

```

// Mapping file for FOOT Multi-Strip Detector
//
// Parameters of the Sensors
//
Sensors: 6

```

```
// MSD
TypeName:          "MSD"
TypeNumber:        1
PixelsNx:          640
PixelsNy:          640
PitchX:            0.0150
PitchY:            0.0150
TotalSizeX:        10.560   TotalSizeY:    10.850   TotalSizeZ:    0.0200
EpiSizeX:          9.390    EpiSizeY:     9.600    EpiSizeZ:      0.0150
EpiOffsetX:        0.000    EpiOffsetY:    0.000    EpiOffsetZ:    0.0000
EpiMat:            "Si"
EpiMatDensity:     2.329
PixThickness:      6.4
PixMat:            "SiO2/Al"
PixMatDensities:   "2.65/2.70"
PixMatProp:        "0.89/0.11"
PixMatDensity:     2.3
SupportInfo:       0
```

Detector Geometry (xb)

❑ Example for MSD geometry: TAMSDdetector.geo (ii)

SupportInfo: 3

Support properties

```
PCBoardThickness: 0.16
PCBoardMat: "Epoxy/Eg"
PcbBoardDensities: "2.61/1.19"
PcbBoardProp: "0.6/0.4"
PCBoardDensity: 1.85
PCBSizeX: 16.5 PCBSizeY: 13.66 PCBSizeZ: 0.16
PCBOffsetX: 1.37 PCBOffsetY: 0.0 PCBOffsetZ: 0.0
PCBdHoleSizeX: 9.2 PCBdHoleSizeY: 9.6 PCBdHoleSizeZ: 0.16

BoxMat: "Al"
BoxDensity: 2.7
BoxOutSizeX: 21.0 BoxOutSizeY: 19.50 BoxOutSizeZ: 8.2
BoxInSizeX: 20.6 BoxInSizeY: 19.10 BoxInSizeZ: 6.8
BoxOffX: 0.0 BoxOffY: -0.25 BoxOffZ: 0.0
BoxHoleSizeX: 9.2 BoxHoleSizeY: 9.6 BoxHoleSizeZ: 0.70
BoxHoleOffX: 0.2 BoxHoleOffY: 0.0 BoxHoleOffZ: 0.0
```

Detector Geometry (xc)

- Example for MSD geometry: TAMSDdetector.geo (iii)

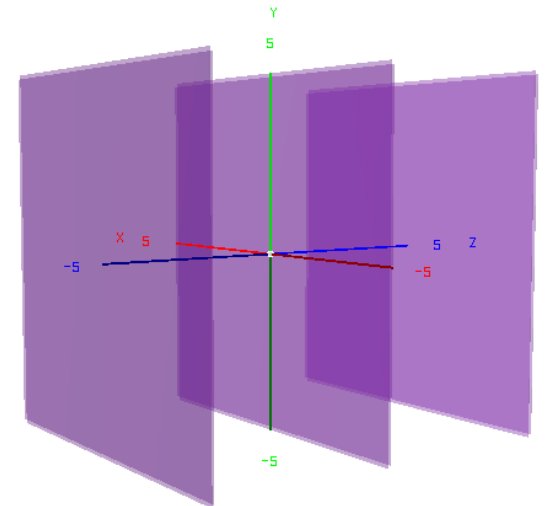
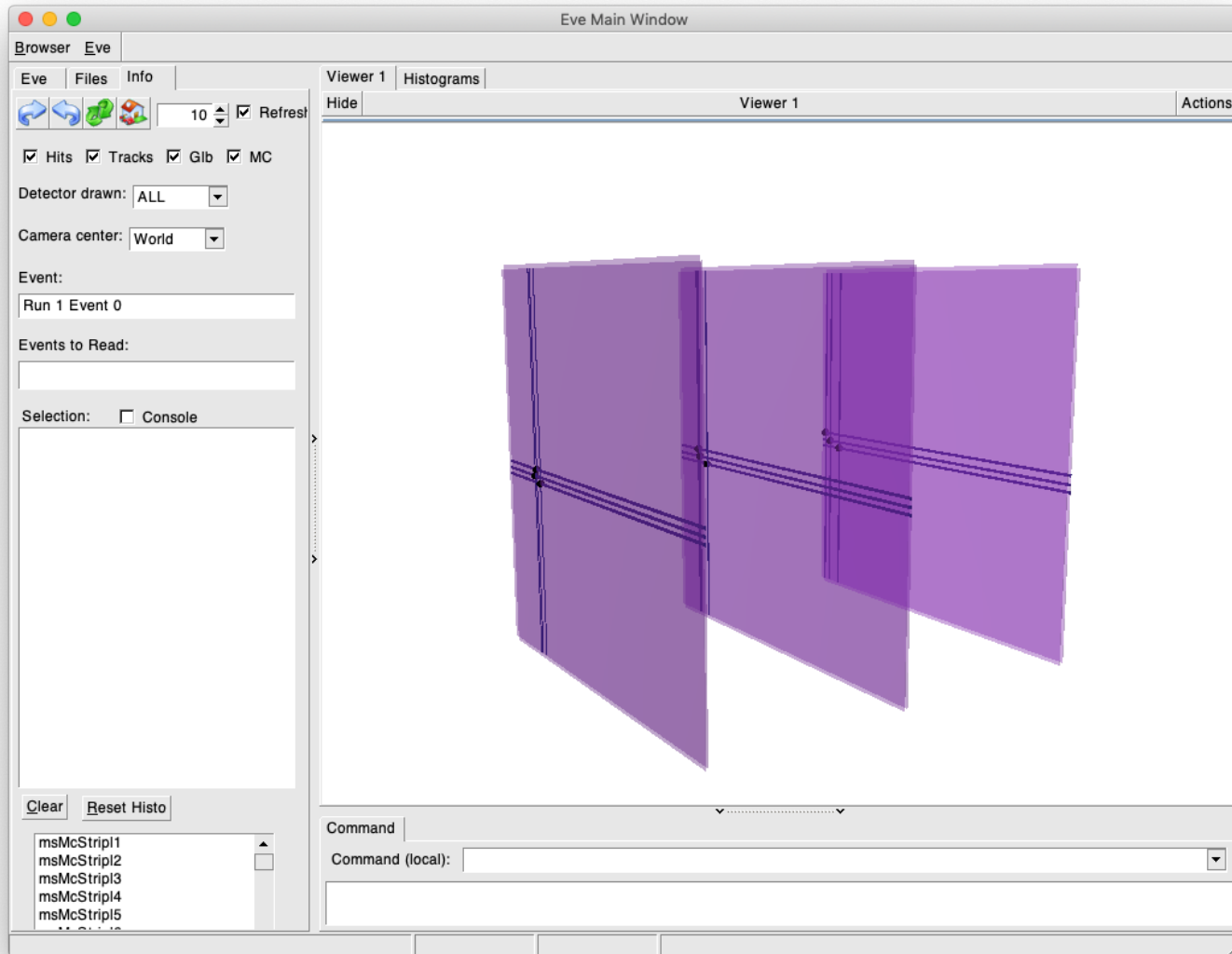
```
// -+-+-+-----+-+-+-----+-+-+-----+-+-+-----+-+-+-----+-+-+-----+-+-+-----+
// Parameter of the Detector Planes used in the run
// type 0: X
// type 1: Y
// -+-+-+-----+-+-+-----+-+-+-----+-+-+-----+-+-+-----+-+-+-----+-+-+-----+
// -*-*-*-*-*-*-*-*-*-*-*-*-*-*- Plane 1-X -*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-
```

Inputs:	1	Sensor positions			
Type:	0				
PositionsX:	0.0000	PositionsY:	0.0000	PositionsZ:	-0.515
Tilt1:	0.0000	Tilt2:	0.000	Tilt3:	0.000
AlignementU:	0.000	Sensor alignment			
AlignementV:	0.000				
AlignementTilt:	0.000				

```
// -*-*-*-*-*-*-*-*-*-*-*-*-*-*- Plane 1-Y -*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-
Inputs:      2
Type:        1
PositionsX:  0.0000 PositionsY:  0.000 PositionsZ: -0.485
Tilt1:       0.0000 Tilt2:      0.000 Tilt3:      0.000
AlignementU: 0.000
AlignementV: 0.000
AlignementTilt: 0.000
. . .
```

Detector Geometry (xi)

☐ Micro strip detector display



Detector Geometry (xii)

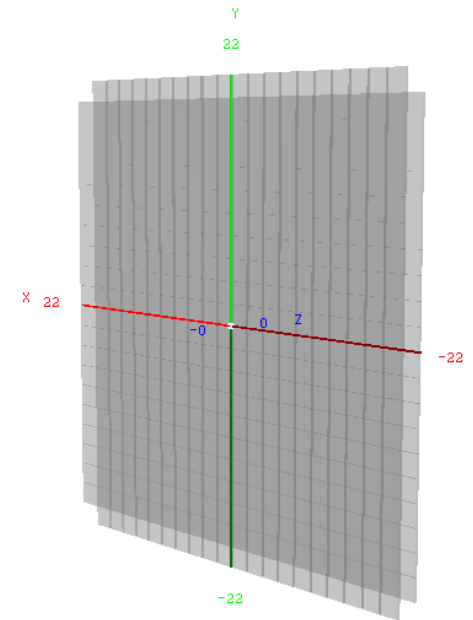
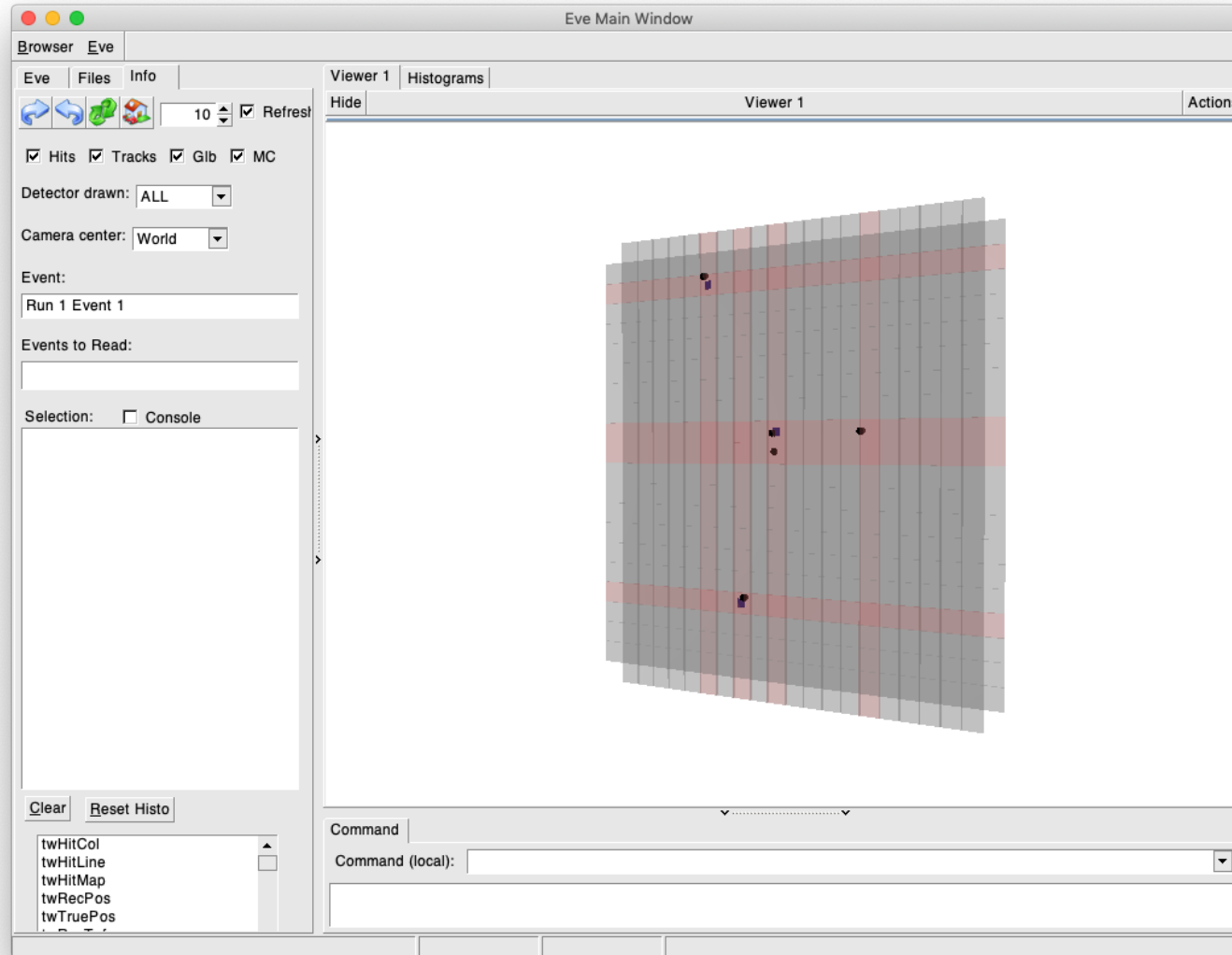
□ Example for TW: TATWdetector.geo

```
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
// Parameters of the TW
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
LayersN:      2
BarsN:        22
Material:      "EJ232"
Density:       1.023
Excitation:    4.8e-5
BirkFac:       0.0138
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
// Parameter of the TW (cm)
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
Width:         2.0   Height:    44.0   Thick:    0.3

// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
// Parameter of the Detector bar used in the run
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
Layer:         0
Bar:           0
PositionX:     -21.0  PositionY:    0.0  PositionZ:   -0.1
TiltX:         0.0   TiltY:         0.0  TiltZ:         0.0
Layer:         0
Bar:           1
PositionX:     -19.0  PositionY:    0.0  PositionZ:   -0.1
TiltX:         0.0   TiltY:         0.0  TiltZ:         0.0
. . .
```

Detector Geometry (xiii)

☐ Time of flight wall display



Detector Geometry (xiva)

- Example for CA: TACAdetector.geo (i)

```
// -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+
//
// Geometry file for FOOT Calorimeter
//
// Created with macro: Reconstruction/level0/BuildCaGeoFile.C
//
// -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+
// Parameter of Geometry
// type of geometry (FULL_DET, CENTRAL_DET, ONE_CRY, ONE_MOD)
// -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+
TypeGeo:          "ONE_MOD"

// -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+
// Parameters of the Crystals
// -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+
Material:         "BGO"
Density:          7.13
Excitation:       4.341e-4
// -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+
// Parameter of the Crystals (cm)
// -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+ -+-+-+
Widthfront:       1.000000   Heightfront:   1.000000   DummyLength:      0.
Widthback :       1.450000   Heightback  :   1.450000   Length:           12.000000
Delta:            0.100000
. . .
```

Detector Geometry (xivb)

- Example for CA: TACAdetector.geo (ii)

```
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
// Parameter of the Support (temporally AIR)
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
Material:      "AIR"
Density:       1.2e-3
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
// Parameter of the Support (cm)
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
Widthfront:    3.945064   Heightfront:  3.945064   DummyLength:    0.
Widthback :    4.519296   Heightback :  4.519296   Length:         5.762494
PositionZ:     5.755293

// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
// Parameter of the Air around each module. It is need ONLY by FLUKA geometry (cm)
// it will be removed if a truncate pyramid body is implemented in FLUKA
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
Widthfront:    3.263751   Heightfront:  3.263751   DummyLength:    0.
Widthback :    4.467377   Heightback :  4.467377   Length:         12.150000
PositionZ:     -0.082500

// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
// Parameter of the Calorimeter bounding box (cm)
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
Width:         55.736650   Height:       55.589772   Thick:         31.509408,
PositionZ:     -2.998187
```

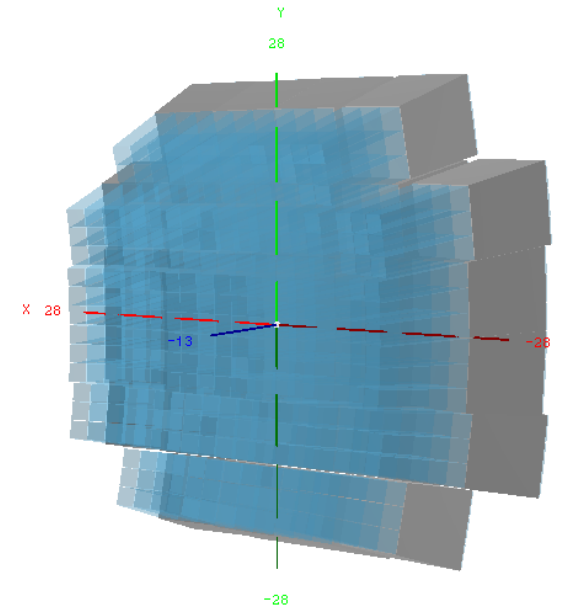
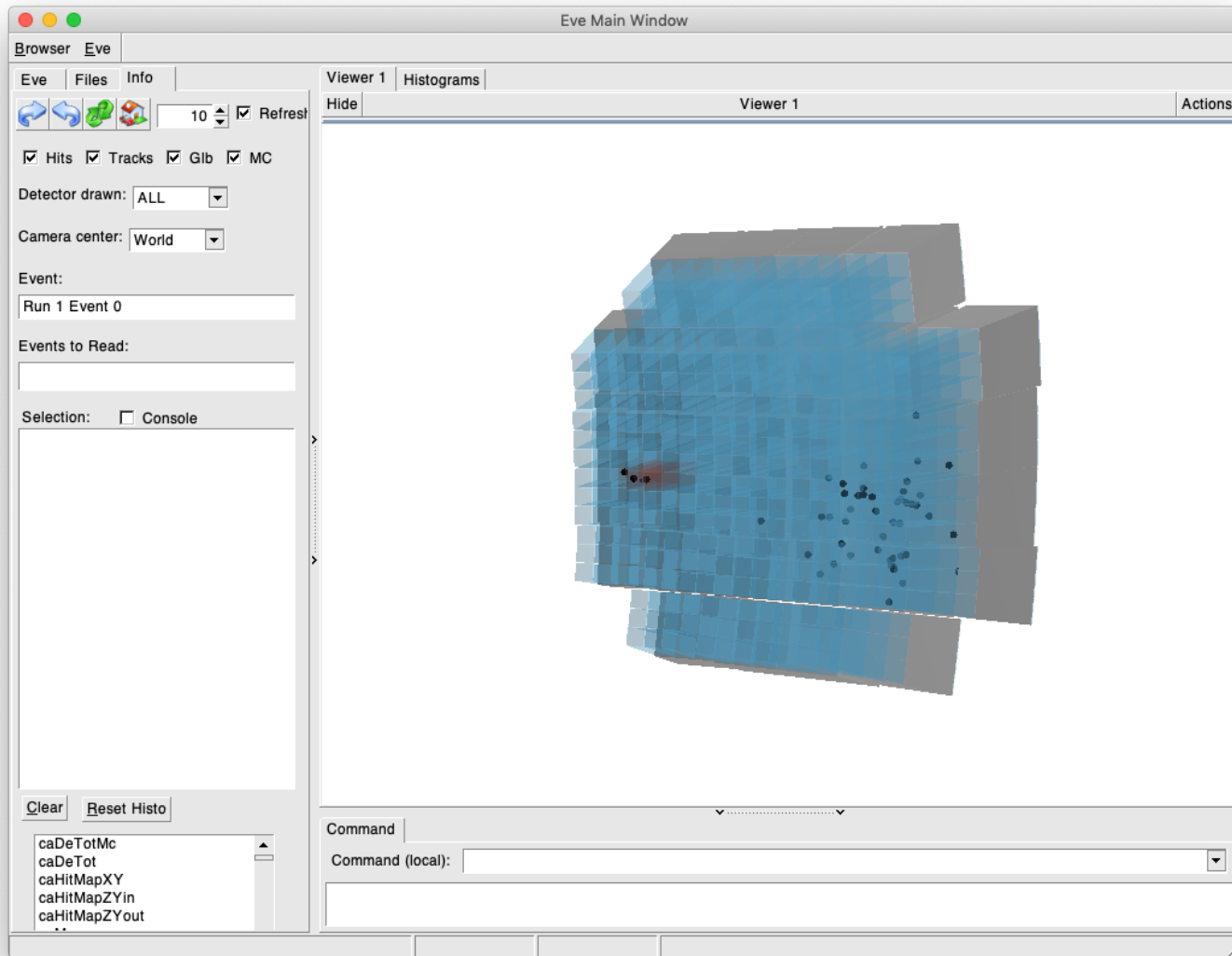
Detector Geometry (xivc)

❑ Example for CA: TACAdetector.geo (iii)

```
CrystalN: 324
ModulesN: 36
// +-----+
// Parameter of the crystals used in the run
// +-----+
CrystalId: 0
PositionX: -22.251808401451   PositionY: 22.065196527293   PositionZ: -6.375634205423
TiltX: -16.948710300548      TiltY: -15.754700182705      TiltZ: 2.509272722975
CrystalId: 1
PositionX: -19.741209390455   PositionY: 22.163063977142   PositionZ: -5.708221223127
TiltX: -16.801804362103      TiltY: -13.927234695328      TiltZ: 1.935805714418
CrystalId: 2
PositionX: -17.209012109484   PositionY: 22.235638225993   PositionZ: -5.124410098417
TiltX: -16.674687932428      TiltY: -12.098449385969      TiltZ: 1.371345163214
CrystalId: 3
. . .
```

Detector Geometry (xv)

Calorimeter display



Detector Geometry (xvi)

❑ Example for DI: TADIdetector.geo

```
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
// Parameters of the magnets
// Types 0 const, 1 function, 2 map file
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
Magnets:      2
Type:         2
MapName:      "../data/AsymmetricDipoles.table"

MapMeshSize:  0.5
MagLimLoX:    -5.0    MagLimLoY:    -5.0    MagLimLoZ:    -50.0
MagLimUpX:    5.0     MagLimUpY:    5.0     MagLimUpZ:    50.0

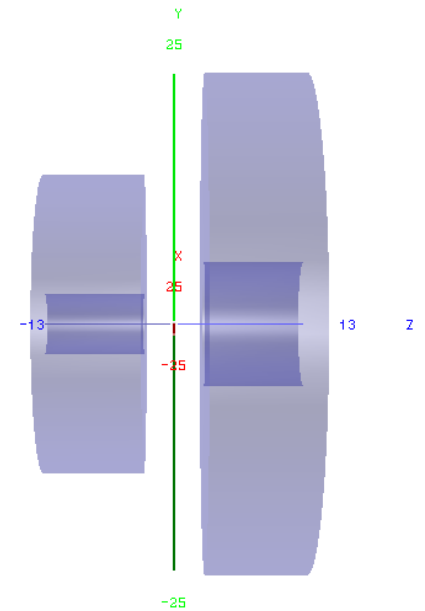
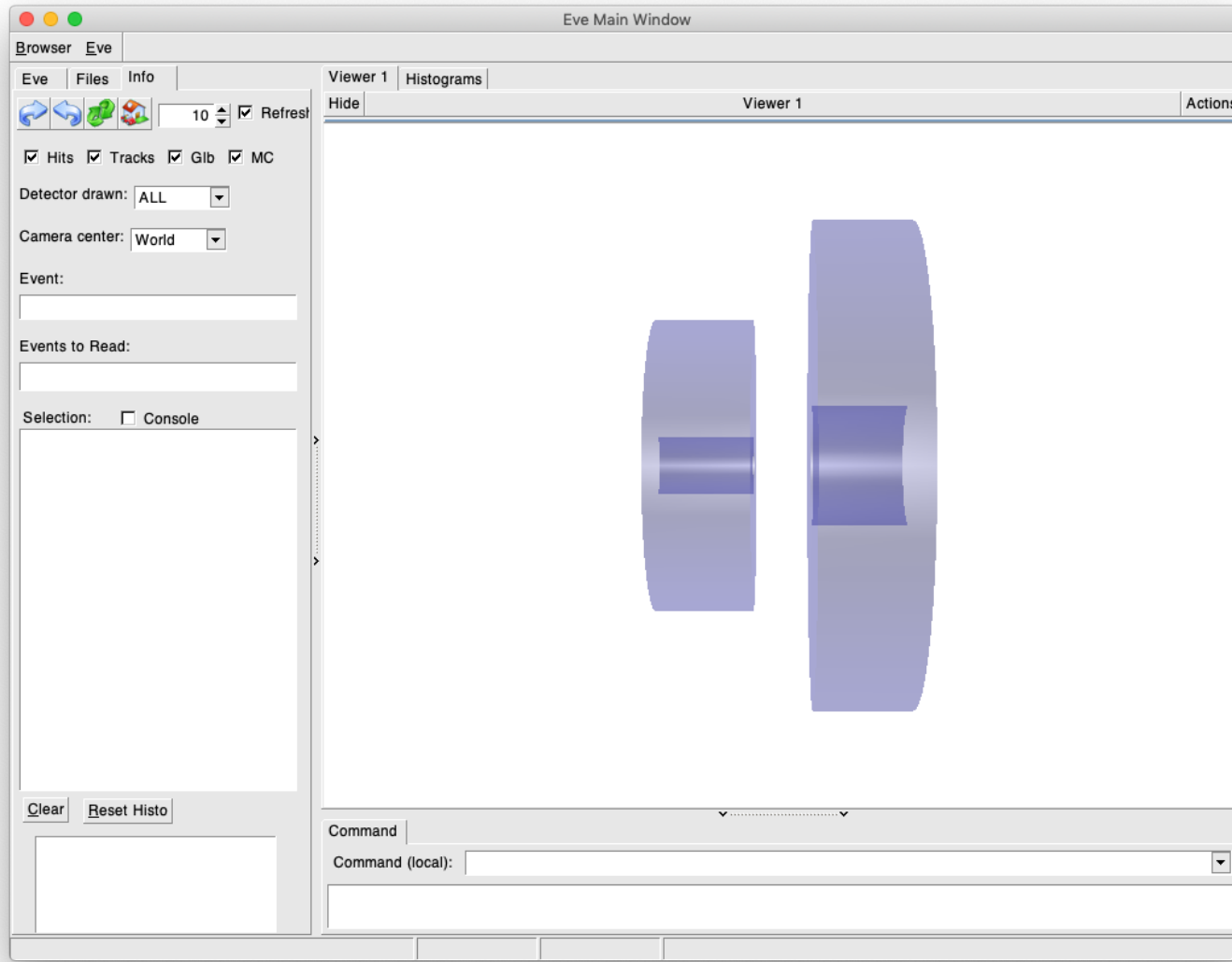
ShieldThickness: 0.5
ShieldMat:      "Al"
ShieldDensity:  2.6989

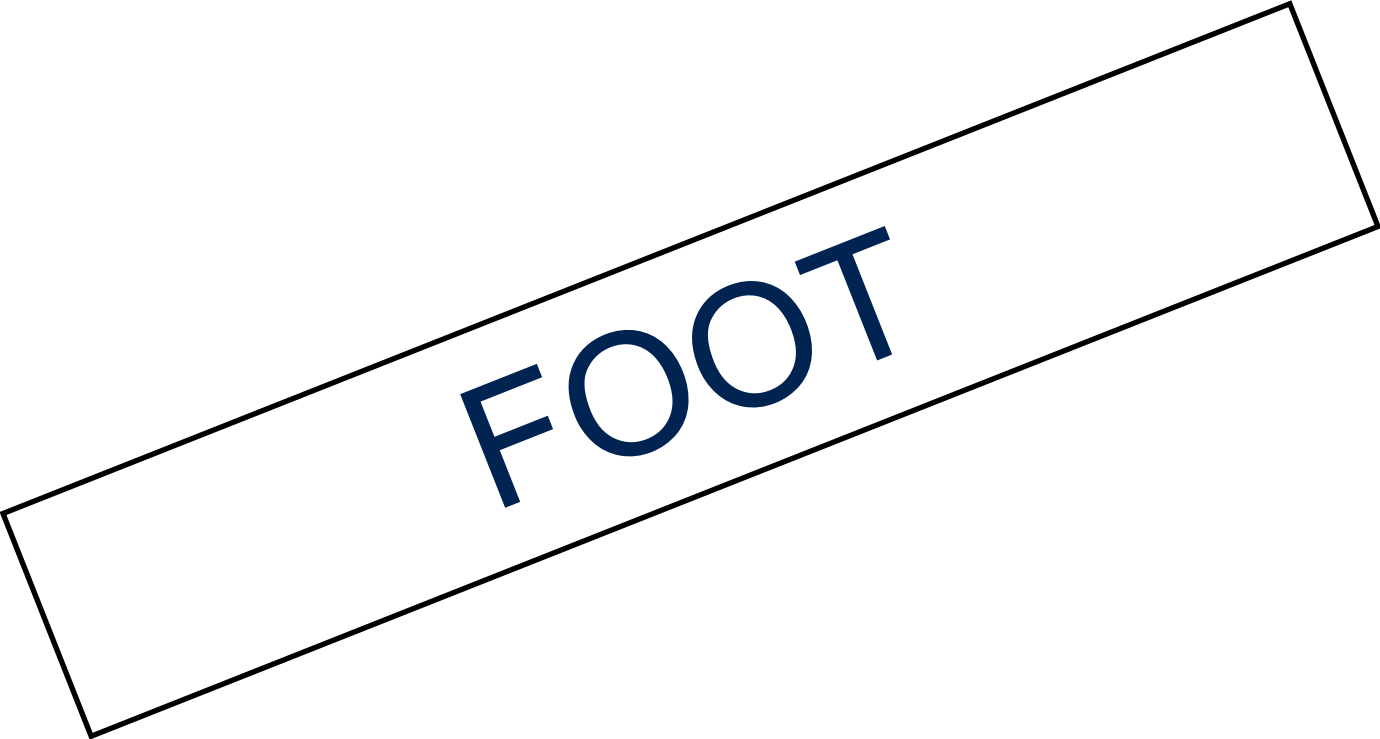
MagMat:        "SmCo"
MagDensity:    8.3
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
// Parameter of the magnet placement (cm)
// -+-+-+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
// -*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-
Inputs:        1
InnerRad:      3.5     OuterRad:    14.040    Size3:        11.0
PositionsX:    0.0000  PositionsY:  0.000    PositionsZ:   -8.0
Tilt1:         0.0000  Tilt2:      0.000    Tilt3:        0.0

// -*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-
// Inputs:        2
InnerRad:      3.5     OuterRad:    10.020    Size3:        11.0
PositionsX:    0.0000  PositionsY:  0.000    PositionsZ:    8.0
Tilt1:         0.0000  Tilt2:      0.000    Tilt3:        0.0
```

Detector Geometry (xvii)

Dipole magnet display





FOOT

Global FOOT Geometry (i)

Global transformation: FOOT.geo (i)

```
// X,Y,Z and angles
StartBaseName: "ST"
StartPosX: 0. StartPosY: 0. StartPosZ: -29.
StartAngX: 0. StartAngY: 0. StartAngZ: 0.

TargetBaseName: "TG"
TargetPosX: 0. TargetPosY: 0. TargetPosZ: 0.
TargetAngX: 0. TargetAngY: 0. TargetAngZ: 0.

BmBaseName: "BM"
BmPosX: 0. BmPosY: 0. BmPosZ: -14.
BmAngX: 0. BmAngY: 0. BmAngZ: 0.

VertexBaseName: "VT"
VertexPosX: 0. VertexPosY: 0. VertexPosZ: 1.5
VertexAngX: 0. VertexAngY: 0. VertexAngZ: 0.

MagnetsBaseName: "DI"
MagnetsPosX: 0. MagnetsPosY: 0. MagnetsPosZ: 14.
MagnetsAngX: 0. MagnetsAngY: 0. MagnetsAngZ: 0.

InnerTrackerBaseName: "IT"
InnerTrackerPosX: 0. InnerTrackerPosY: 0. InnerTrackerPosZ: 14.
InnerTrackerAngX: 0. InnerTrackerAngY: 0. InnerTrackerAngZ: 0.

MultiStripBaseName: "MSD"
MultiStripPosX: 0. MultiStripPosY: 0. MultiStripPosZ: 29.
MultiStripAngX: 0. MultiStripAngY: 0. MultiStripAngZ: 0.
```

Global FOOT Geometry (ii)

Global transformation: FOOT.geo (ii)

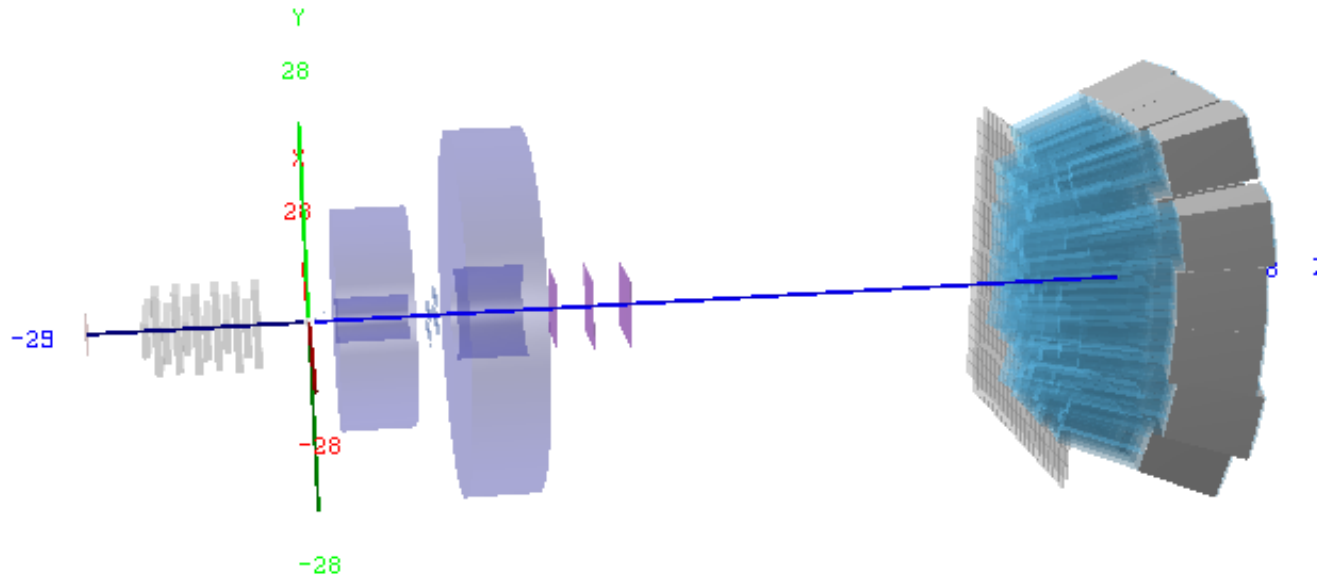
```
TofWallBaseName: "TW"  
TofWallPosX: 0. TofWallPosY: 0. TofWallPosZ: 99.7  
TofWallAngX: 0. TofWallAngY: 0. TofWallAngZ: 0.
```

```
CaloBaseName: "CA"  
CaloPosX: 0. CaloPosY: 0. CaloPosZ: 110.8  
CaloAngX: 0. CaloAngY: 0. CaloAngZ: 0.
```

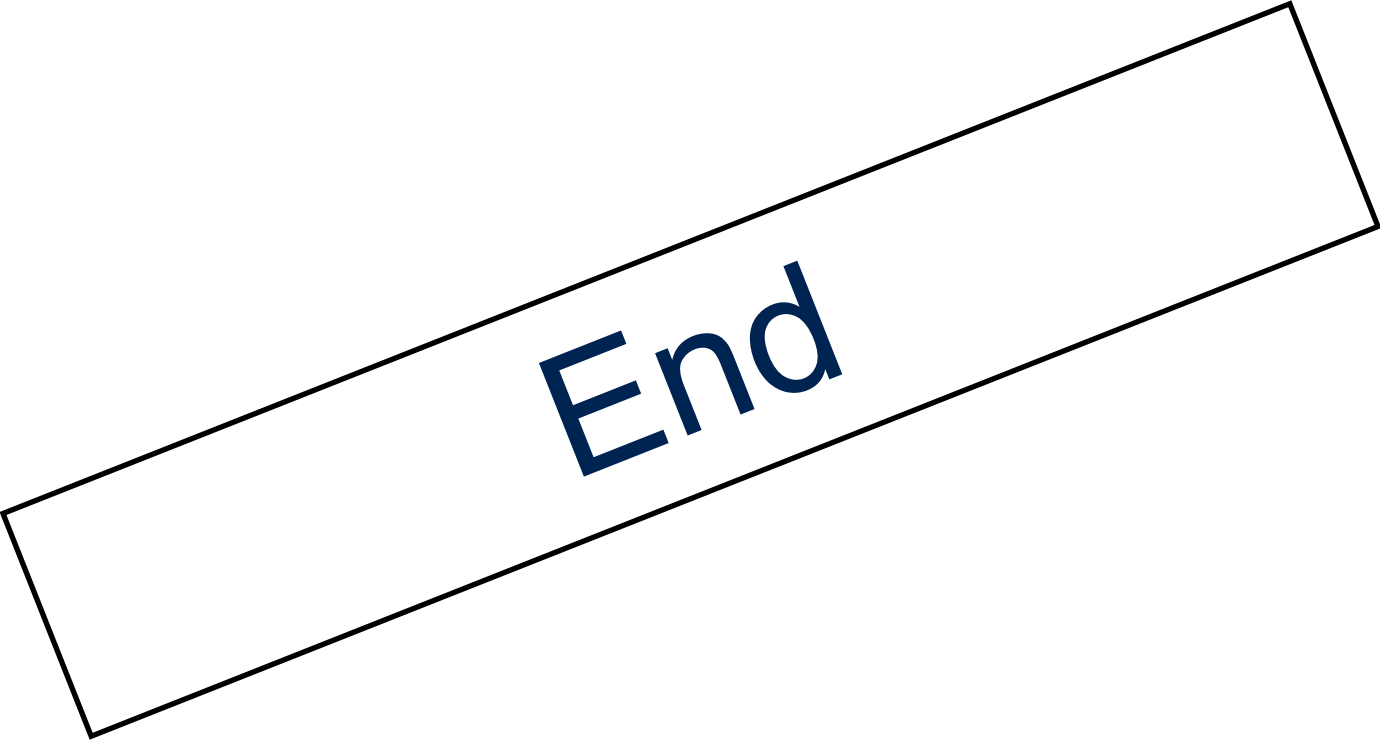
- Global transformation from FOOT.geo file read by TAGgeoTrafo class
- Transformations :
 - TVector3 TAGgeoTrafo::FromGlobalTo*Local(TVector3 vec), from global to detector
 - TVector3 TAGgeoTrafo::From*LocalToGlobal(TVector3 vec), from detector to global
- (*) for ST-BM-VT-IT-DI-MSD-TW-CA
- ➡ All geometry files are specific to a campaign name
- ➡ Overlapping volumes NOT checked !!

Global FOOT Geometry (iii)

FOOT framework



- Origin at the center of the target
- ➔ All detectors built in detector framework and then placed in the FOOT framework



End