

# GEANT4 Simulation Report

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GDML File Name : **LEM\_Plastic\_Mirion\_Mirion-worldVOL\_DummyMaterials\_Parsed.gdml**

#### **NTuple Info:**

- Ntuple ID: 0 Ntuple Name: Edep
- Ntuple ID: 0 Ntuple Column ID: 0 Ntuple Column Name: RandEnergy
- Ntuple ID: 0 Ntuple Column ID: 1 Ntuple Column Name: Xgen
- Ntuple ID: 0 Ntuple Column ID: 2 Ntuple Column Name: Ygen
- Ntuple ID: 0 Ntuple Column ID: 3 Ntuple Column Name: Zgen
- Ntuple ID: 0 Ntuple Column ID: 4 Ntuple Column Name: pDirX
- Ntuple ID: 0 Ntuple Column ID: 5 Ntuple Column Name: pDirY
- Ntuple ID: 0 Ntuple Column ID: 6 Ntuple Column Name: pDirZ
- Ntuple ID: 0 Ntuple Column ID: 7 Ntuple Column Name: Ed\_LV\_SiliconDetector\_Thick\_2
- Ntuple ID: 0 Ntuple Column ID: 8 Ntuple Column Name: Ed\_LV\_SiliconDetector\_Thick\_0
- Ntuple ID: 0 Ntuple Column ID: 9 Ntuple Column Name: Ed\_LV\_PlasticVetoBottom
- Ntuple ID: 0 Ntuple Column ID: 10 Ntuple Column Name: Ed\_LV\_SiliconDetector\_Thin\_1
- Ntuple ID: 0 Ntuple Column ID: 11 Ntuple Column Name: Ed\_LV\_SiliconDetector\_Thin\_4
- Ntuple ID: 0 Ntuple Column ID: 12 Ntuple Column Name: Ed\_LV\_SiliconDetector\_Thin\_0
- Ntuple ID: 0 Ntuple Column ID: 13 Ntuple Column Name: Ed\_LV\_Calo
- Ntuple ID: 0 Ntuple Column ID: 14 Ntuple Column Name: Ed\_LV\_SiliconDetector\_Thin\_2
- Ntuple ID: 0 Ntuple Column ID: 15 Ntuple Column Name: Ed\_LV\_SiliconDetector\_Thin\_3
- Ntuple ID: 0 Ntuple Column ID: 16 Ntuple Column Name: Ed\_LV\_PlasticVetoTop
- Ntuple ID: 0 Ntuple Column ID: 17 Ntuple Column Name: Ed\_LV\_SiliconDetector\_Thick\_4
- Ntuple ID: 0 Ntuple Column ID: 18 Ntuple Column Name: Ed\_LV\_SiliconDetector\_Thick\_1
- Ntuple ID: 0 Ntuple Column ID: 19 Ntuple Column Name: Ed\_LV\_SiliconDetector\_Thick\_3

| Volume                      | Material                   | Mass (g)    |
|-----------------------------|----------------------------|-------------|
| LV_AlTop                    | G4_Galactic                | 2.10694e-23 |
| LV_BakeliteCable_Thin_1     | G4_Galactic                | 2.61684e-26 |
| LV_BakeliteCable_Thin_4     | G4_Galactic                | 2.61684e-26 |
| LV_BakeliteCable_Thin_3     | G4_Galactic                | 2.61684e-26 |
| LV_AlShieldUpper            | G4_Galactic                | 9.64988e-25 |
| LV_AlFrame_Thick_3          | G4_Galactic                | 1.10354e-25 |
| LV_AlFrame_Thick_1          | G4_Galactic                | 1.10354e-25 |
| LV_AlFrame_Thick_4          | G4_Galactic                | 1.10354e-25 |
| LV_AlShieldLower            | G4_Galactic                | 8.24204e-25 |
| LV_BakeliteCable_Thin_2     | G4_Galactic                | 2.61684e-26 |
| LV_AlFrame_Thick_5          | G4_Galactic                | 2.13526e-26 |
| LV_AlFrame_Thick_9          | G4_Galactic                | 2.61684e-26 |
| LV_AlFrame_Thick_6          | G4_Galactic                | 2.61684e-26 |
| LV_AlFrame_Thick_8          | G4_Galactic                | 2.61684e-26 |
| LV_BakeliteCable_Thin_0     | G4_Galactic                | 2.13526e-26 |
| LV_AlFrame_Thick_7          | G4_Galactic                | 2.61684e-26 |
| LV_AIScrew_Thick_0          | G4_Galactic                | 5.42892e-26 |
| LV_AlFrame_Thick_2          | G4_Galactic                | 1.10354e-25 |
| LV_SiliconDetector_Thick_2  | G4_Si                      | 0.135903    |
| LV_SiliconDetector_Thick_0  | G4_Si                      | 0.0439621   |
| LV_AIScrew_Thick_2          | G4_Galactic                | 9.05215e-26 |
| LV_AlFrame_Thick_0          | G4_Galactic                | 8.11217e-26 |
| LV_AIScrew                  | G4_Galactic                | 2.0382e-25  |
| LV_AIScrew_1                | G4_Galactic                | 2.0382e-25  |
| LV_AIScrew_2                | G4_Galactic                | 2.0382e-25  |
| LV_AIScrew_3                | G4_Galactic                | 2.0382e-25  |
| LV_BakeliteBoardMiddleLower | G4_Galactic                | 1.38267e-24 |
| LV_PlasticVetoBottom        | G4_PLASTIC_SC_VINYLTOLUENE | 128.504     |
| LV_AlBottom                 | G4_Galactic                | 1.56411e-23 |
| LV_BakeliteBoardTop         | G4_Galactic                | 1.46584e-24 |
| LV_AlFrame_Thin_2           | G4_Galactic                | 1.10353e-25 |
| LV_AIScrew_Thin_2           | G4_Galactic                | 9.05215e-26 |
| LV_SiliconDetector_Thin_1   | G4_Si                      | 0.135903    |
| LV_AIScrew_Thin_4           | G4_Galactic                | 9.05215e-26 |
| LV_AlFrame_Thin_3           | G4_Galactic                | 1.10353e-25 |
| LV_AlFrame_Thin_4           | G4_Galactic                | 1.10353e-25 |
| LV_AIScrew_Thin_0           | G4_Galactic                | 5.42892e-26 |
| LV_SiliconDetector_Thin_4   | G4_Si                      | 0.135903    |
| LV_AlFrame_Thin_0           | G4_Galactic                | 8.11216e-26 |
| LV_AlFrame_Thin_1           | G4_Galactic                | 1.10353e-25 |
| LV_AIScrew_Thin_1           | G4_Galactic                | 9.05215e-26 |
| LV_SiliconDetector_Thin_0   | G4_Si                      | 0.0439621   |
| LV_BakeliteBoardCalo        | G4_Galactic                | 6.393e-25   |
| LV_BakeliteBoardBottom      | G4_Galactic                | 1.52827e-24 |
| LV_Calo                     | G4_PLASTIC_SC_VINYLTOLUENE | 74.304      |
| LV_BakeliteBoardMiddleUpper | G4_Galactic                | 1.38267e-24 |
| LV_AIScrew_Thin_3           | G4_Galactic                | 9.05215e-26 |
| LV_SiliconDetector_Thin_2   | G4_Si                      | 0.135903    |
| LV_SiliconDetector_Thin_3   | G4_Si                      | 0.135903    |
| LV_AIScrew_Thick_3          | G4_Galactic                | 9.05215e-26 |
| LV_PlasticVetoTop           | G4_PLASTIC_SC_VINYLTOLUENE | 234.744     |
| LV_SiliconDetector_Thick_4  | G4_Si                      | 0.135903    |
| LV_SiliconDetector_Thick_1  | G4_Si                      | 0.135903    |
| LV_SiliconDetector_Thick_3  | G4_Si                      | 0.135903    |
| LV_AIScrew_Thick_4          | G4_Galactic                | 9.05215e-26 |
| LV_AIScrew_Thick_1          | G4_Galactic                | 9.05215e-26 |

## hPID\_1

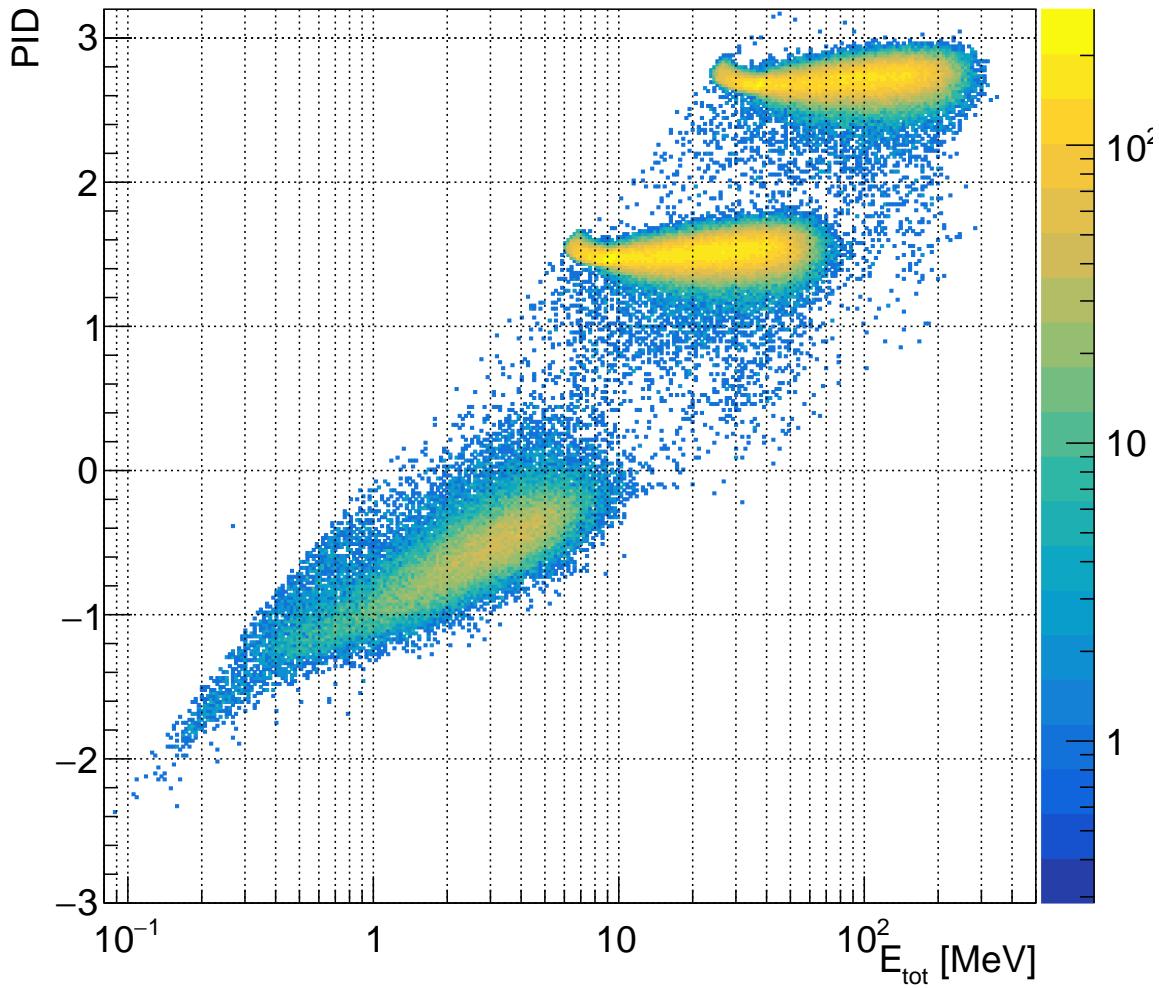


Figure: PID, No Gaussian Smearing, Total Energy is the Energy reconstructed.

## hPID\_2

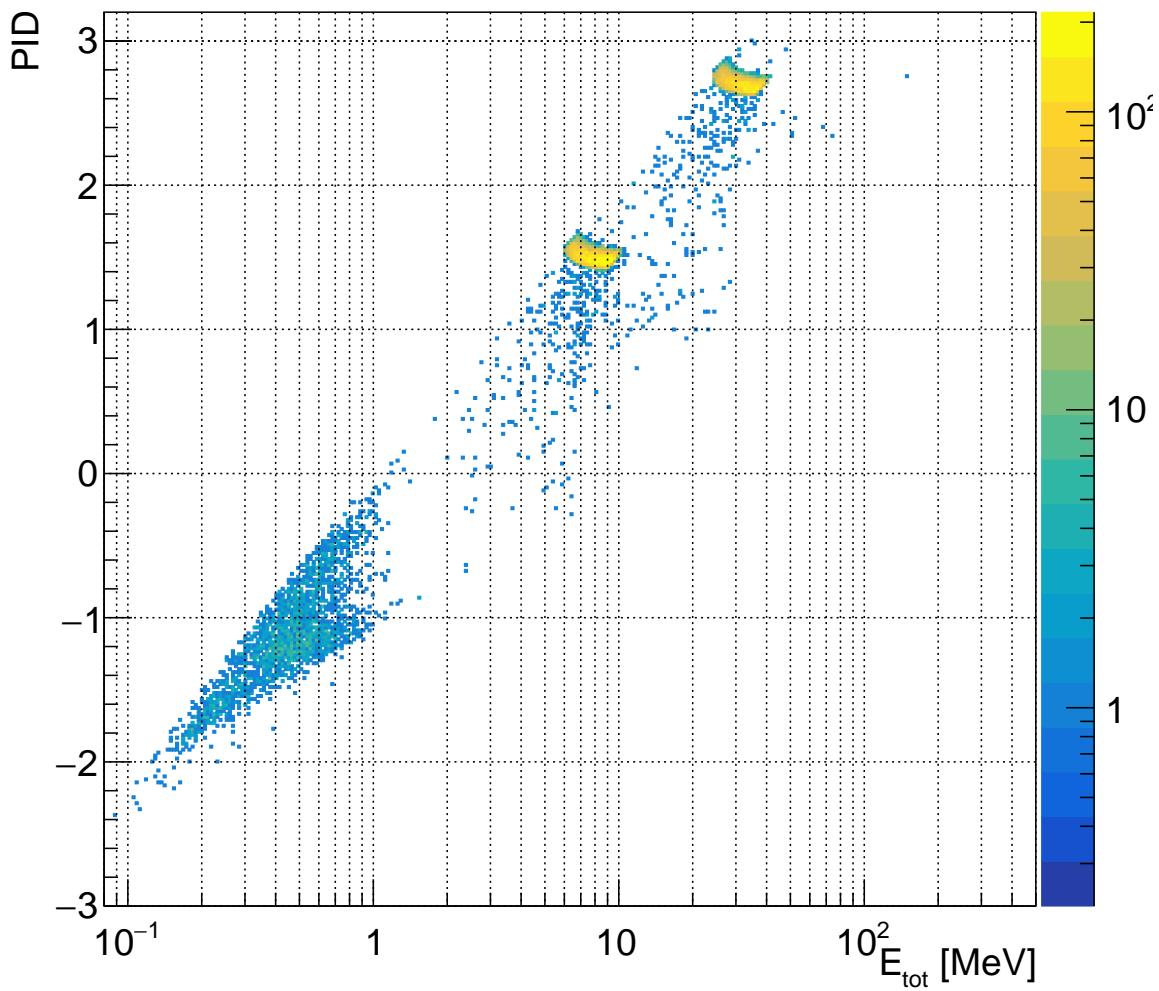


Figure: PID, No Gaussian Smearing, Total Energy is the Energy reconstructed, No Calorimeter.

## hPID2\_1

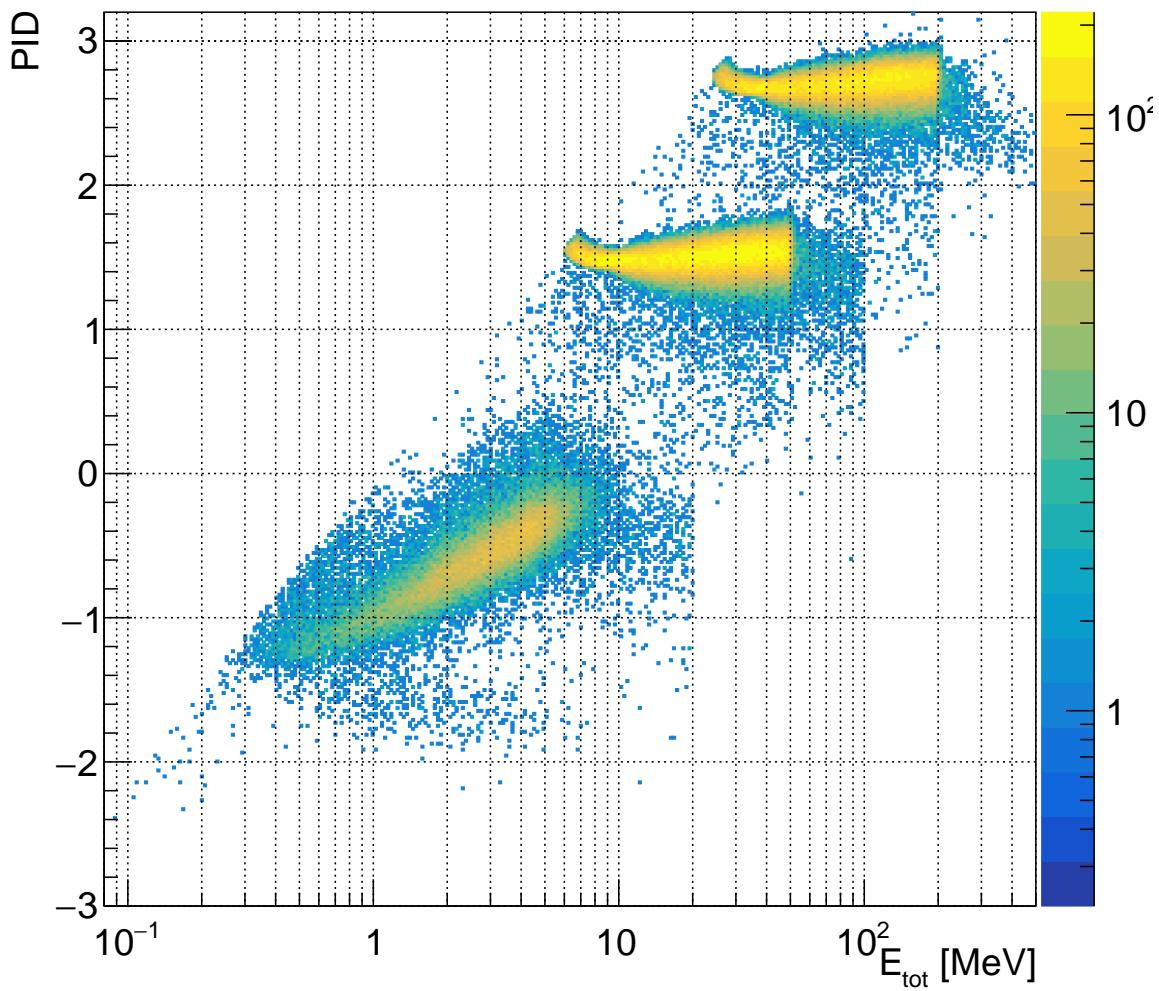


Figure: PID, No Gaussian Smearing, Total Energy is the MC Energy.

## hPID2\_2

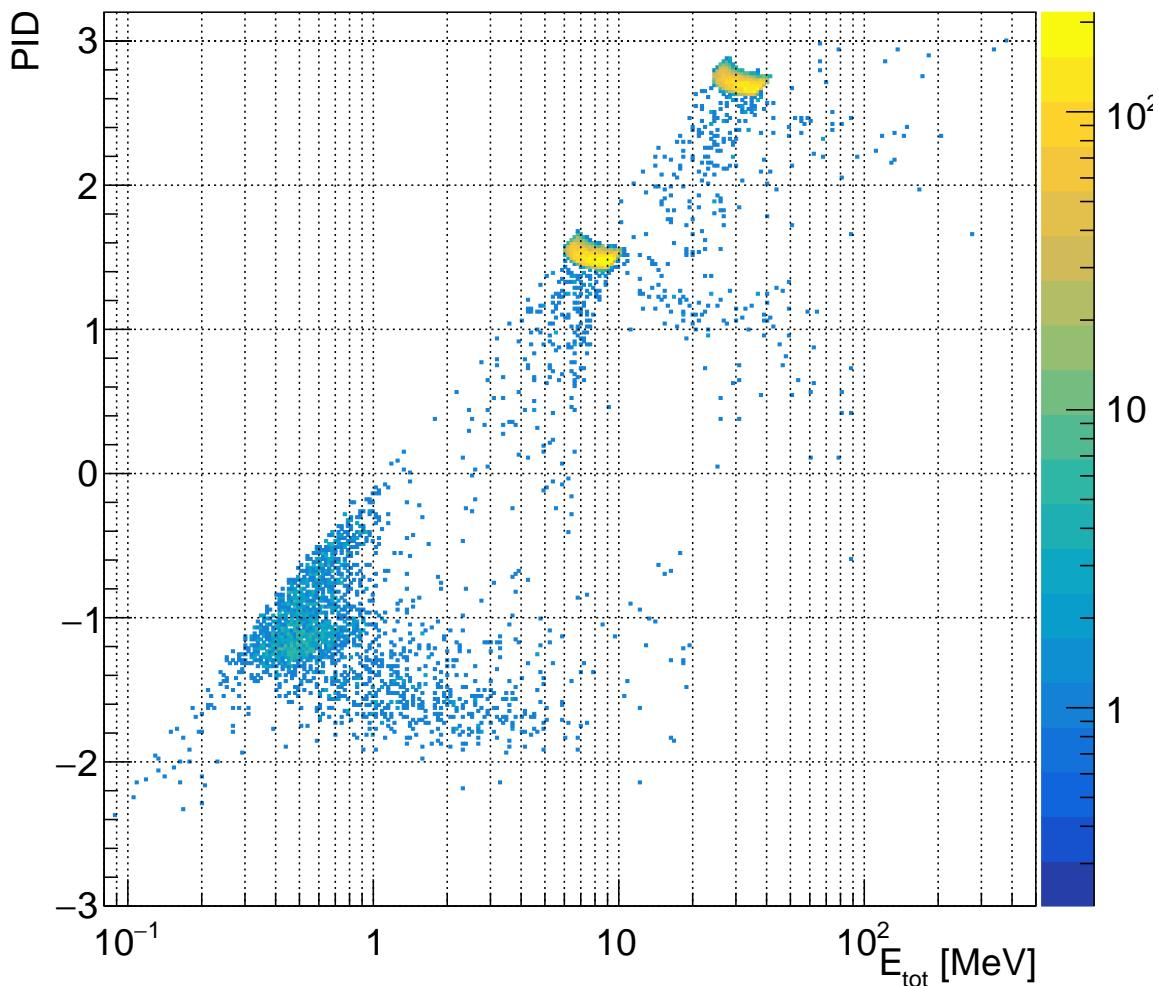


Figure: PID, No Gaussian Smearing, Total Energy is the MC Energy, No Calorimeter.

## hPID\_1

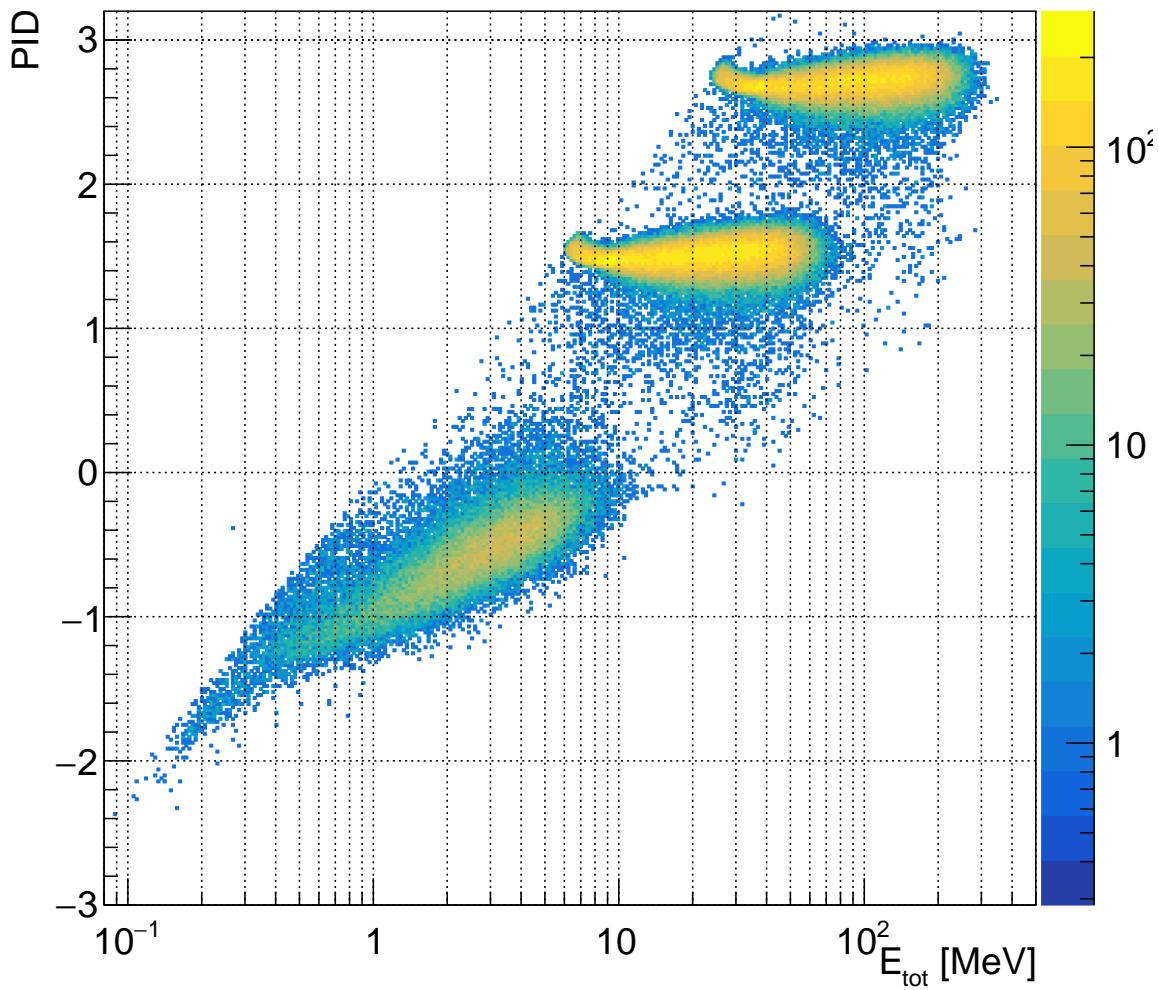


Figure: PID, Gaussian Smearing, Total Energy is the Energy reconstructed.

## hPID\_3

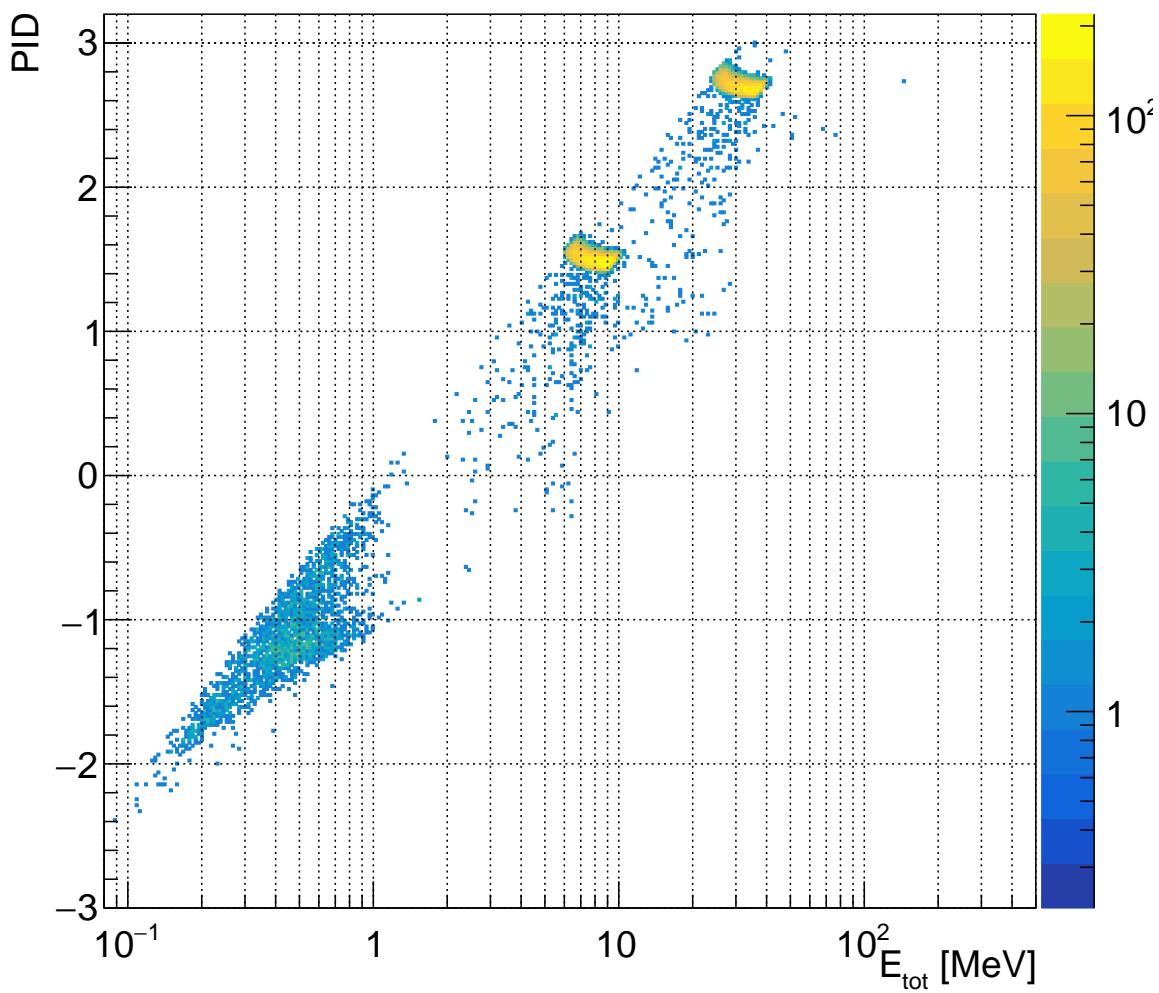


Figure: PID, Gaussian Smearing, Total Energy is the Energy reconstructed, No Calorimeter.

## hPID2\_1

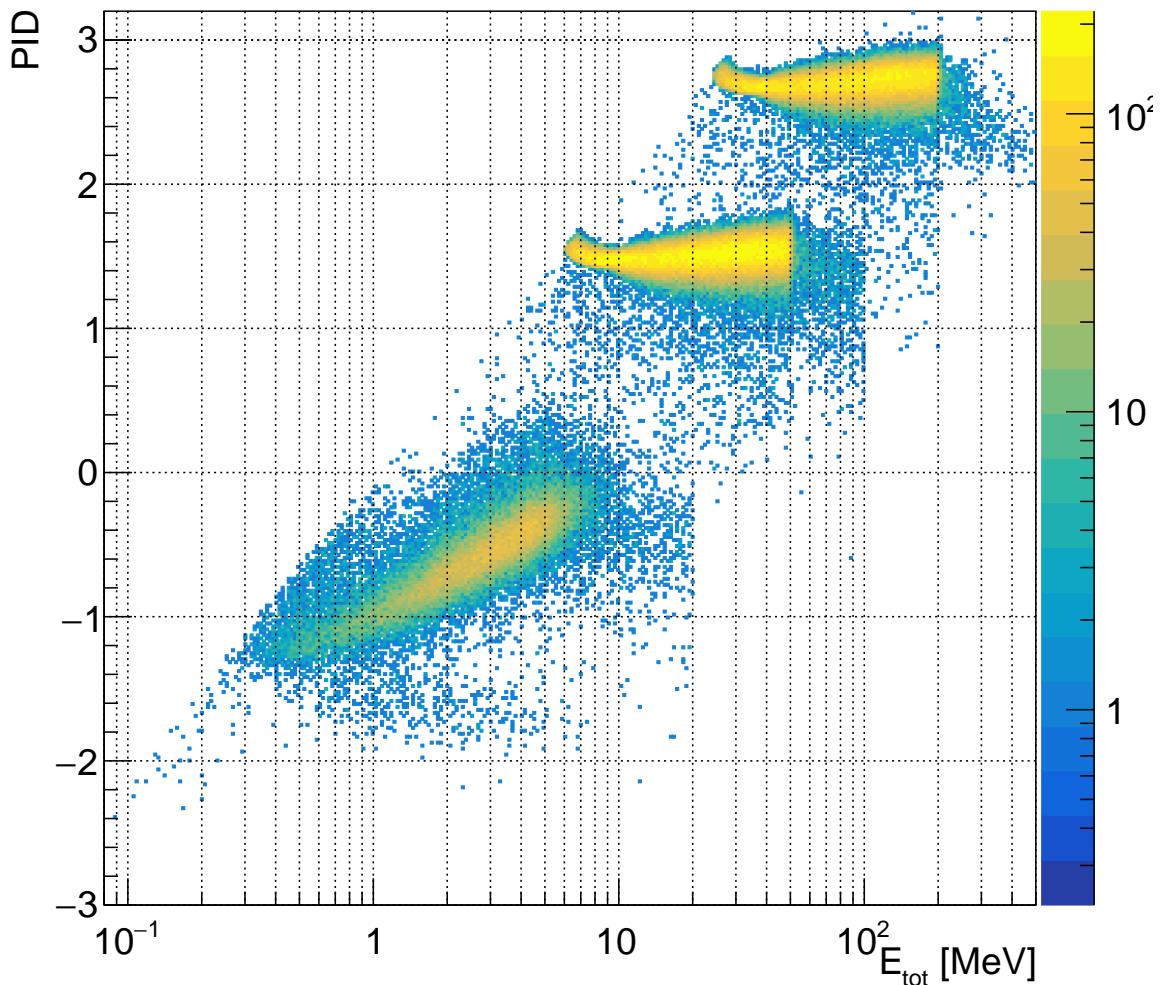


Figure: PID, Gaussian Smearing, Total Energy is the MC Energy.

## hPID2\_3

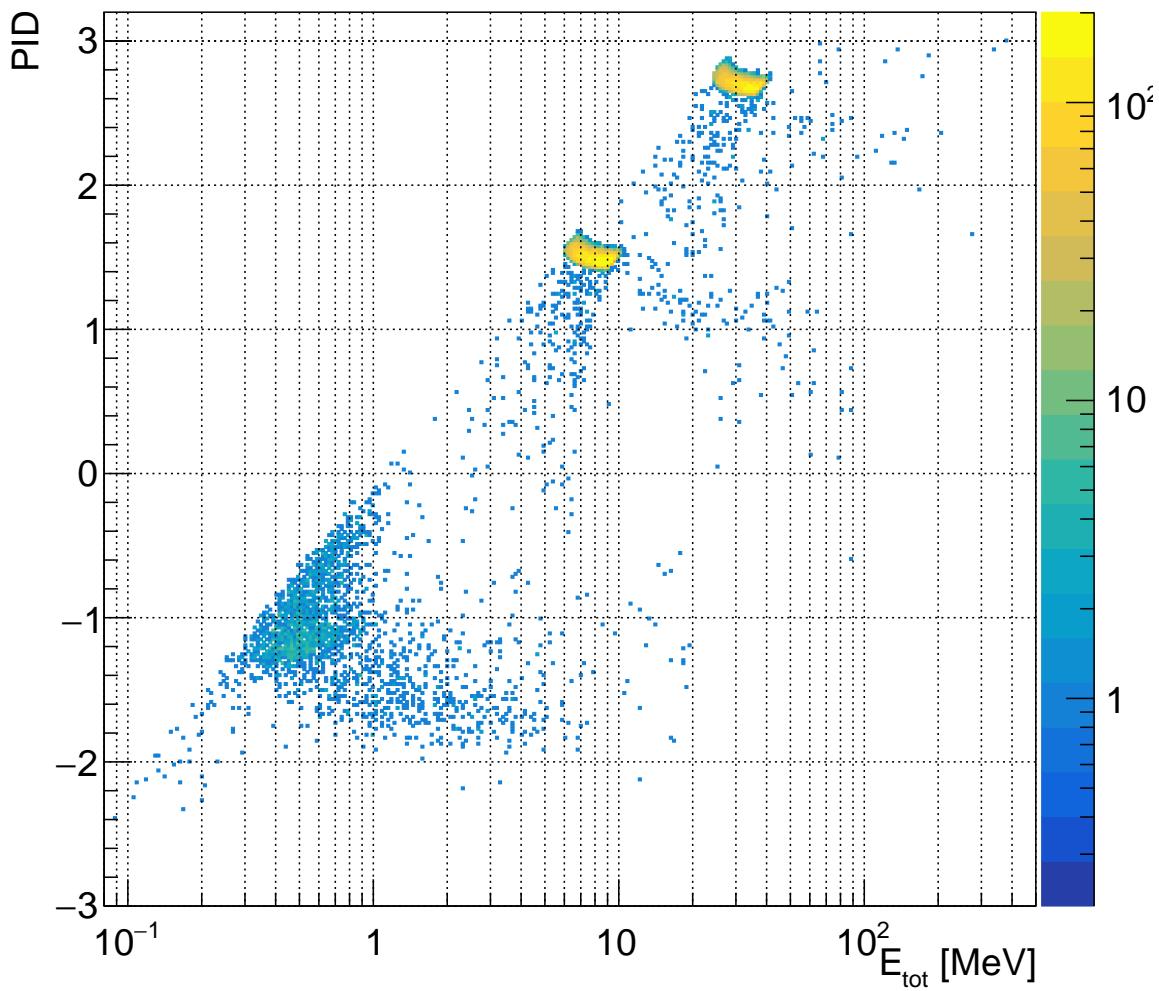


Figure: PID, Gaussian Smearing, Total Energy is the MC Energy, No Calorimeter.

## mgrPID

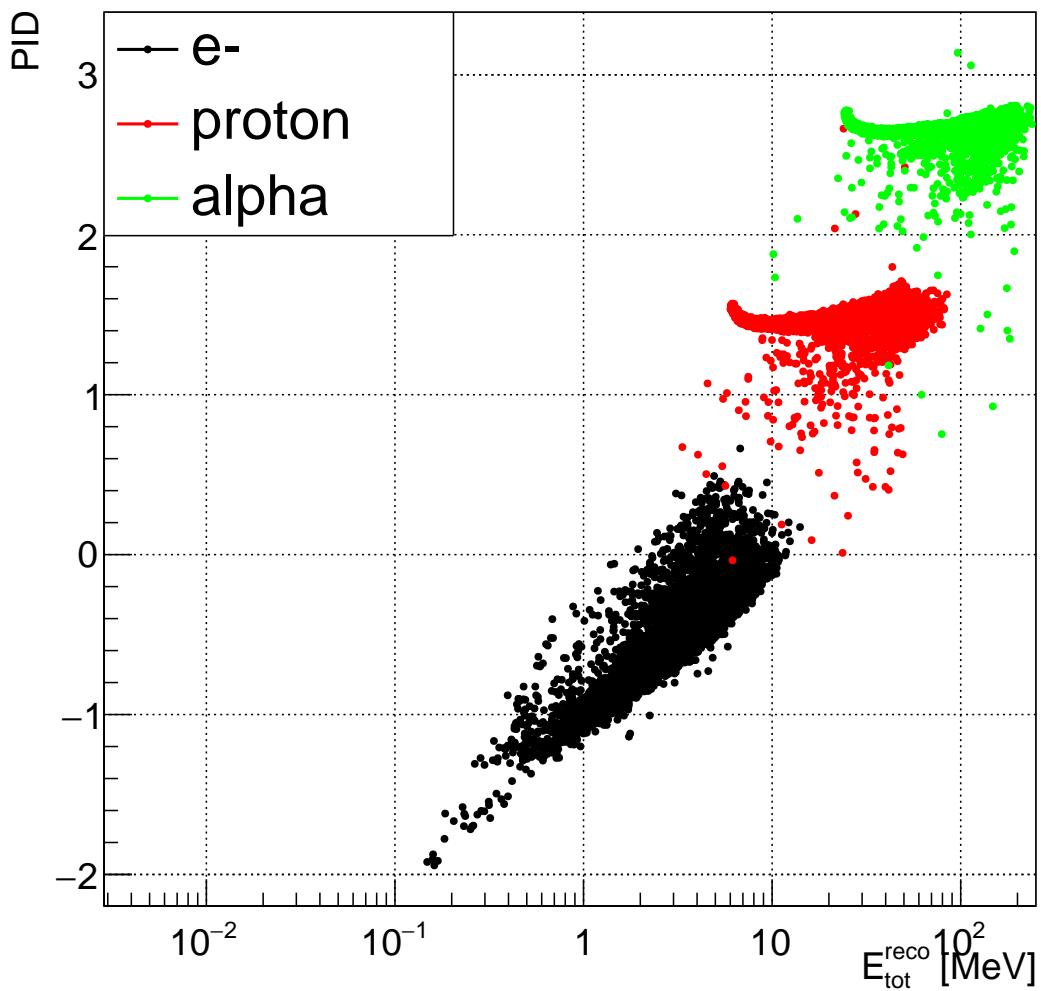


Figure: PID, Gaussian Smearing, Total Energy is the Energy reconstructed, No Calorimeter.

# MC quantities for e\_-t0

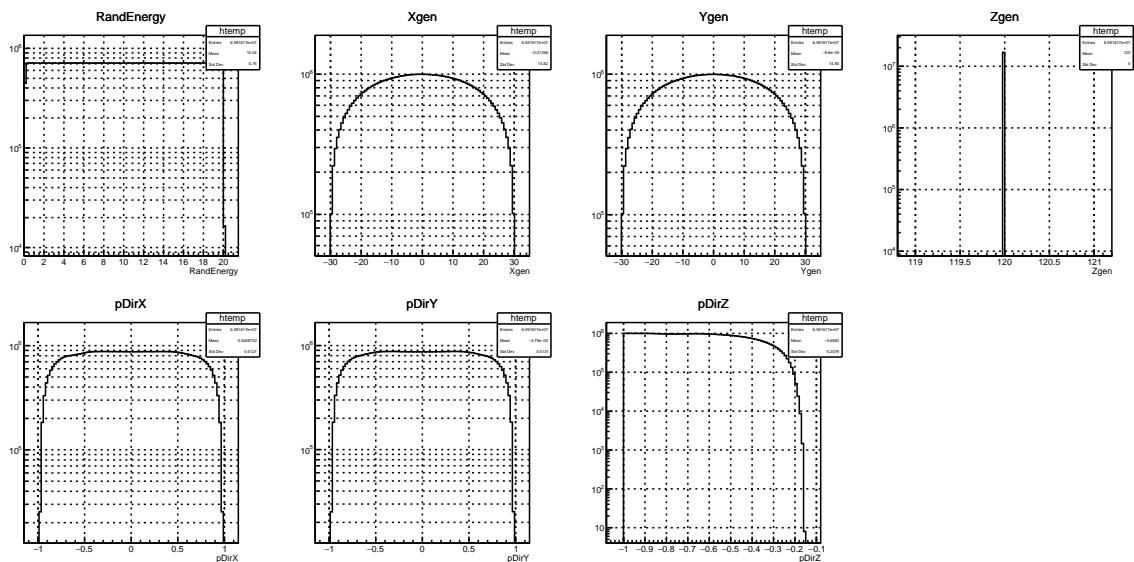


Figure: MC quantities

## Energies distribution for e-

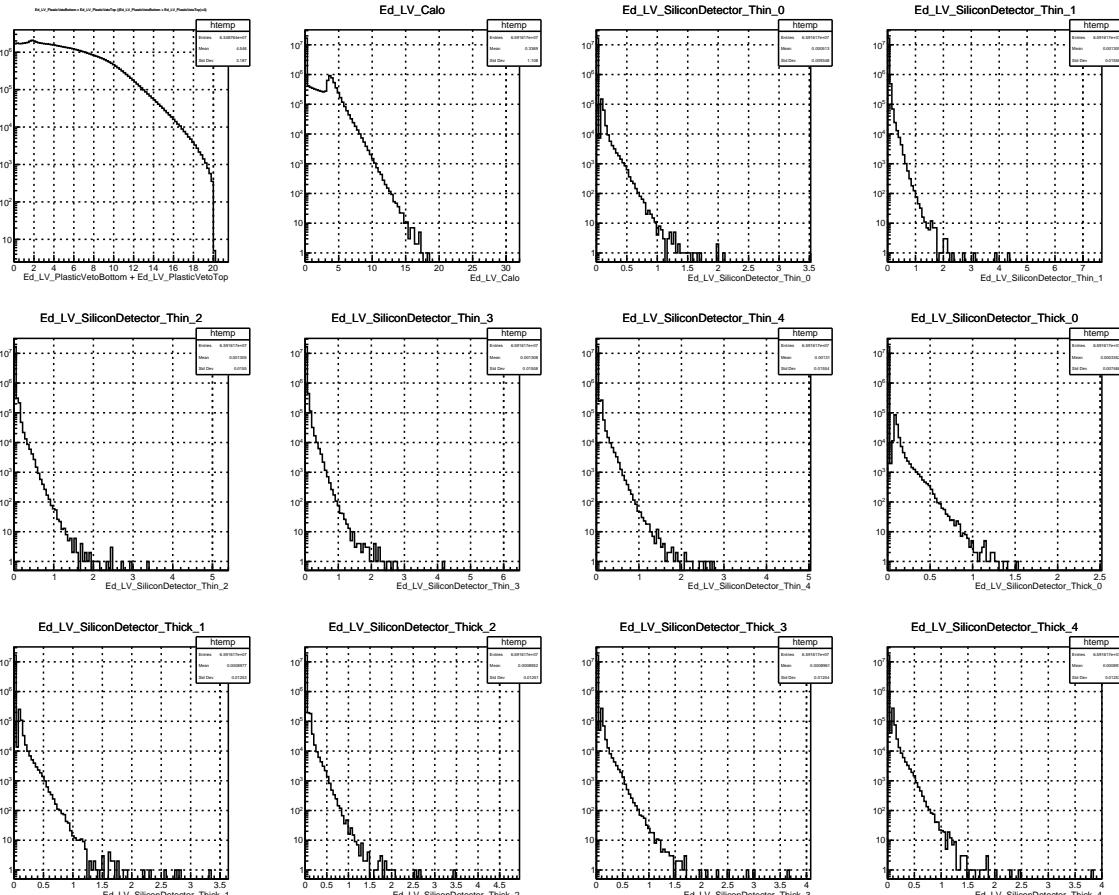


Figure: Detected energies

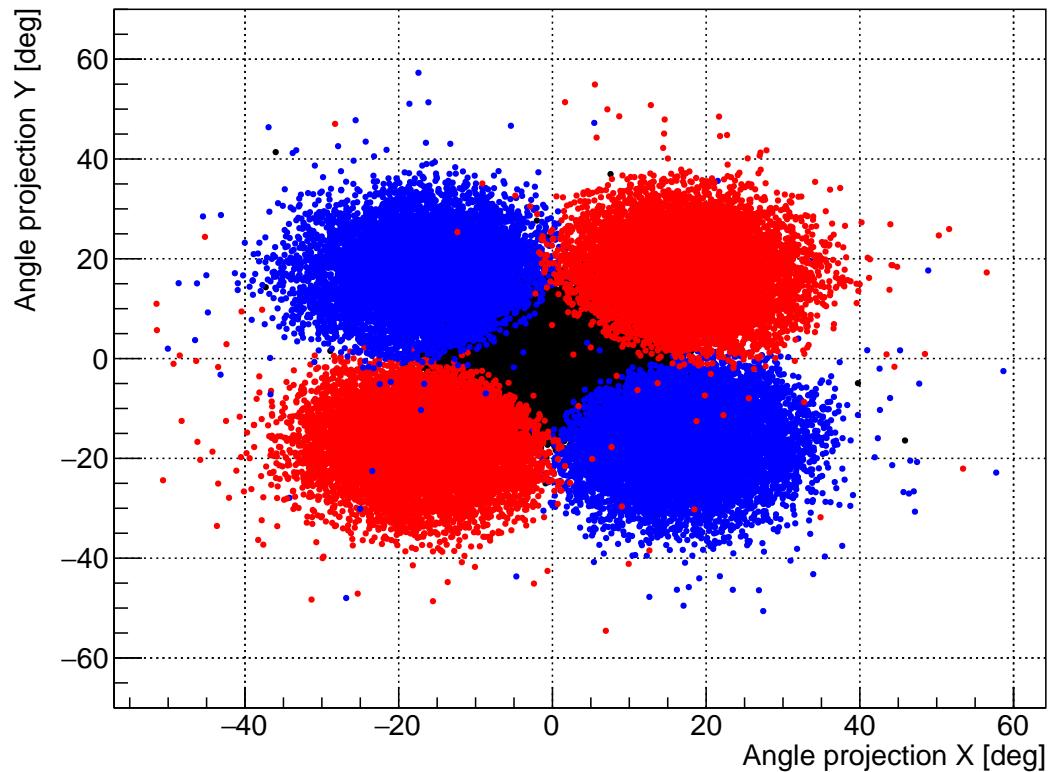


Figure: Angles distribution

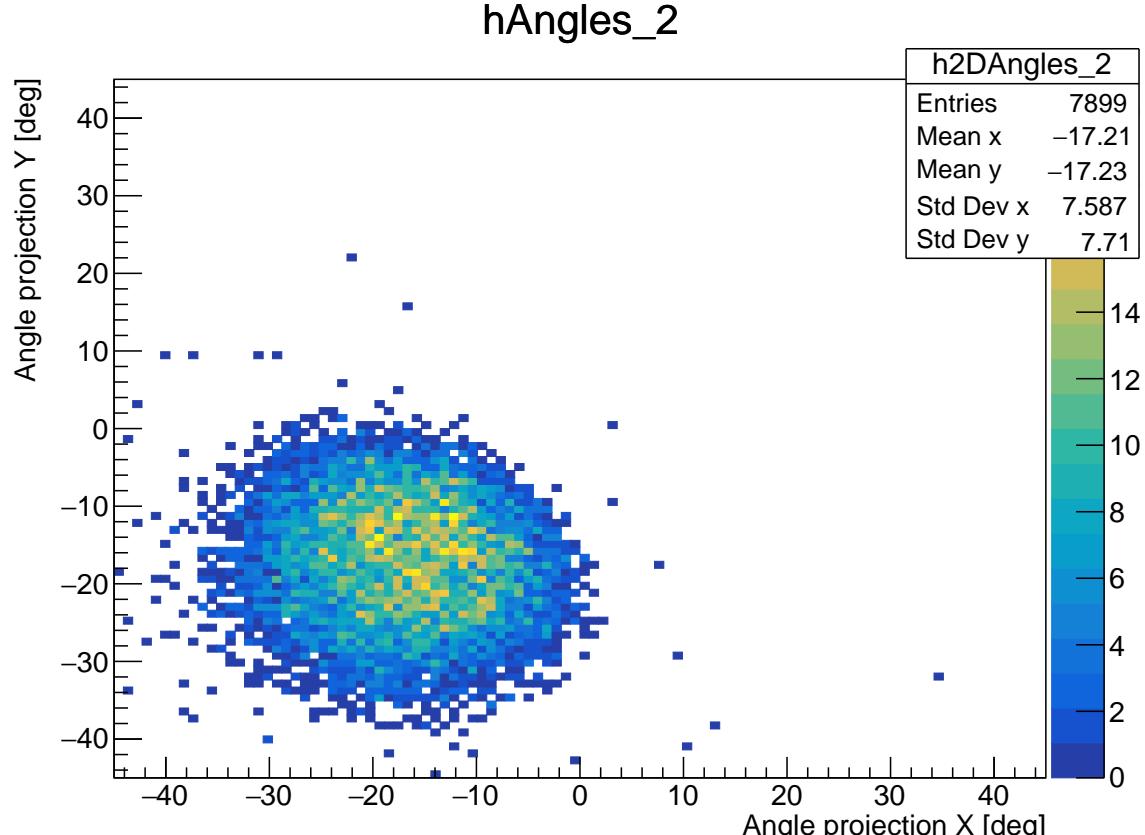


Figure: Angles distribution

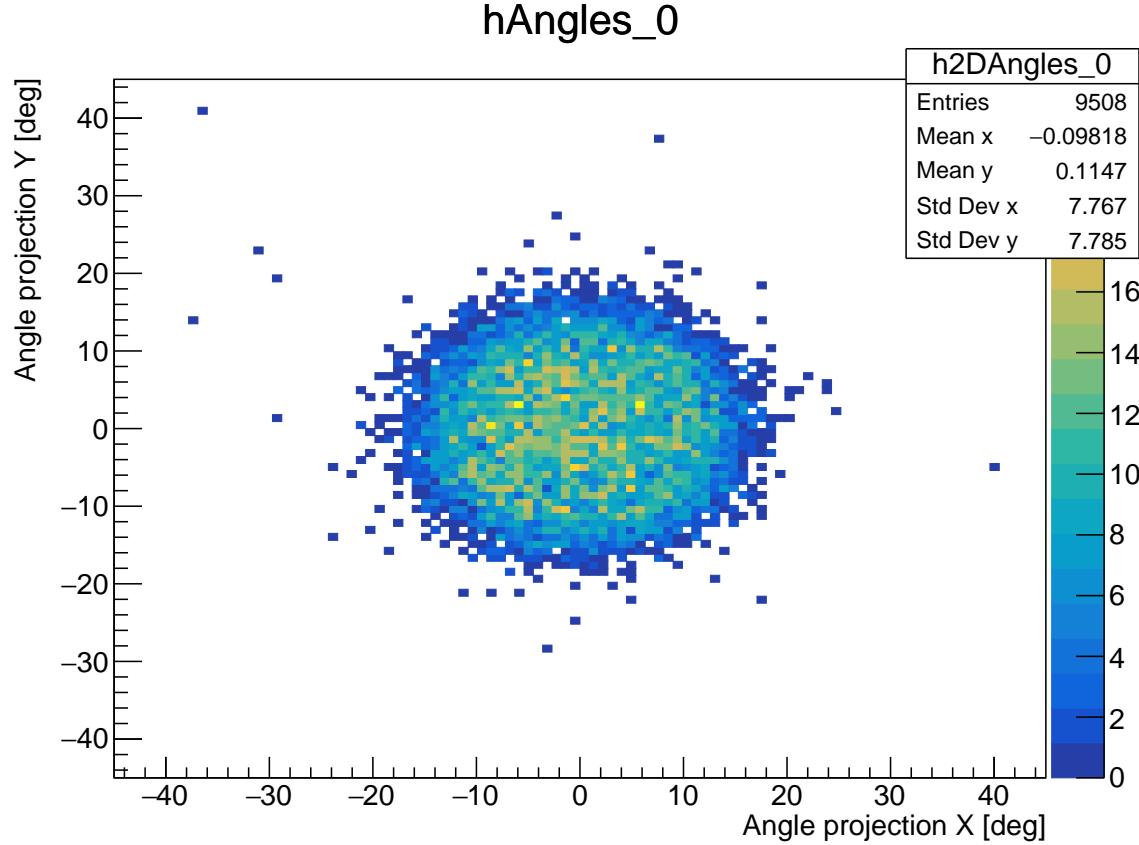


Figure: Angles distribution

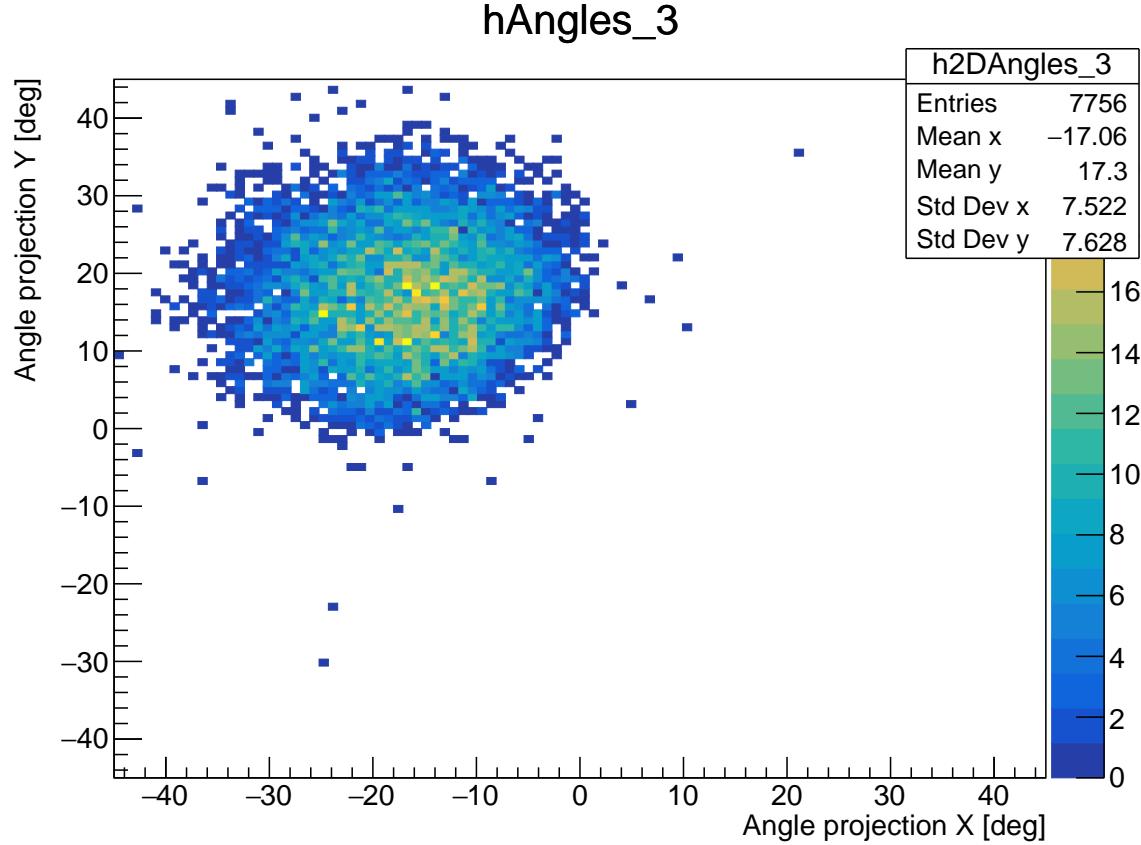


Figure: Angles distribution

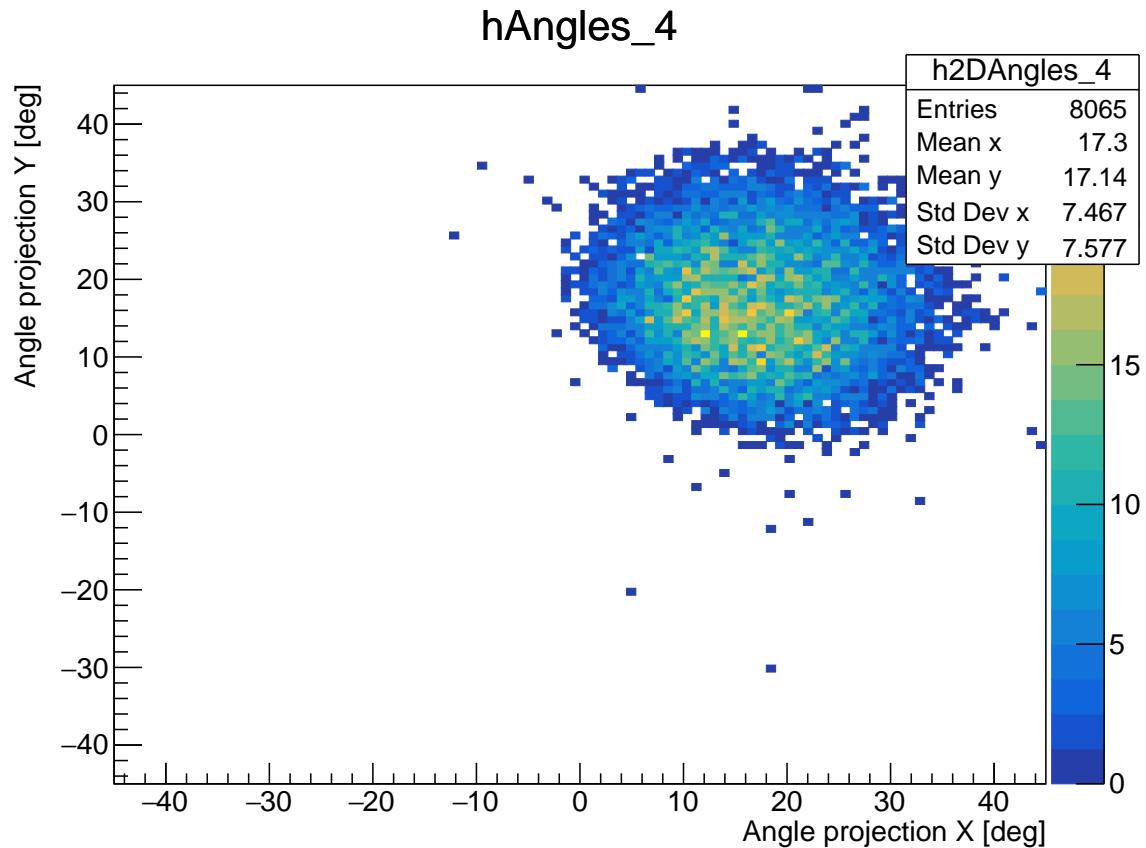


Figure: Angles distribution

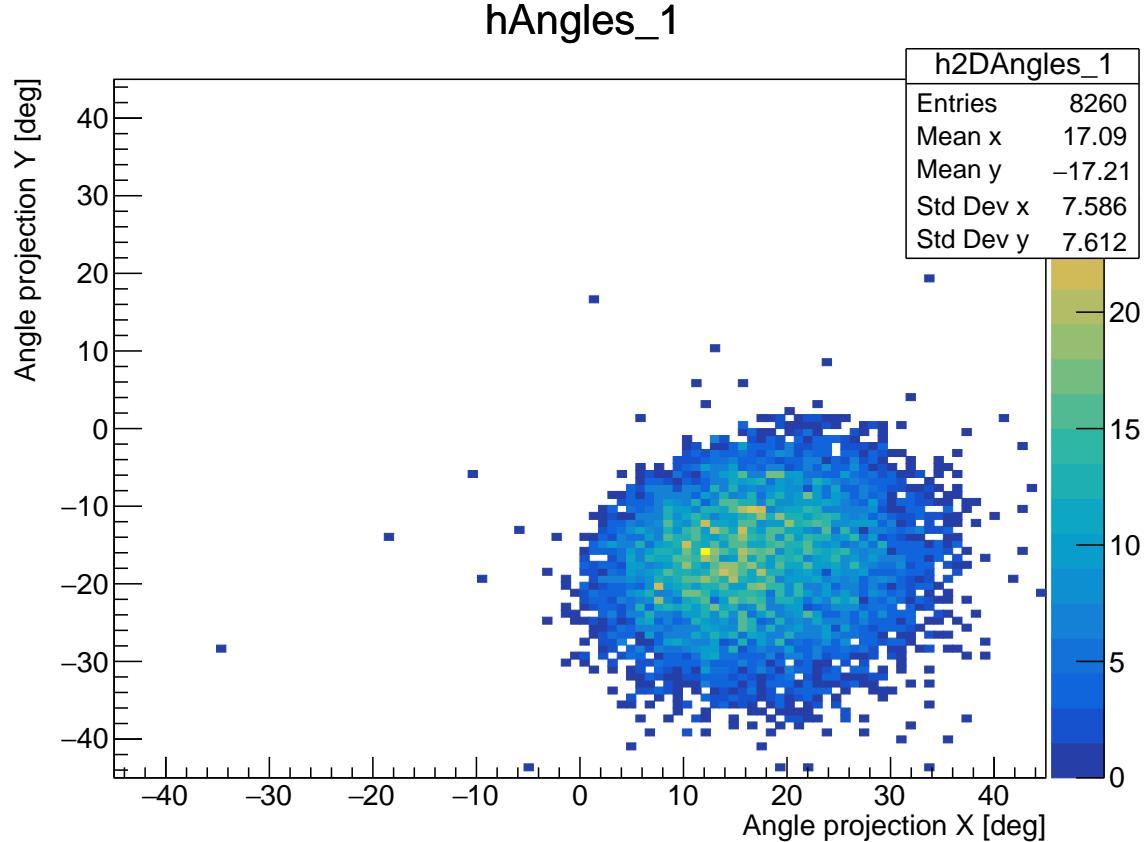


Figure: Angles distribution

## hGenPosition\_2

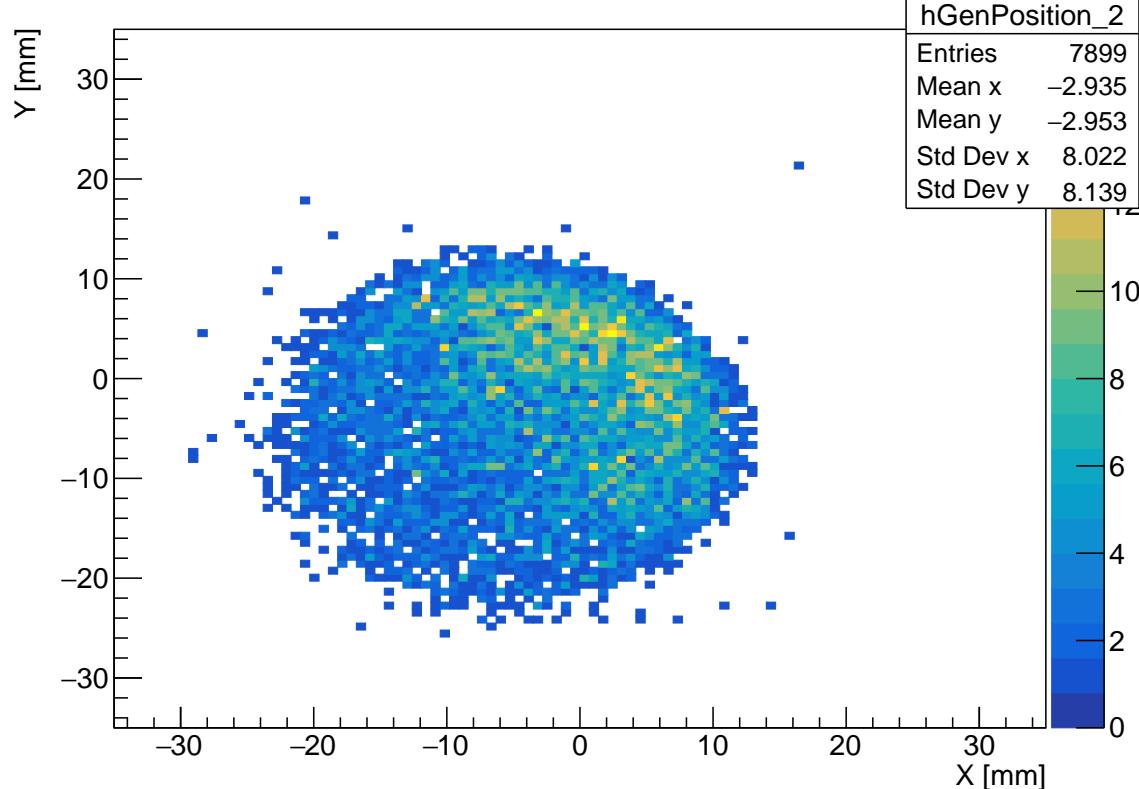


Figure: Generation Position

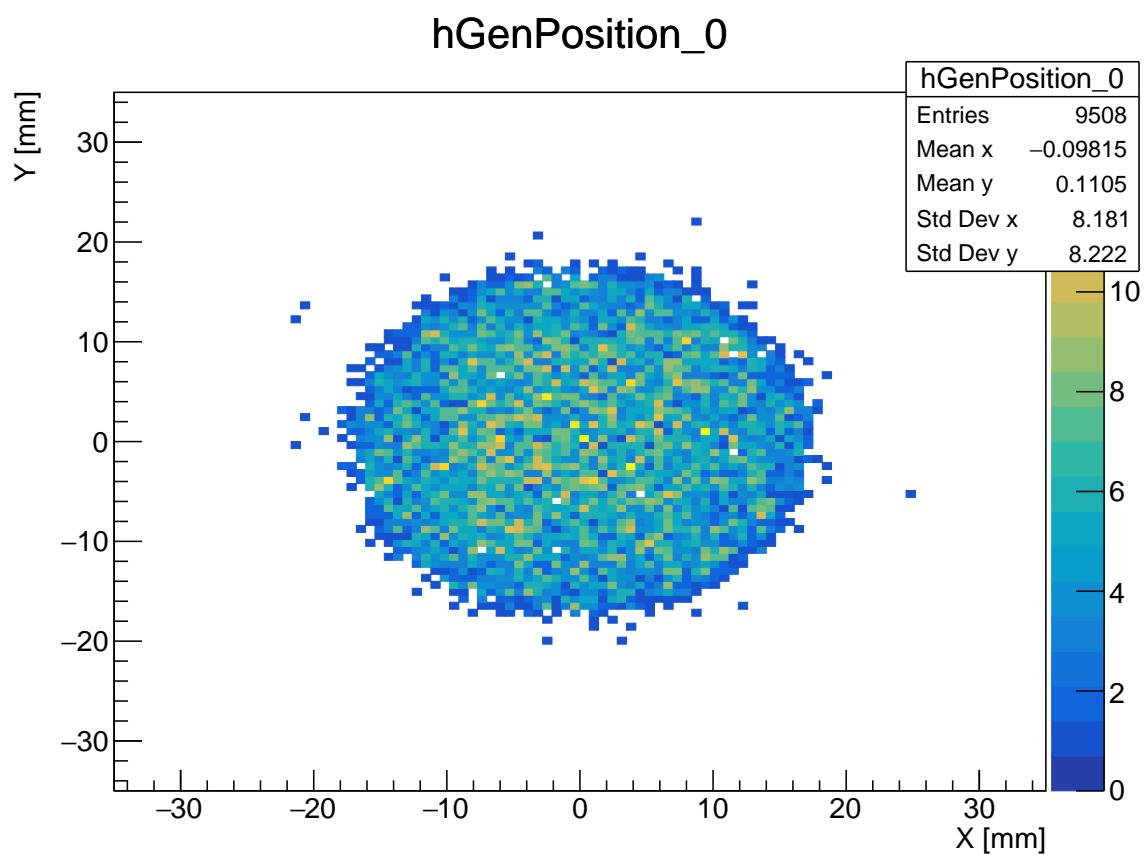


Figure: Generation Position

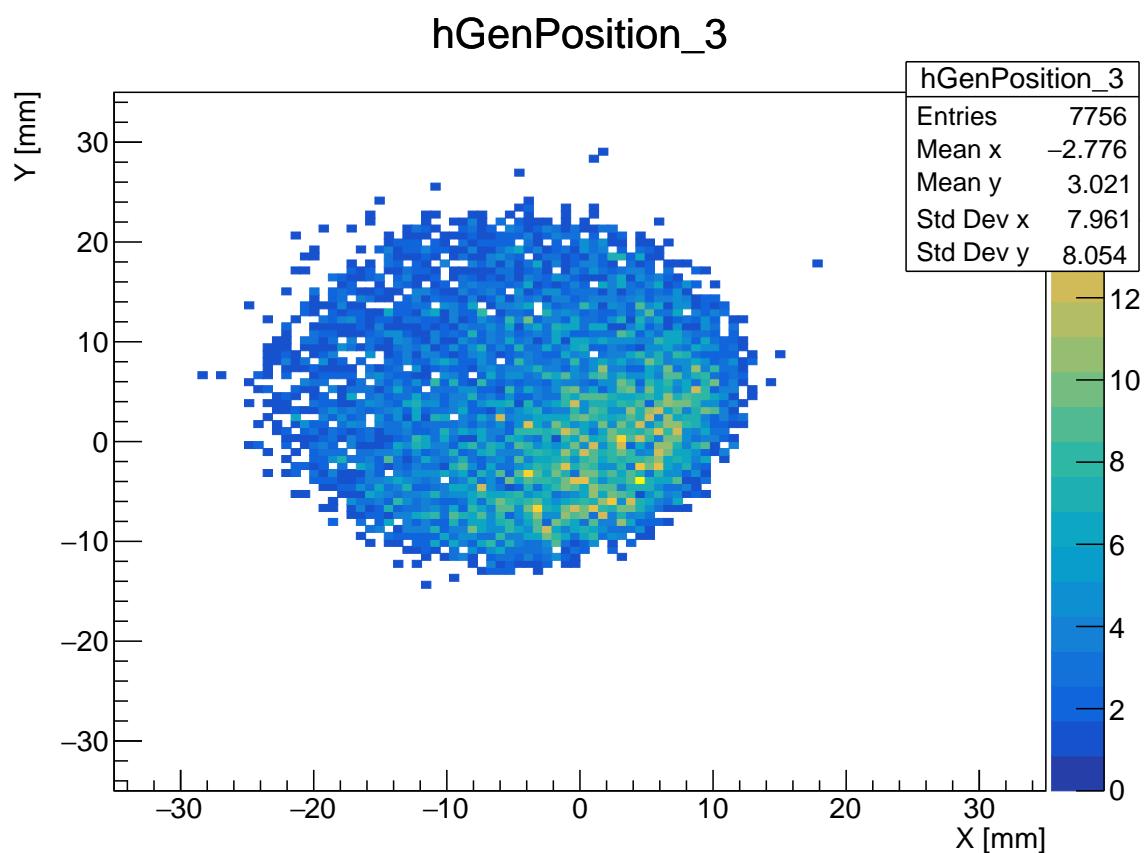


Figure: Generation Position

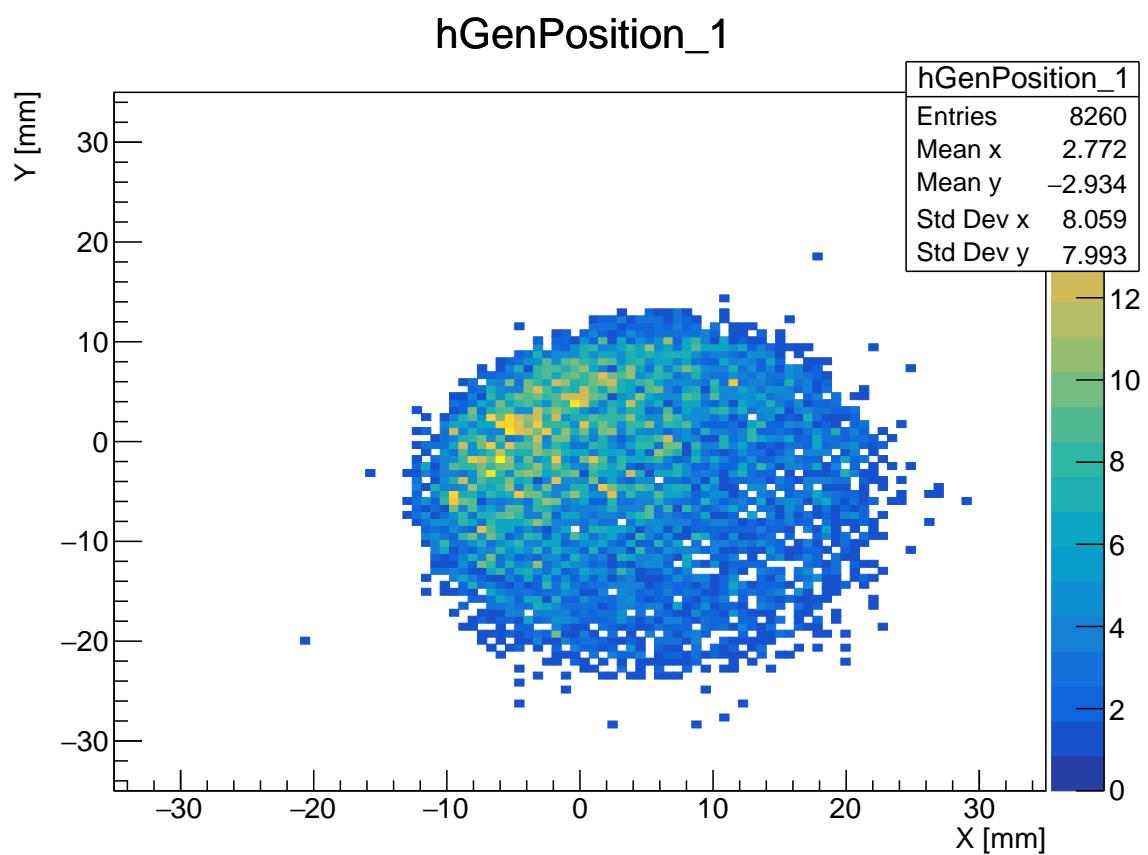


Figure: Generation Position

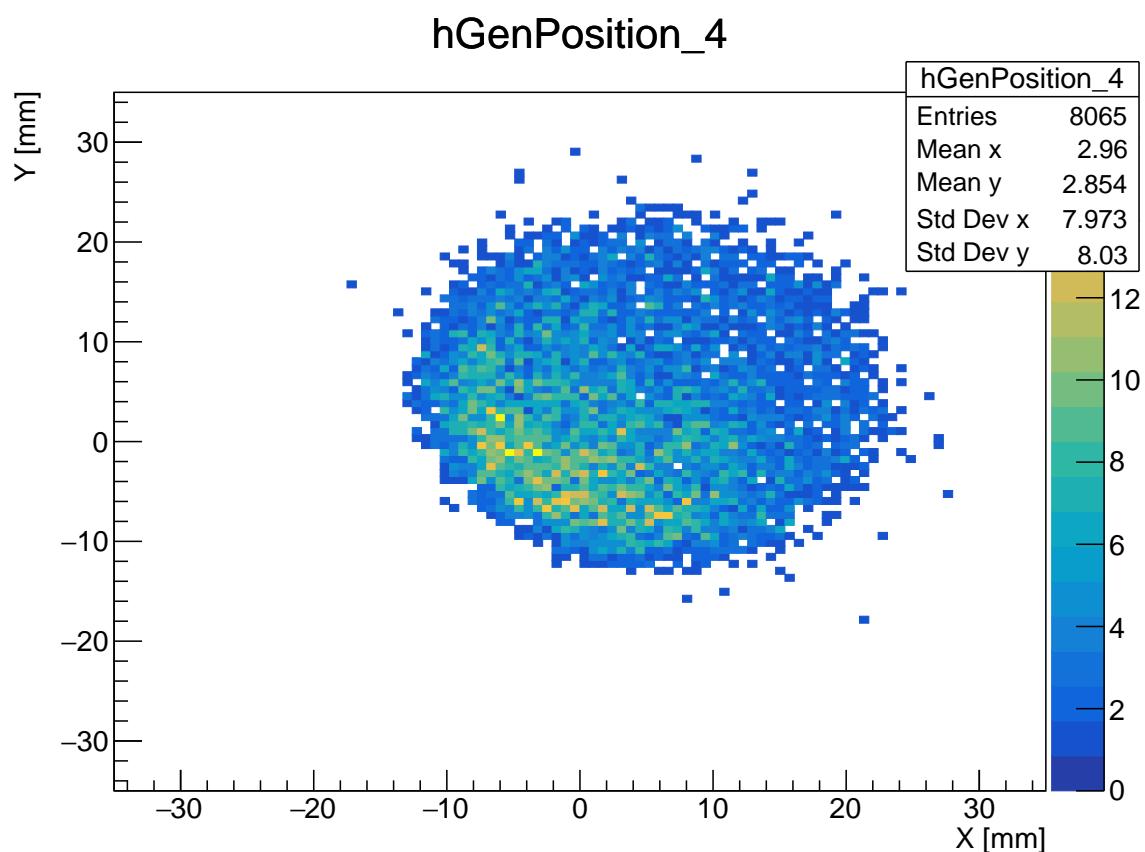


Figure: Generation Position





# MC quantities for proton\_t0

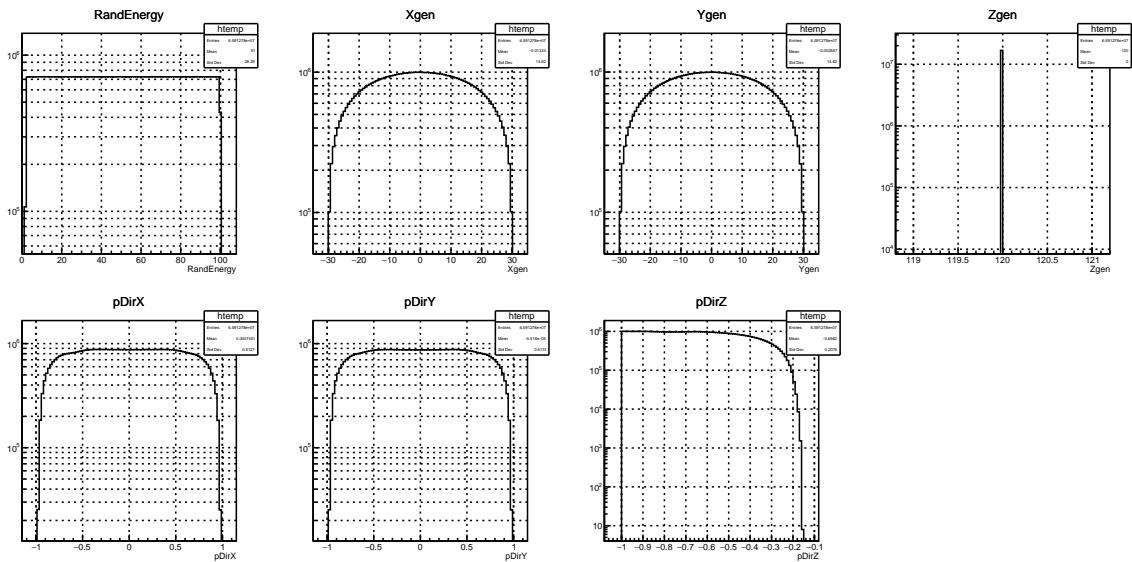


Figure: MC quantities

## Energies distribution for proton

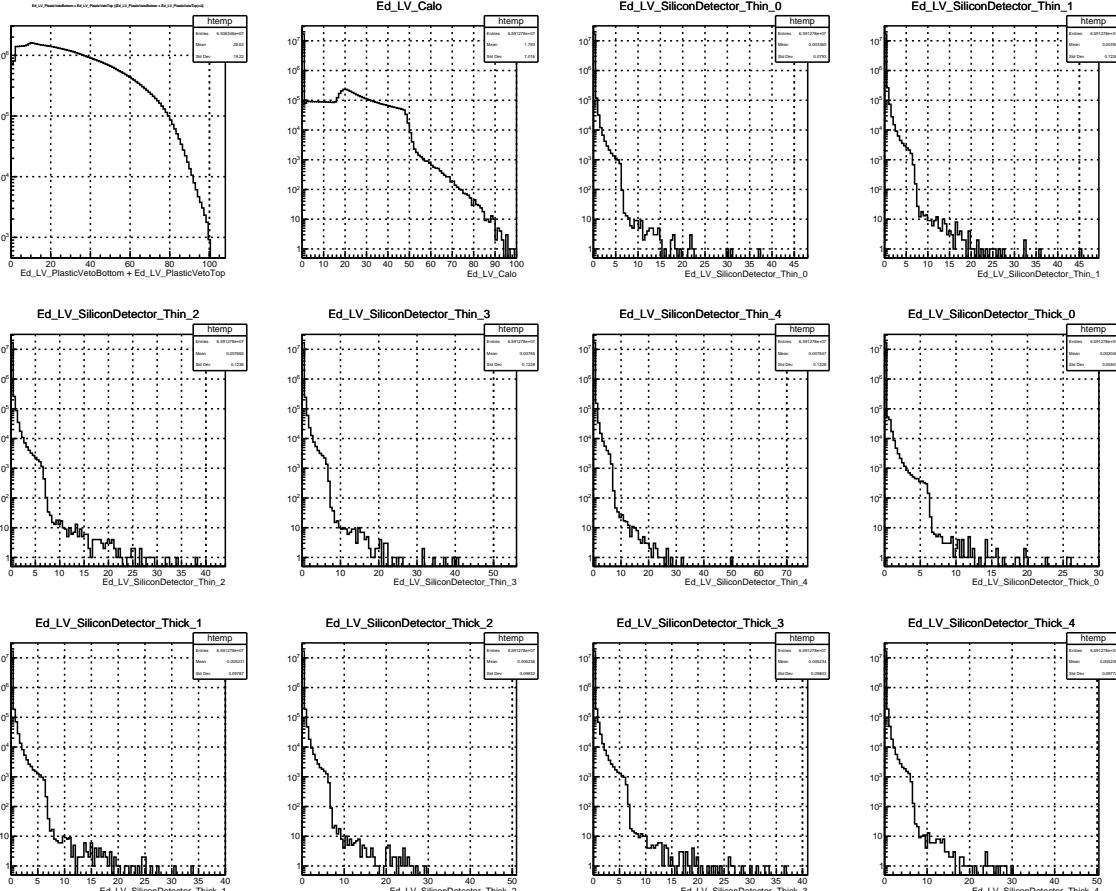


Figure: Detected energies

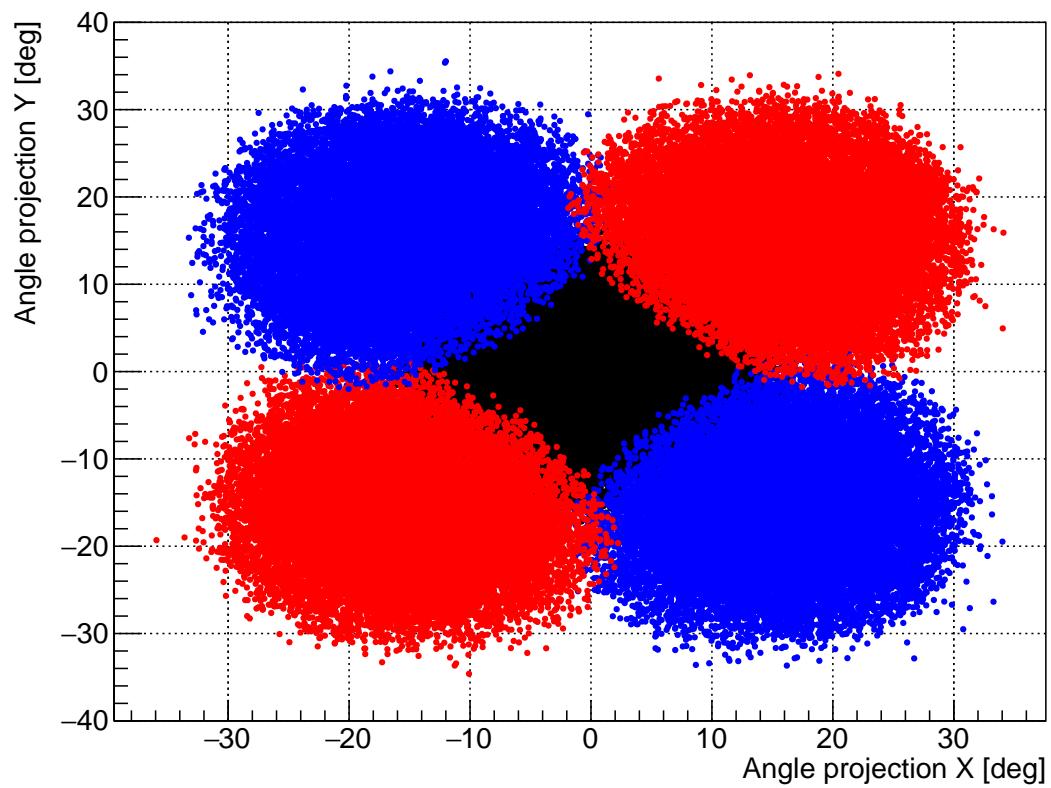


Figure: Angles distribution

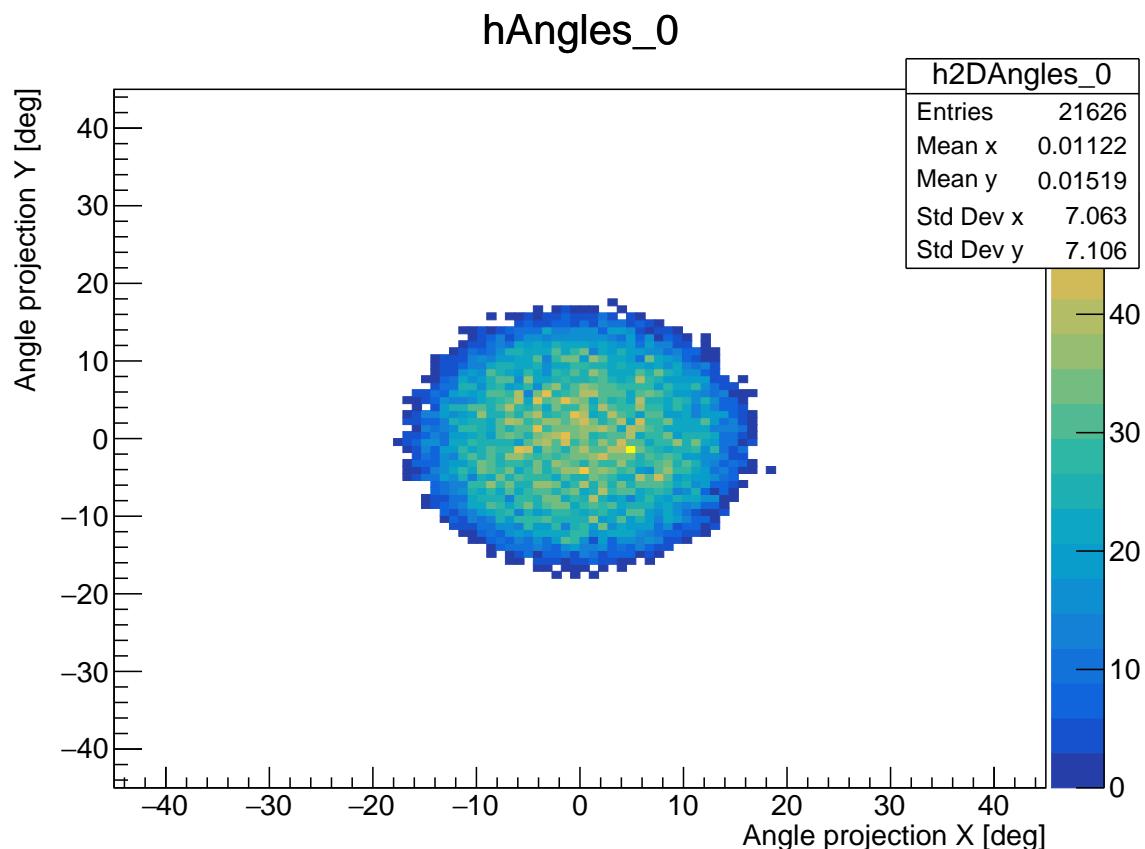


Figure: Angles distribution

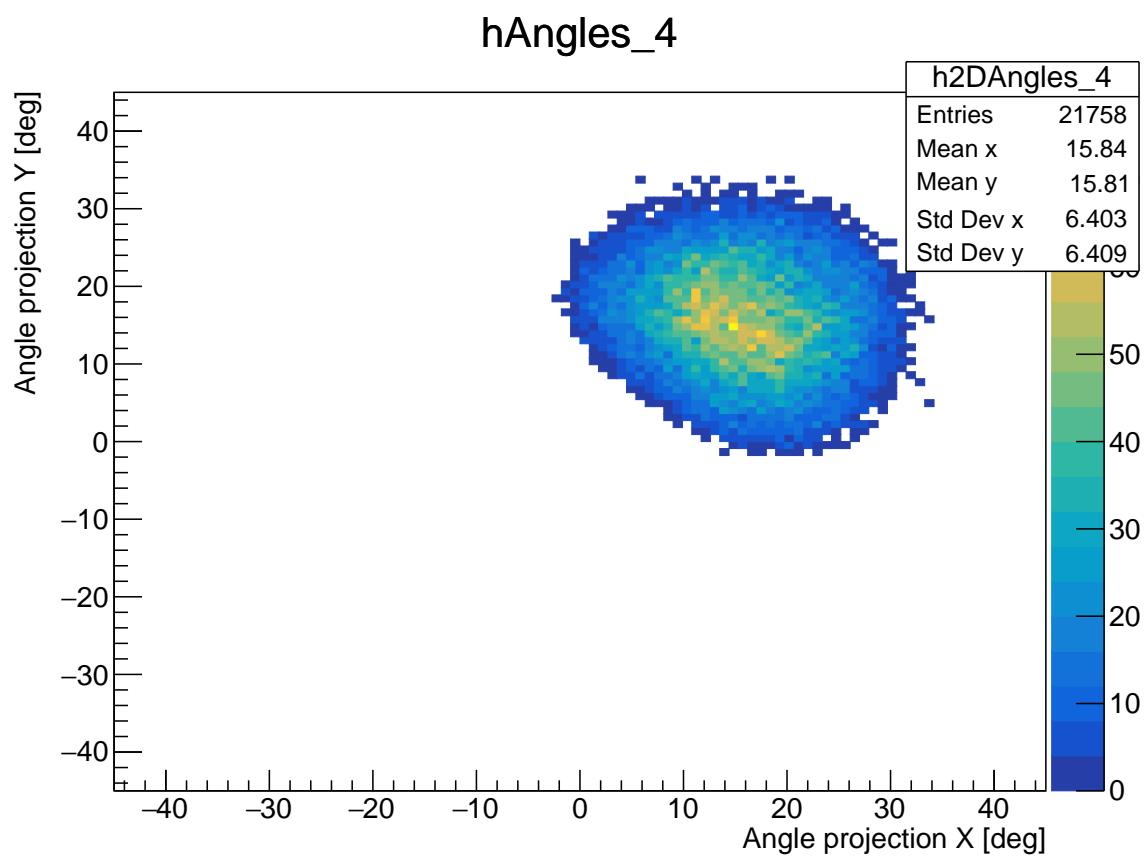


Figure: Angles distribution

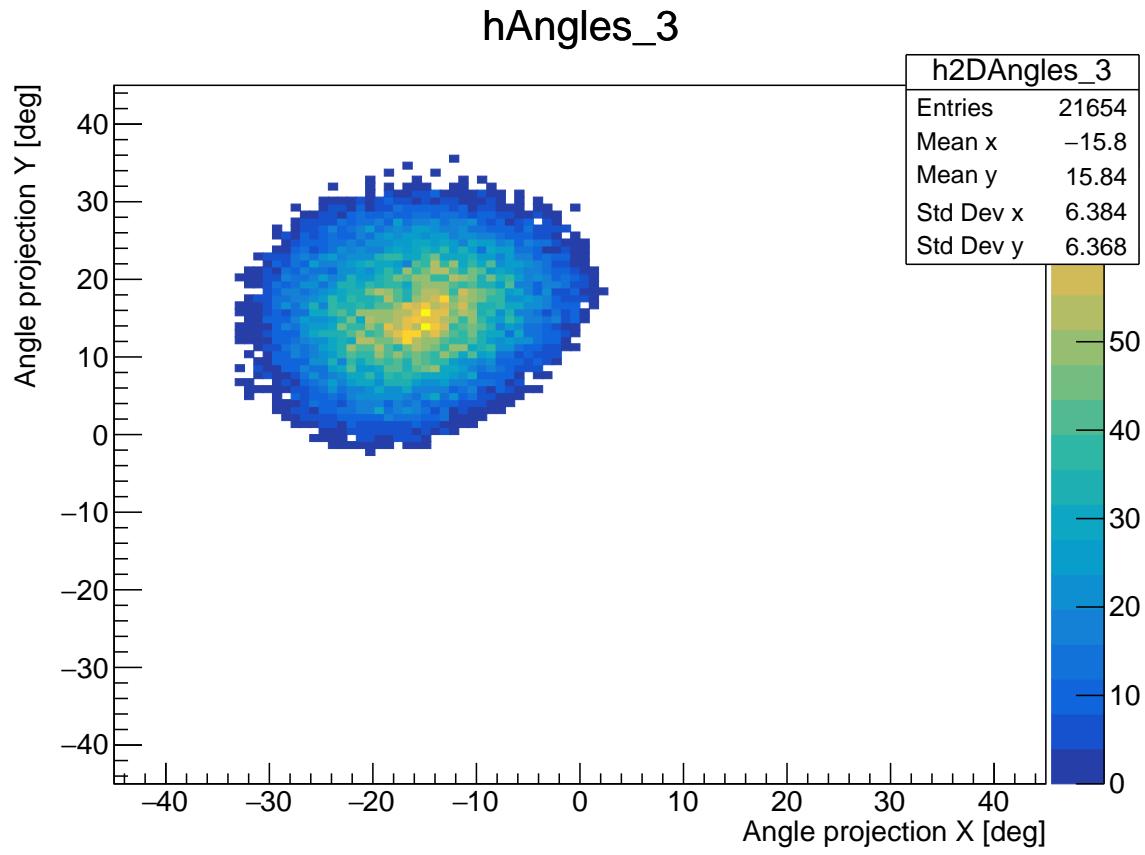


Figure: Angles distribution

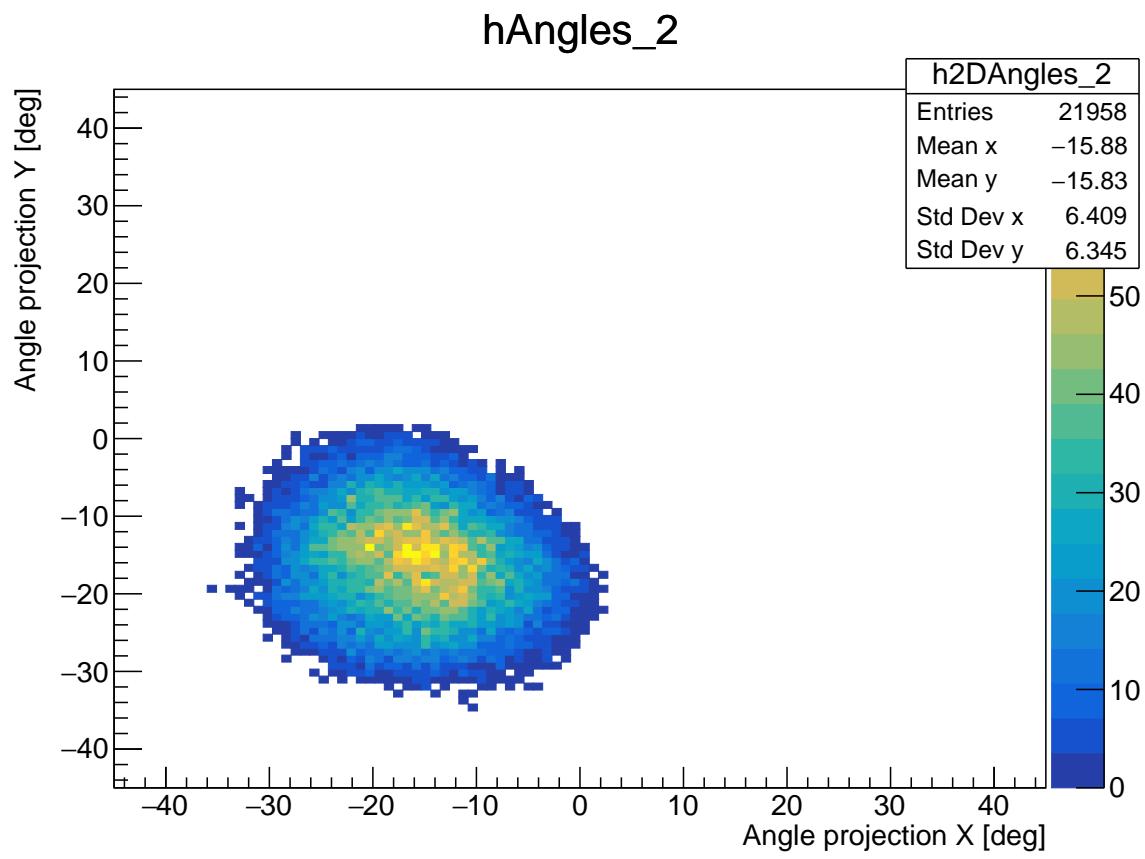


Figure: Angles distribution

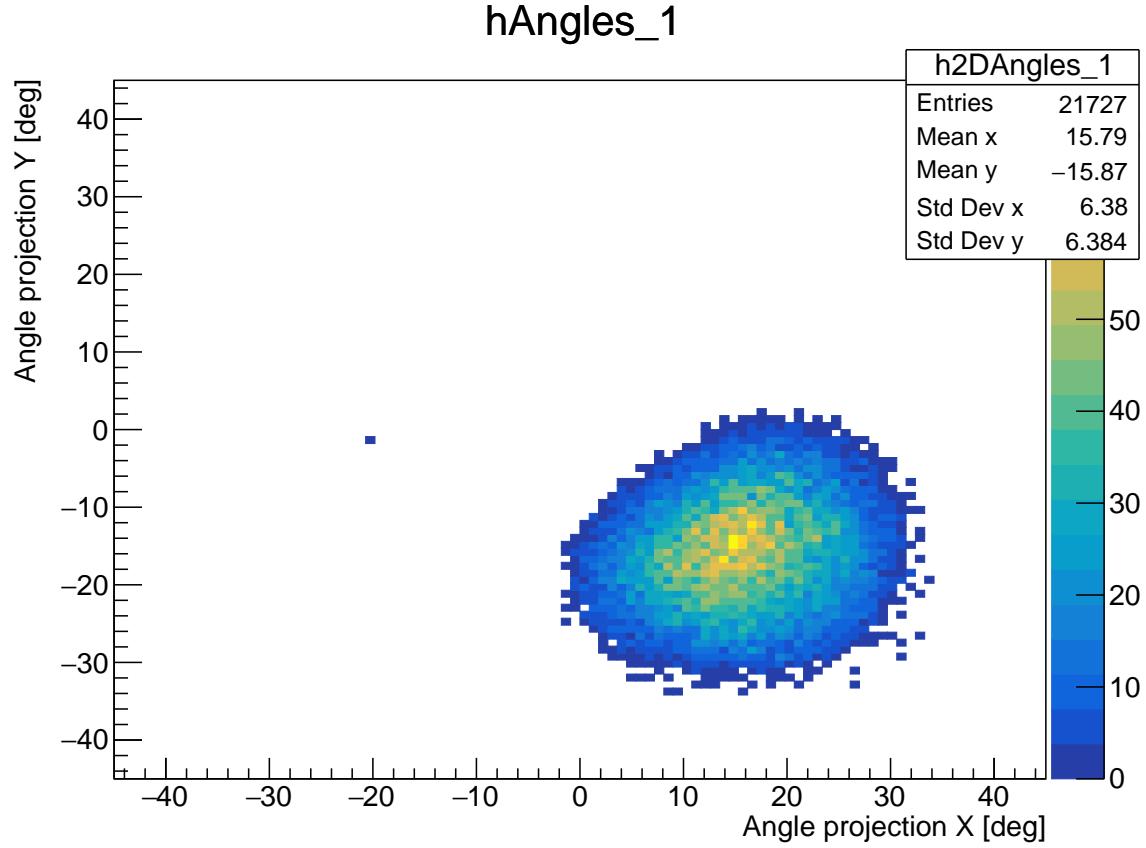


Figure: Angles distribution

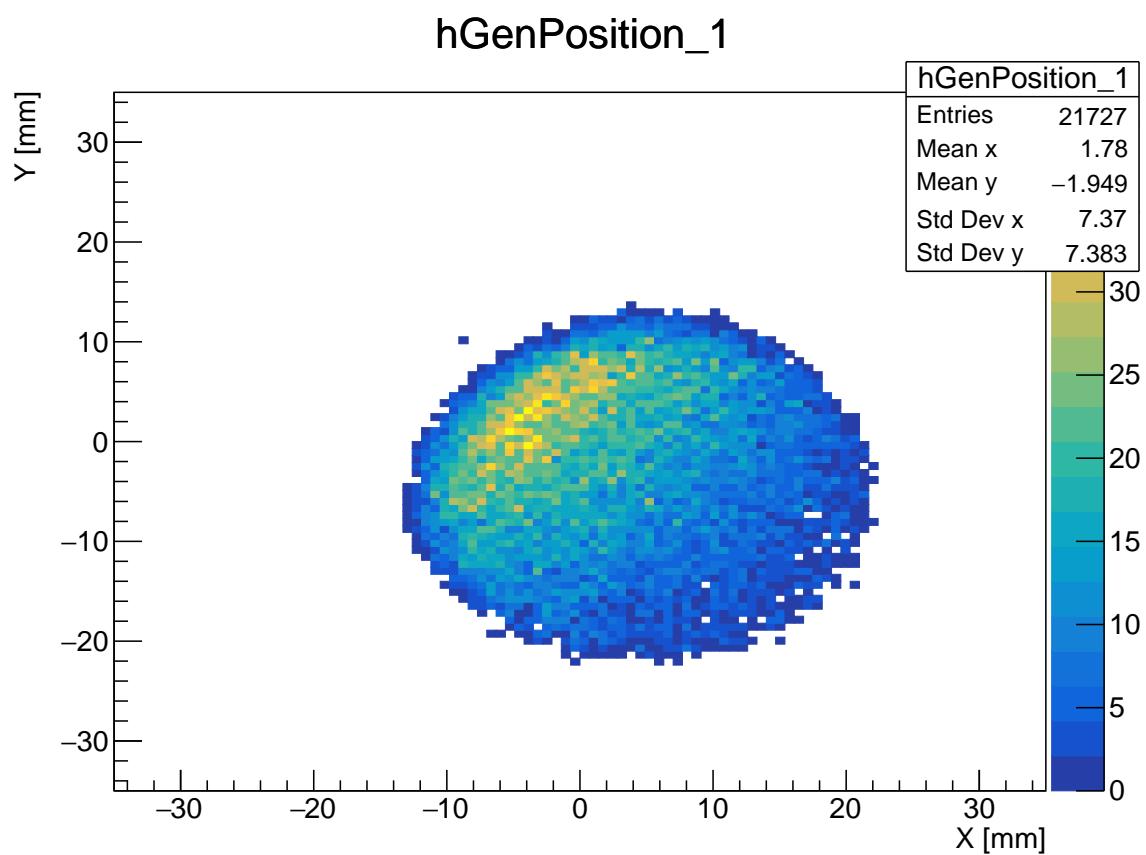


Figure: Generation Position

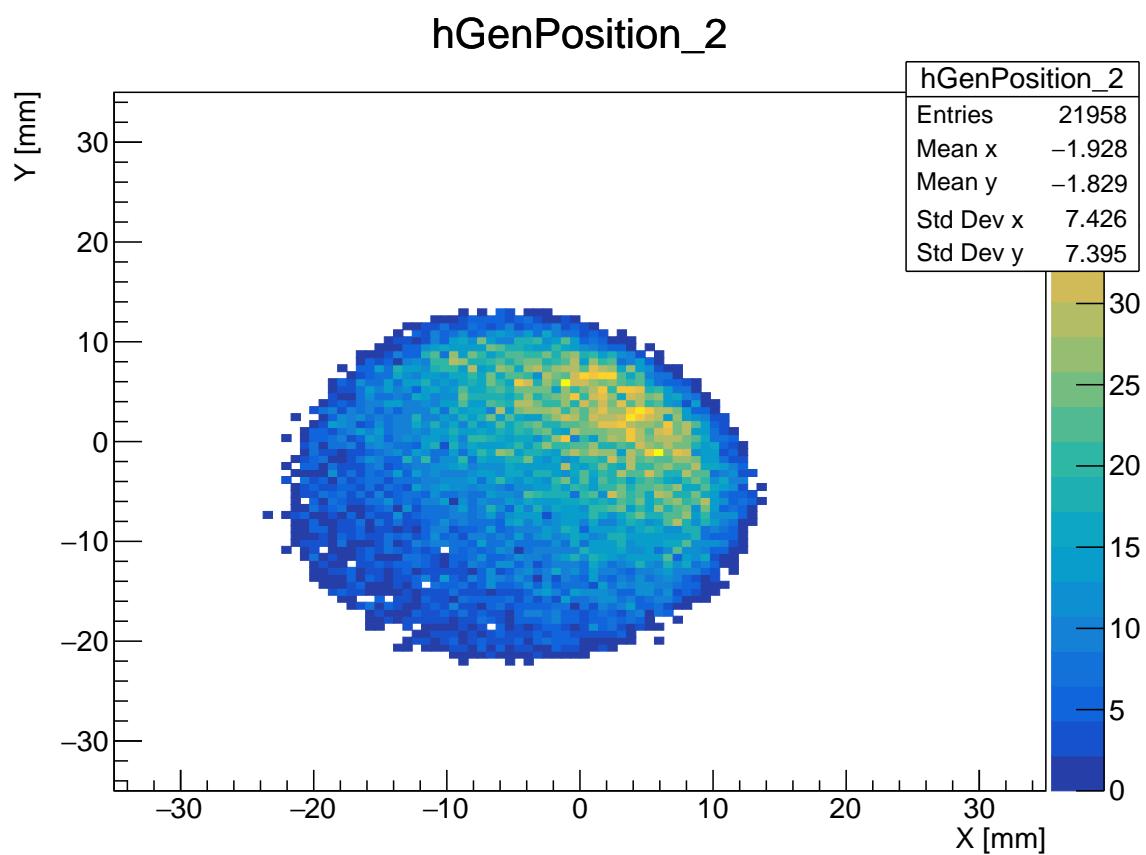


Figure: Generation Position

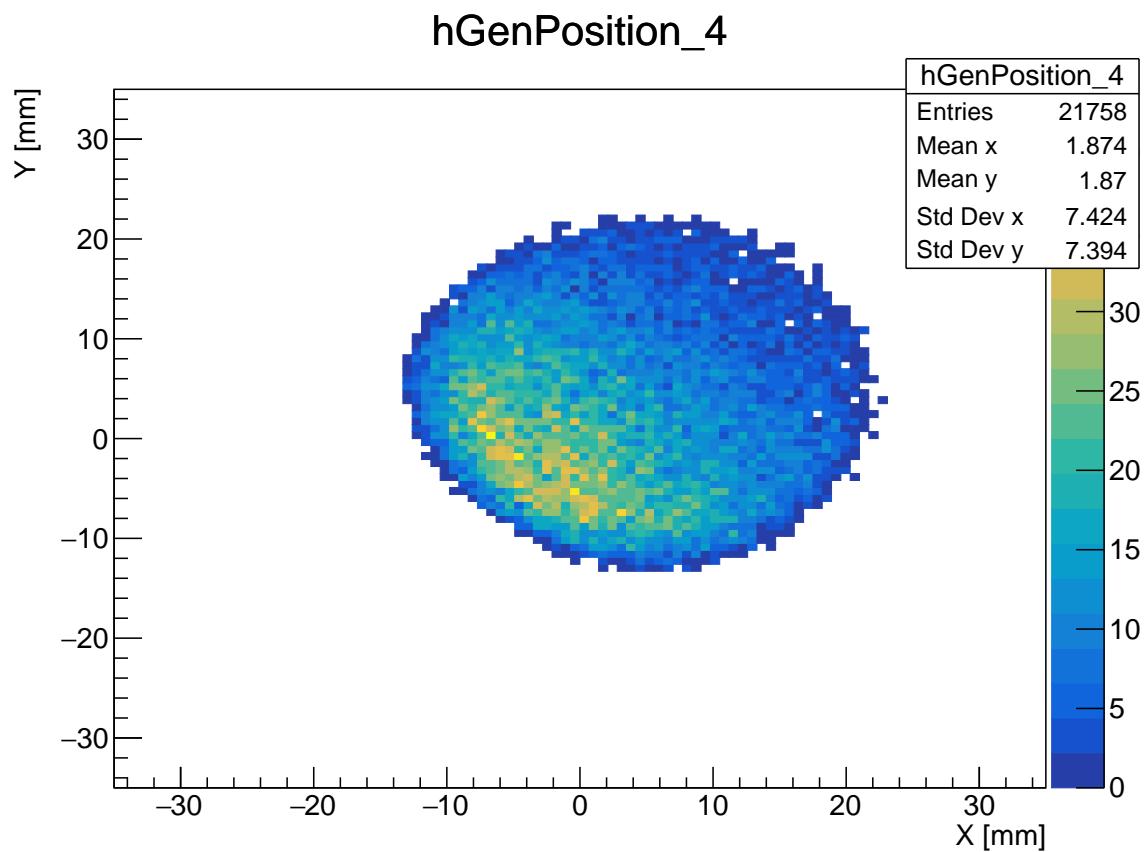


Figure: Generation Position

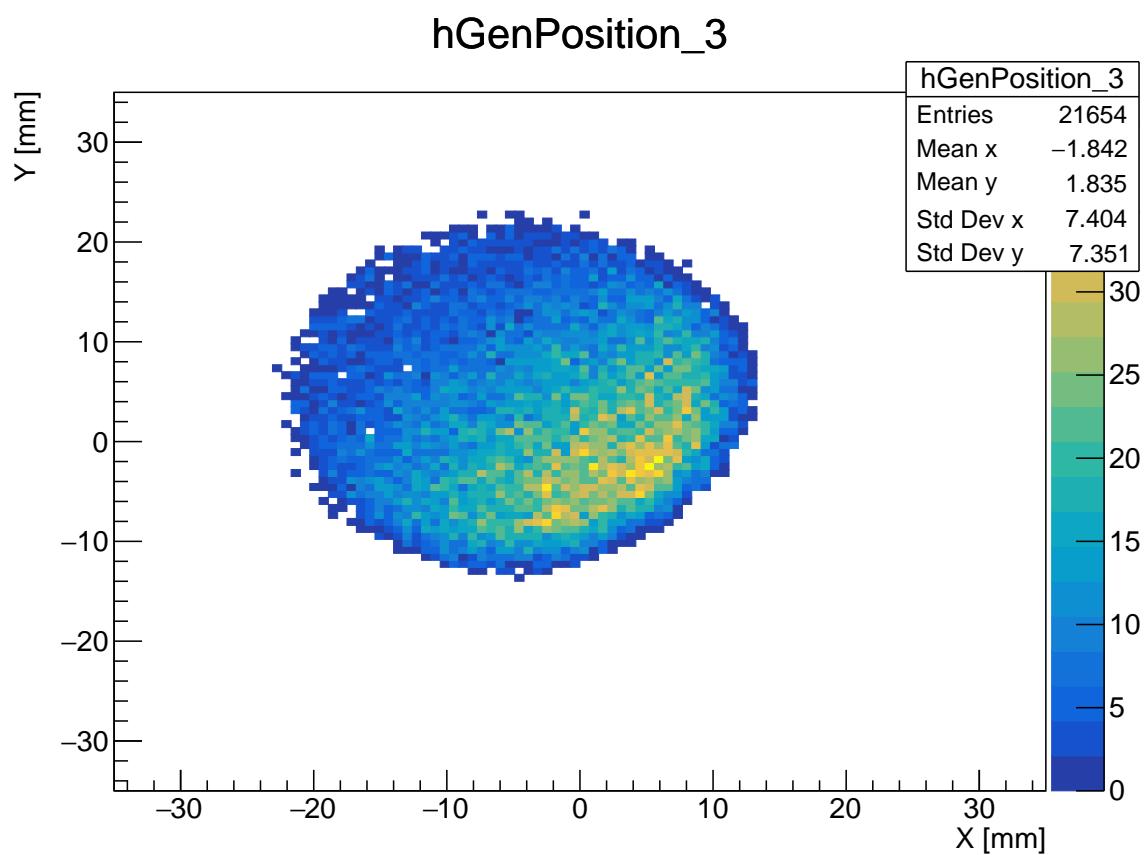


Figure: Generation Position

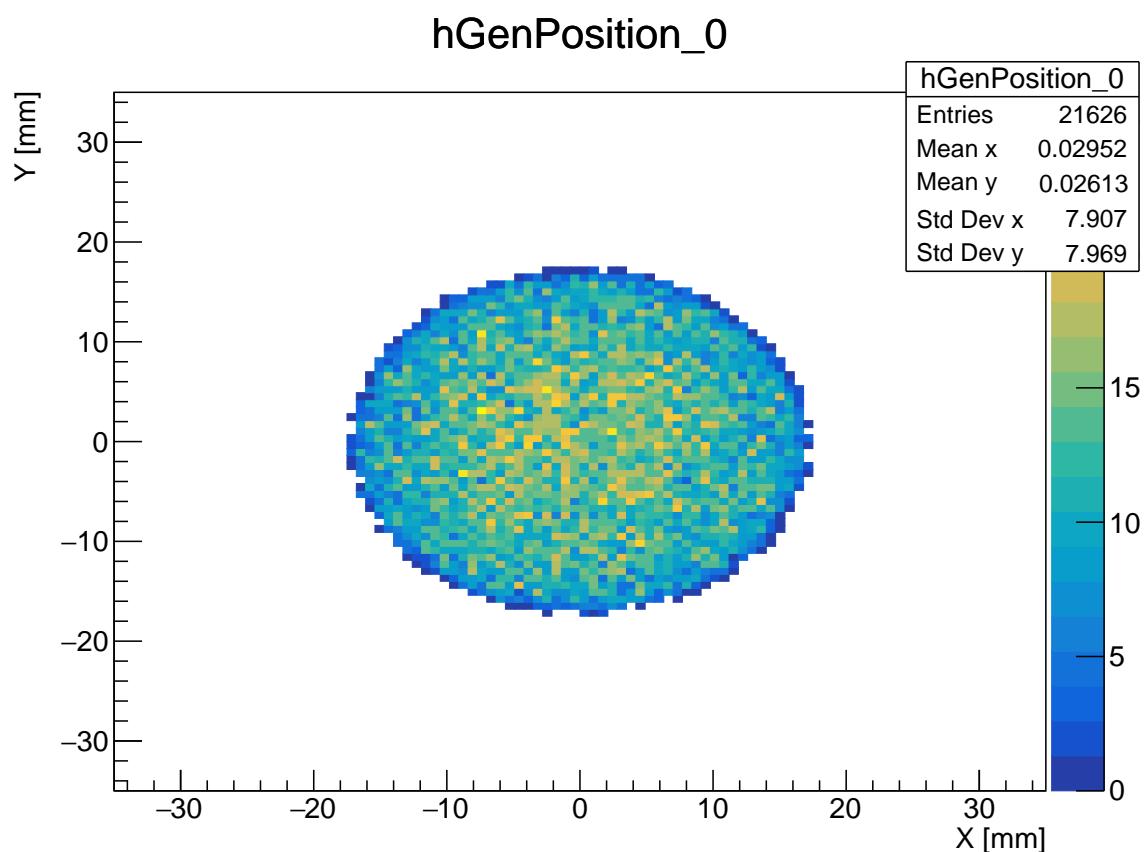


Figure: Generation Position





# MC quantities for alpha\_t0

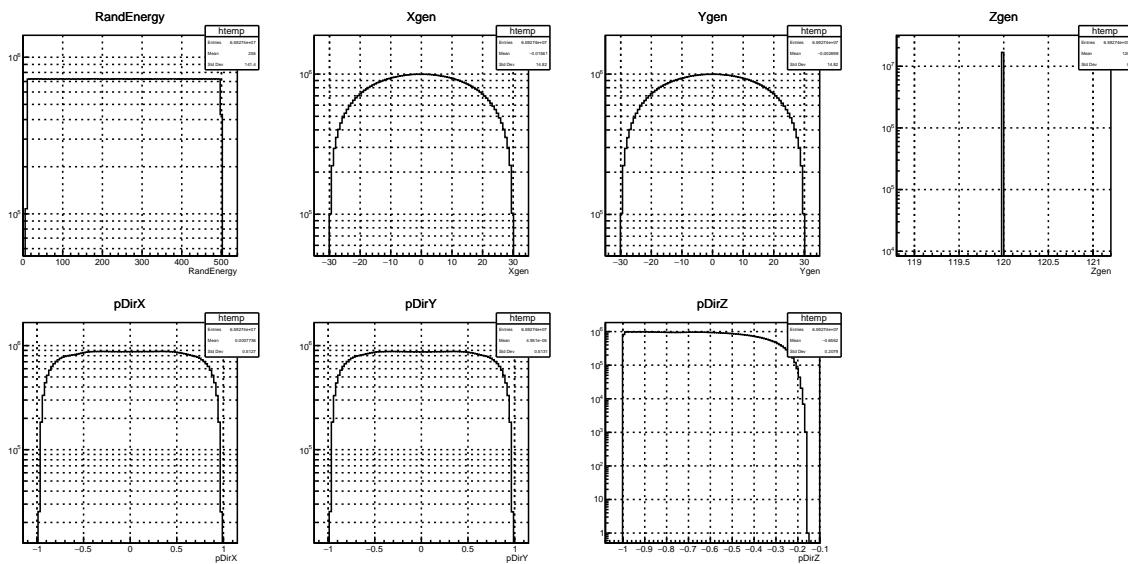


Figure: MC quantities

# Energies distribution for alpha

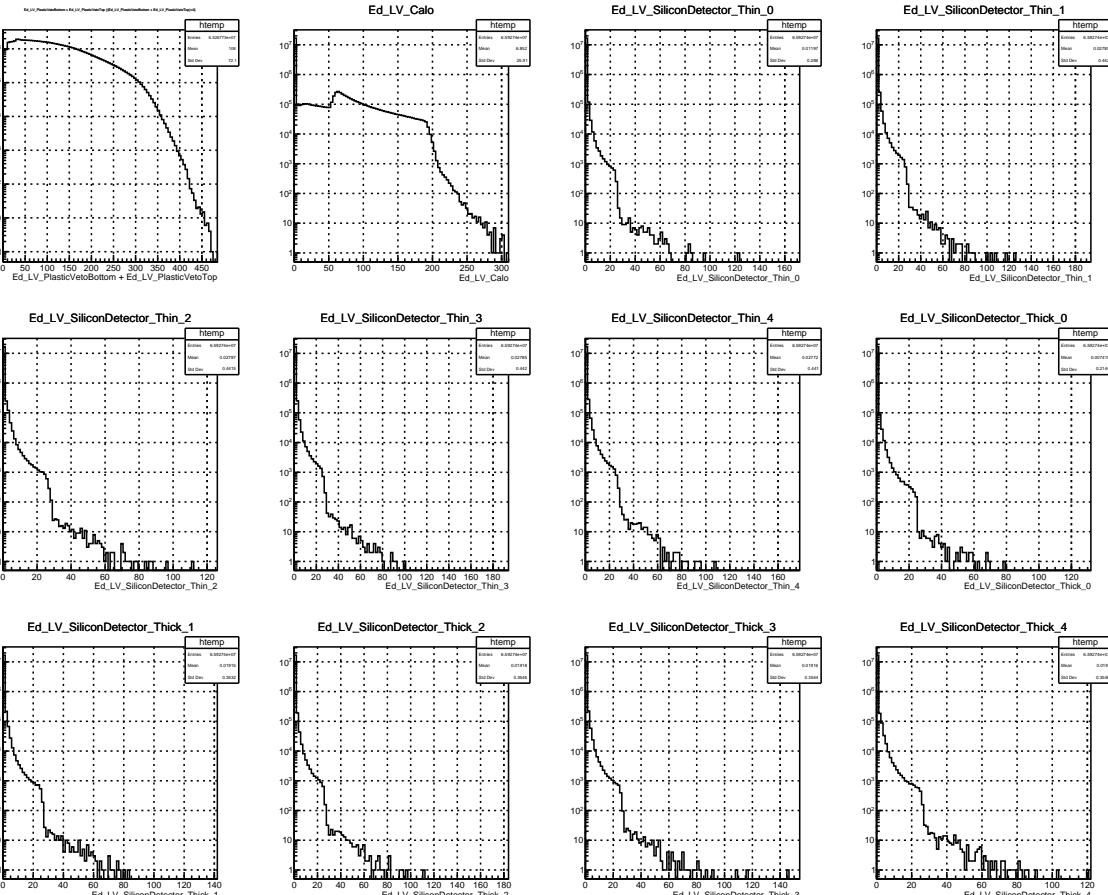


Figure: Detected energies

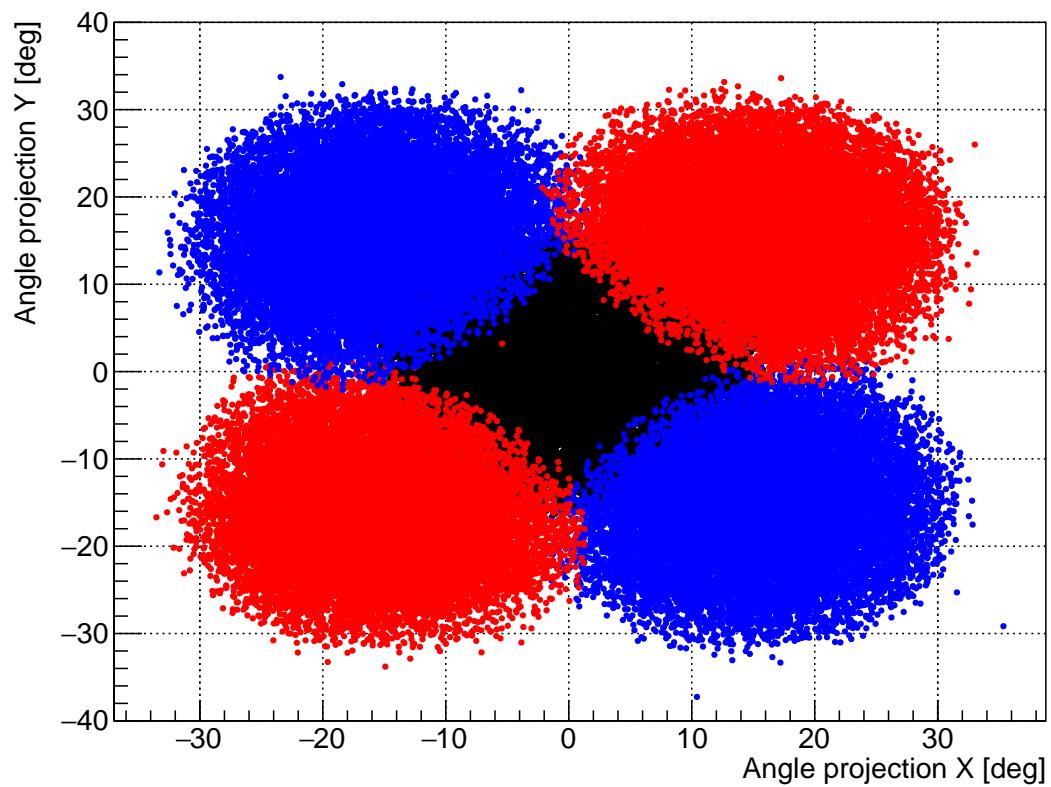


Figure: Angles distribution

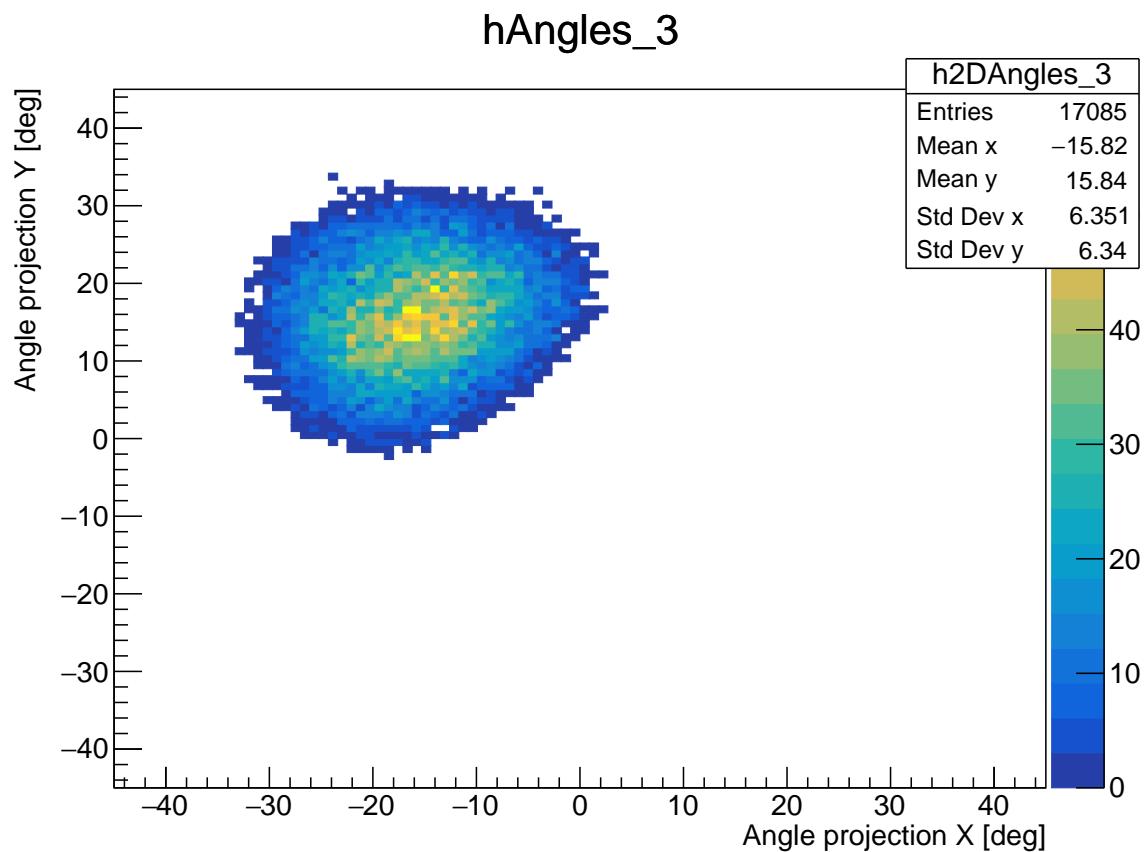


Figure: Angles distribution

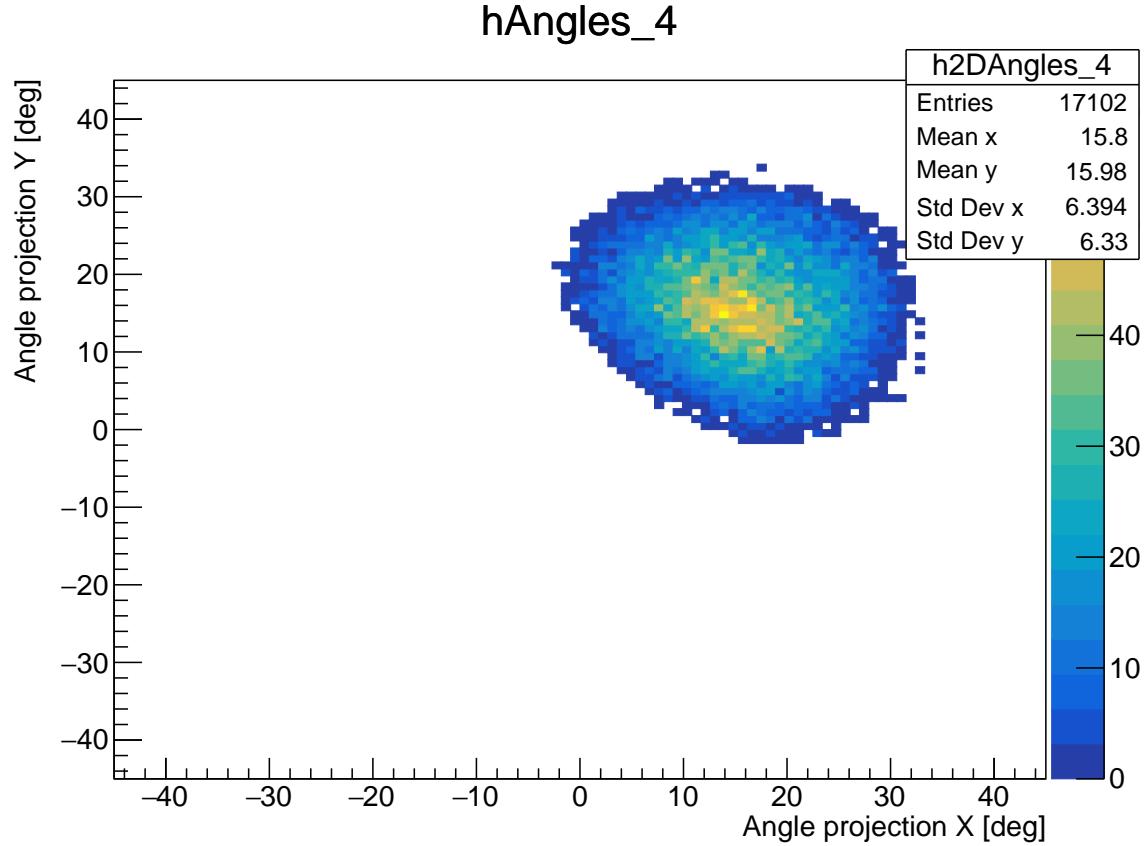


Figure: Angles distribution

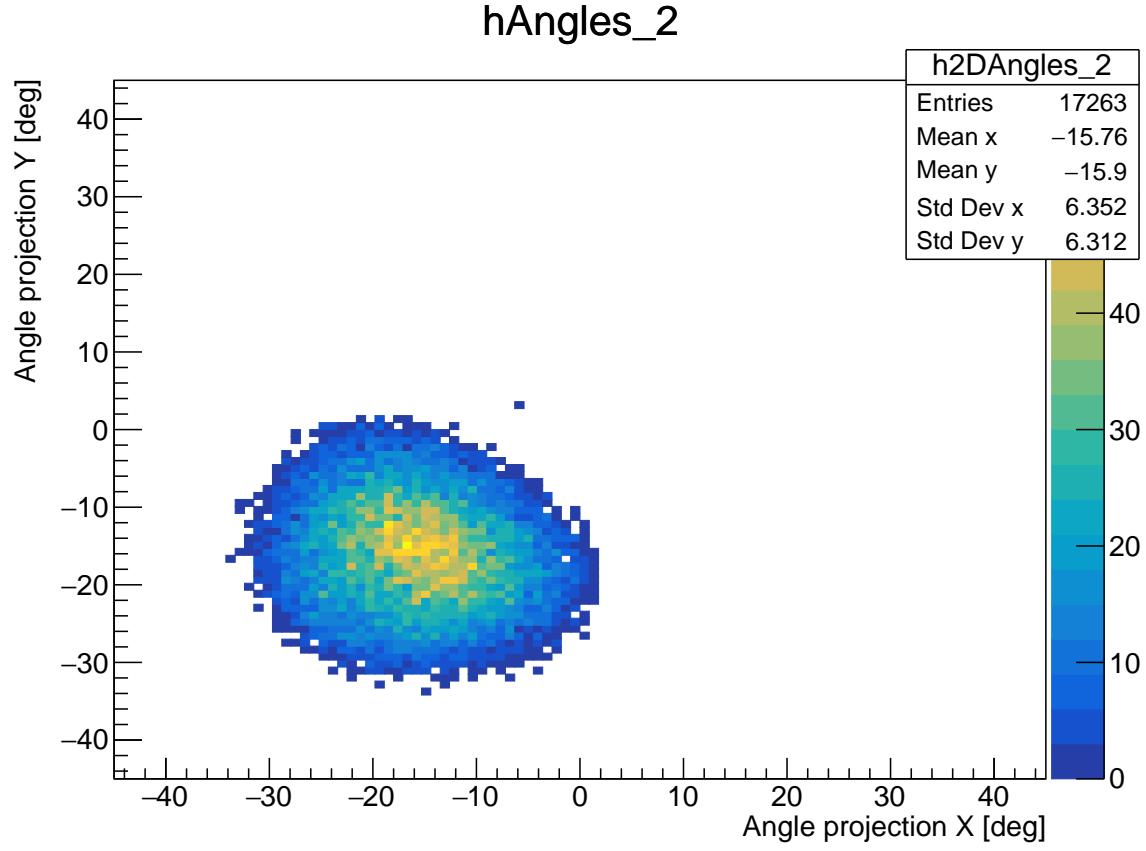


Figure: Angles distribution

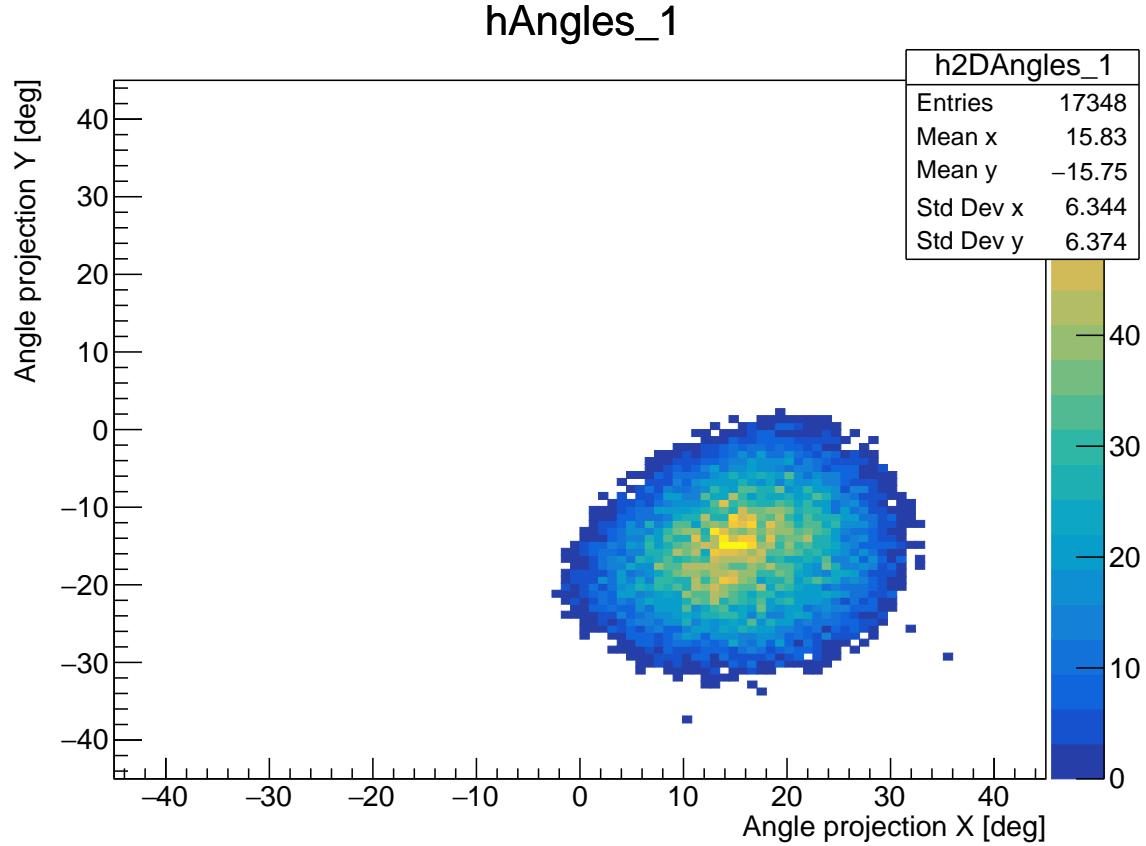


Figure: Angles distribution

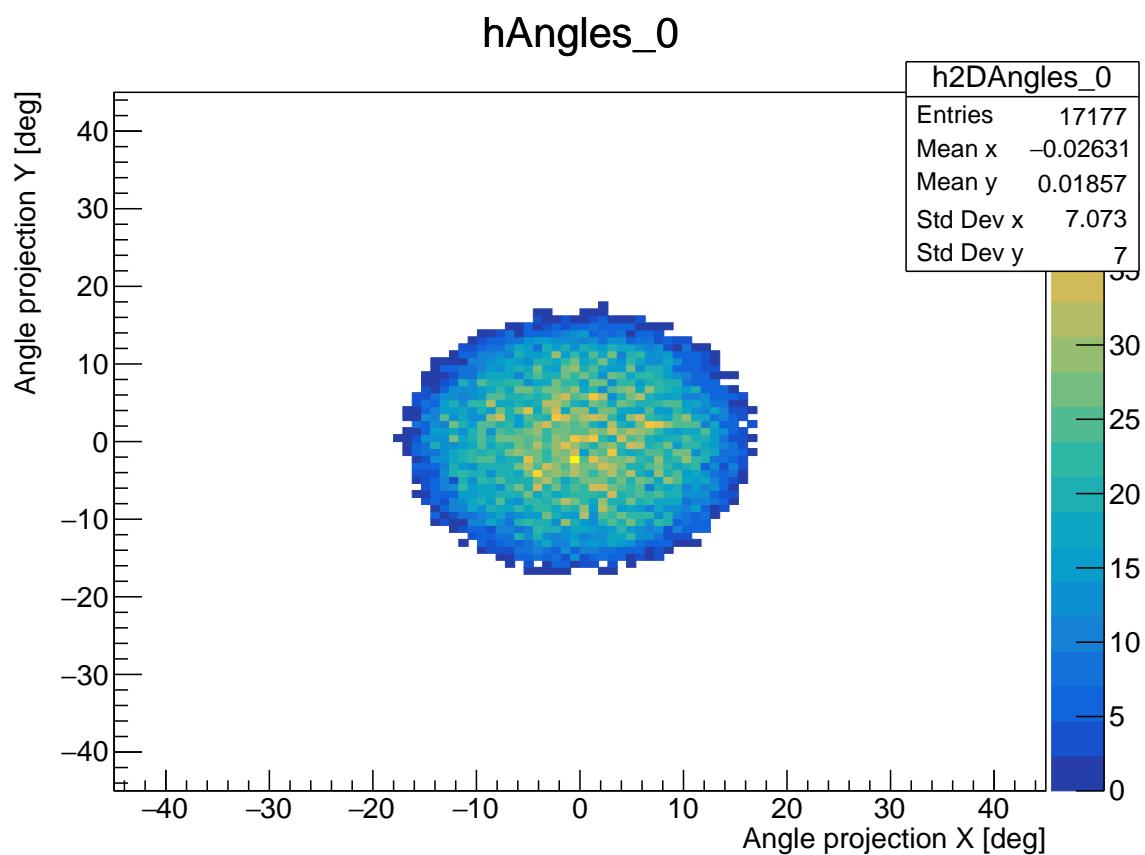


Figure: Angles distribution

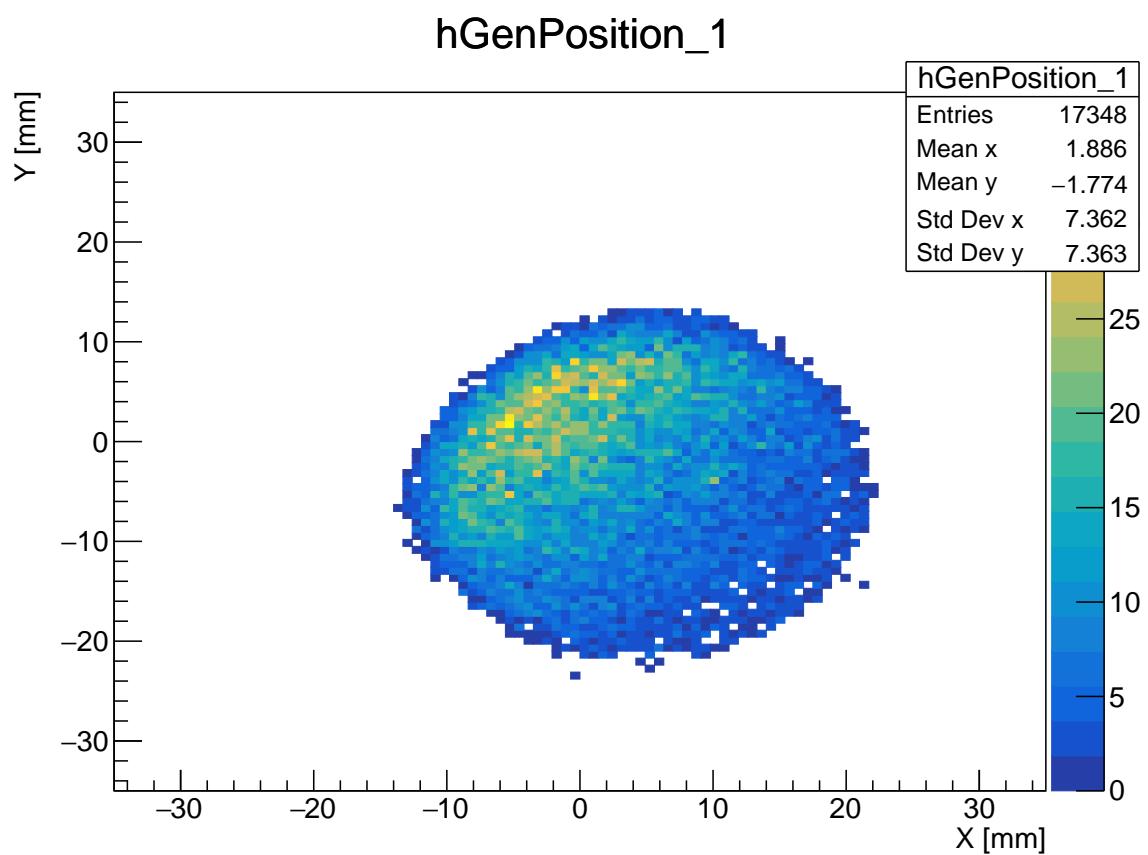


Figure: Generation Position

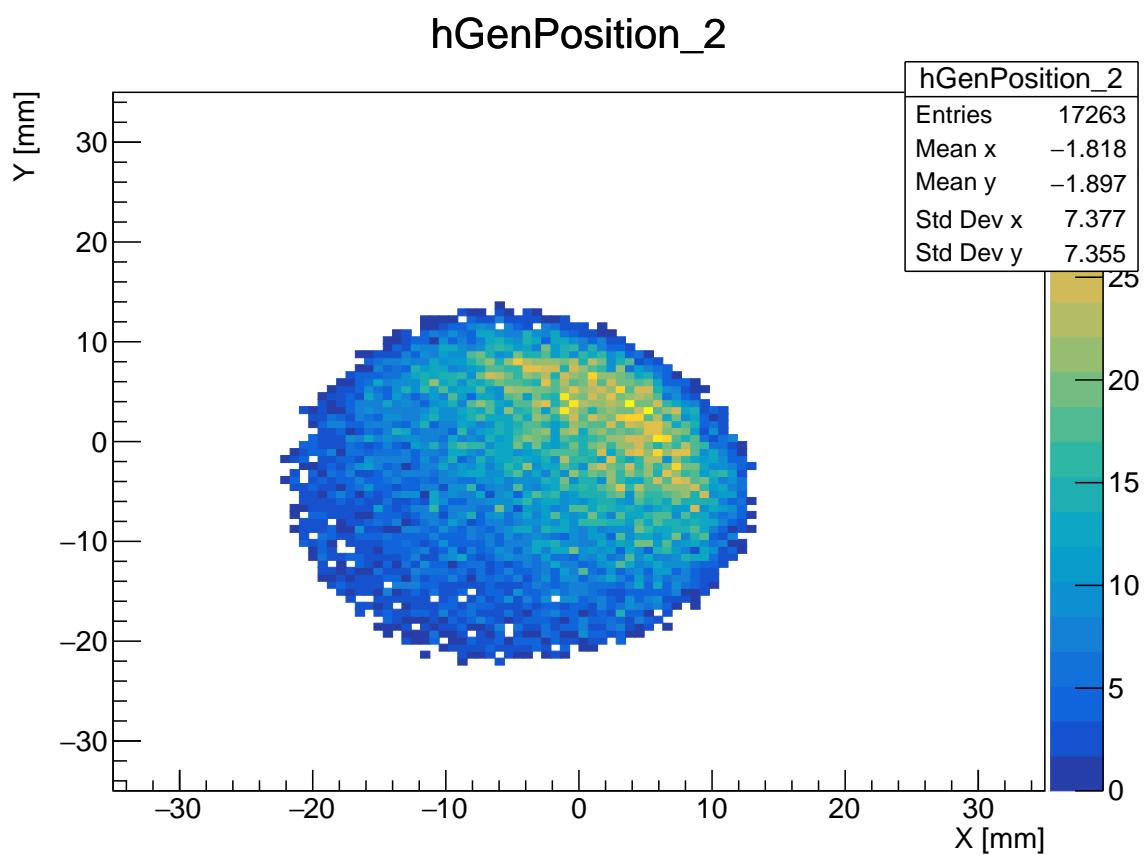


Figure: Generation Position

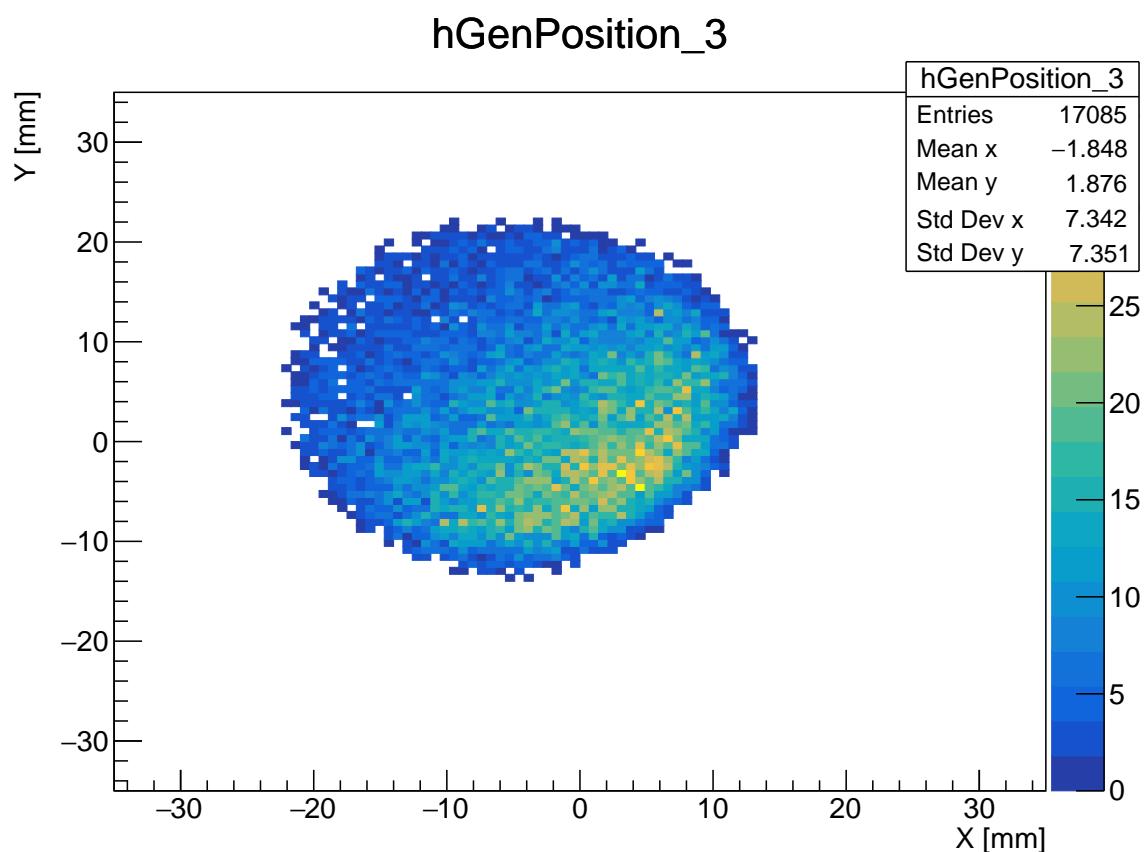


Figure: Generation Position

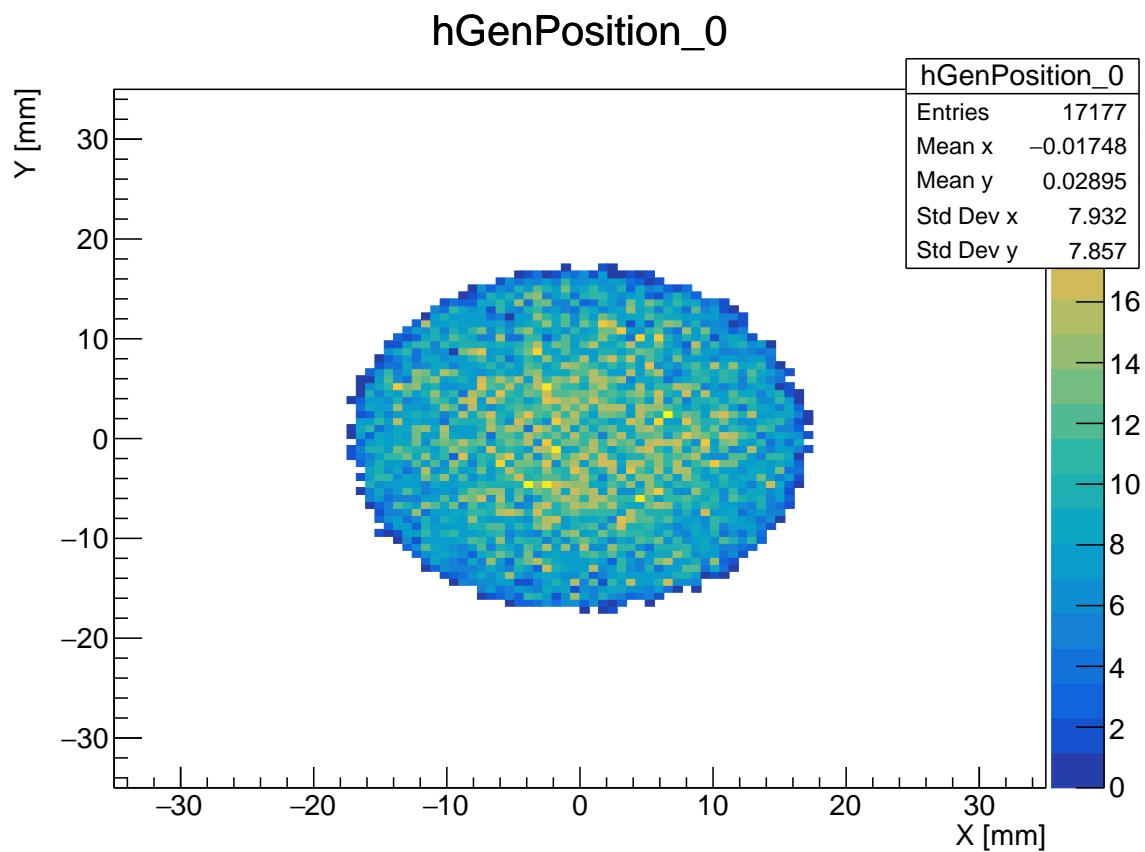


Figure: Generation Position

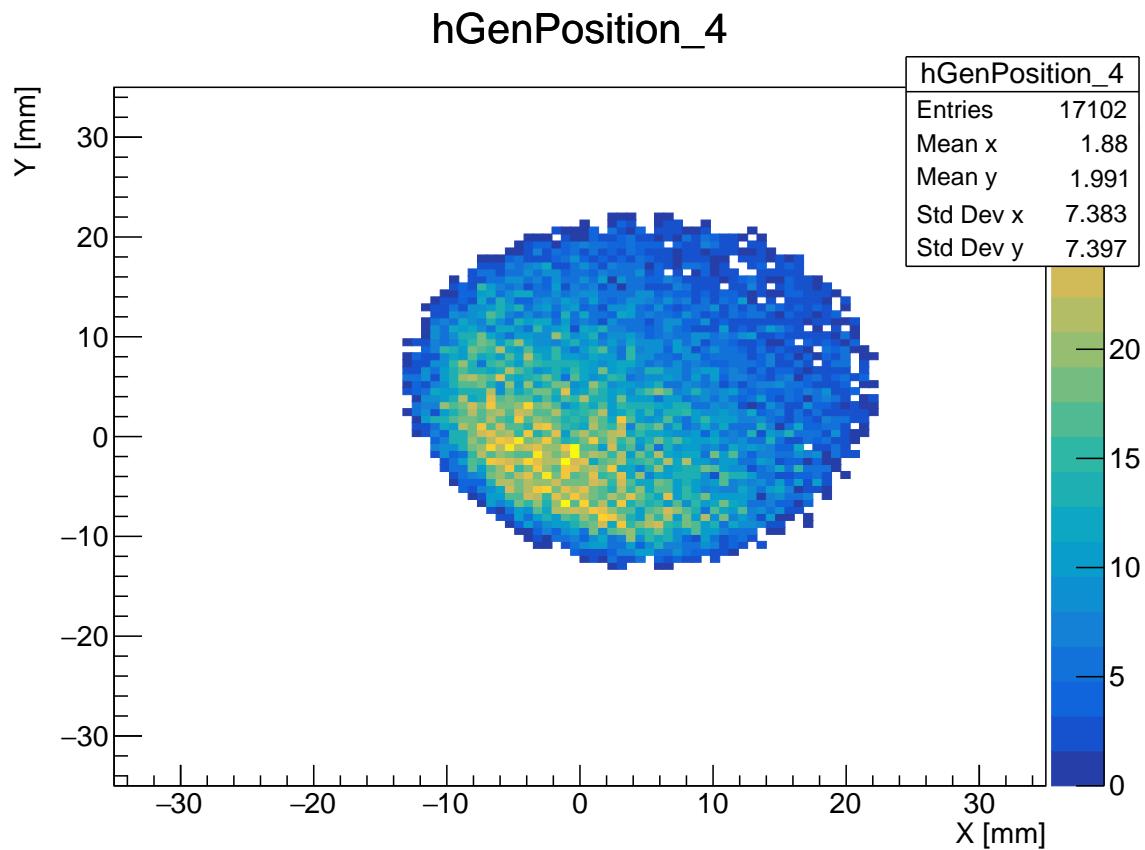


Figure: Generation Position





