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: EventID
- Ntuple ID: 0 Ntuple Column ID: 8 Ntuple Column Name: JobNumber
- Ntuple ID: 0 Ntuple Column ID: 9 Ntuple Column Name: Ed_LV_AlScrew_Thick_1
- Ntuple ID: 0 Ntuple Column ID: 10 Ntuple Column Name: Ed_LV_SiliconDetector_Thin_2
- Ntuple ID: 0 Ntuple Column ID: 11 Ntuple Column Name: Ed_LV_AlScrew_Thick_4
- Ntuple ID: 0 Ntuple Column ID: 12 Ntuple Column Name: Ed_LV_SiliconDetector_Thick_3
- Ntuple ID: 0 Ntuple Column ID: 13 Ntuple Column Name: Ed_LV_BakeliteBoardCalo
- Ntuple ID: 0 Ntuple Column ID: 14 Ntuple Column Name: Ed_LV_PlasticVetoTop
- Ntuple ID: 0 Ntuple Column ID: 15 Ntuple Column Name: Ed_LV_BakeliteBoardBottom
- Ntuple ID: 0 Ntuple Column ID: 16 Ntuple Column Name: Ed_LV_AlFrame_Thin_4
- 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_AlScrew_Thick_3
- Ntuple ID: 0 Ntuple Column ID: 19 Ntuple Column Name: Ed_LV_SiliconDetector_Thin_3
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- Ntuple ID: 0 Ntuple Column ID: 23 Ntuple Column Name: Ed_LV_SiliconDetector_Thin_0
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- Ntuple ID: 0 Ntuple Column ID: 43 Ntuple Column Name: Ed_LV_AlShieldLower
- Ntuple ID: 0 Ntuple Column ID: 44 Ntuple Column Name: Ed_LV_BakeliteCable_Thin_0
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Volume	Material	Mass (g)
LV_AlScrew_Thick_1	G4_Galactic	9.05215e-26
LV_SiliconDetector_Thin_2	G4_Si	0.135903
LV_AlScrew_Thick_4	G4_Galactic	9.05215e-26
LV_SiliconDetector_Thick_3	G4_Si	0.135903
LV_BakeliteBoardCalo	G4_Galactic	6.393e-25
LV_PlasticVetoTop	G4_PLASTIC_SC_VINYLTOLUENE	234.744
LV_BakeliteBoardBottom	G4_Galactic	1.52827e-24
LV_AlFrame_Thin_4	G4_Galactic	1.10353e-25
LV_SiliconDetector_Thick_4	G4_Si	0.135903
LV_AlScrew_Thick_3	G4_Galactic	9.05215e-26
LV_SiliconDetector_Thin_3	G4_Si	0.135903
LV_SiliconDetector_Thick_1	G4_Si	0.135903
LV_AlScrew_Thin_1	G4_Galactic	9.05215e-26
LV_Calo	G4_PLASTIC_SC_VINYLTOLUENE	74.304
LV_SiliconDetector_Thin_0	G4_Si	0.0439621
LV_AlFrame_Thin_1	G4_Galactic	1.10353e-25
LV_AlScrew_Thin_3	G4_Galactic	9.05215e-26
LV_AlFrame_Thin_0	G4_Galactic	8.11216e-26
LV_AlScrew_Thin_0	G4_Galactic	5.42892e-26
LV_BakeliteBoardTop	G4_Galactic	1.39677e-24
LV_SiliconDetector_Thin_4	G4_Si	0.135903
LV_AlFrame_Thin_3	G4_Galactic	1.10353e-25
LV_AlScrew_Thin_4	G4_Galactic	9.05215e-26
LV_AlScrew_Thick_2	G4_Galactic	9.05215e-26
LV_AlScrew_1	G4_Galactic	2.0382e-25
LV_AlScrew_2	G4_Galactic	2.0382e-25
LV_AlScrew_Thin_2	G4_Galactic	9.05215e-26
LV_PlasticVetoBottom	G4_PLASTIC_SC_VINYLTOLUENE	128.504
LV_AlBottom	G4_Galactic	1.56411e-23
LV_AlScrew_4	G4_Galactic	2.0382e-25
LV_AlFrame_Thick_0	G4_Galactic	8.11217e-26
LV_AlFrame_Thin_2	G4_Galactic	1.10353e-25
LV_AlScrew_3	G4_Galactic	2.0382e-25
LV_SiliconDetector_Thin_1	G4_Si	0.135903
LV_AlShieldLower	G4_Galactic	8.24204e-25
LV_BakeliteCable_Thin_0	G4_Galactic	2.13526e-26
LV_BakeliteCable_Thin_1	G4_Galactic	2.61684e-26
LV_BakeliteCable_Thick_3	G4_Galactic	2.61684e-26
LV_BakeliteCable_Thin_4	G4_Galactic	2.61684e-26
LV_AlShieldUpper	G4_Galactic	8.7516e-25
LV_AlFrame_Thick_3	G4_Galactic	1.10354e-25
LV_BakeliteCable_Thin_2	G4_Galactic	2.61684e-26
LV_SiliconDetector_Thick_2	G4_Si	0.135903
LV_BakeliteCable_Thick_0	G4_Galactic	2.13526e-26
LV_BakeliteCable_Thick_4	G4_Galactic	2.61684e-26
LV_BakeliteCable_Thin_3	G4_Galactic	2.61684e-26
LV_BakeliteBoardMiddleLower	G4_Galactic	1.20264e-24
LV_BakeliteBoardMiddleUpper	G4_Galactic	1.20264e-24
LV_AlFrame_Thick_4	G4_Galactic	1.10354e-25
LV_AlScrew_Thick_0	G4_Galactic	5.42892e-26
LV_AlFrame_Thick_2	G4_Galactic	1.10354e-25
LV_AlTop	G4_Galactic	2.10694e-23
LV_SiliconDetector_Thick_0	G4_Si	0.0439621
LV_BakeliteCable_Thick_2	G4_Galactic	2.61684e-26
LV_BakeliteCable_Thick_1	G4_Galactic	2.61684e-26
LV_AlFrame_Thick_1	G4_Galactic	1.10354e-25

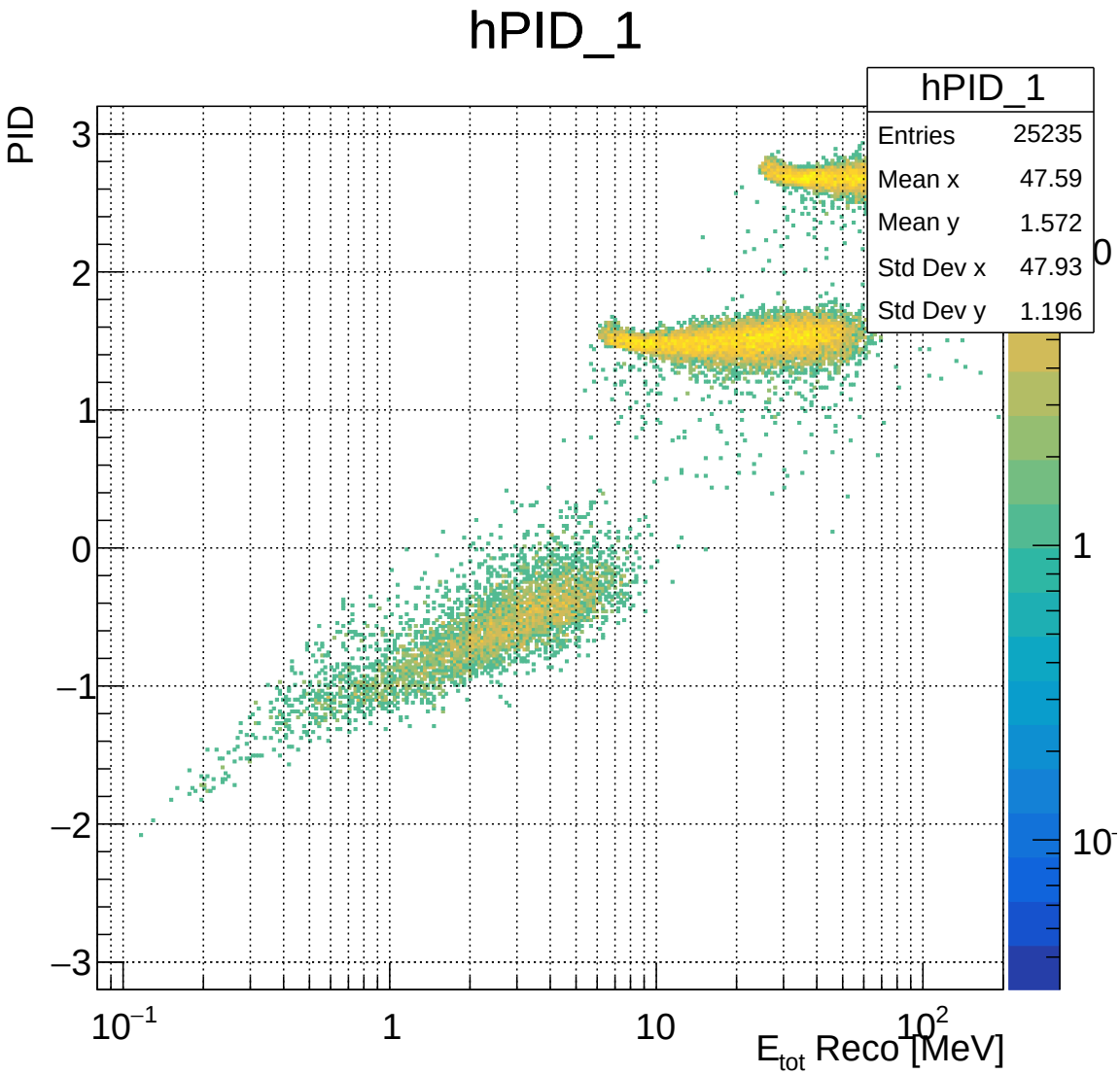


Figure: PID, No Gaussian Smearing, Total Energy is the Energy reconstructed.

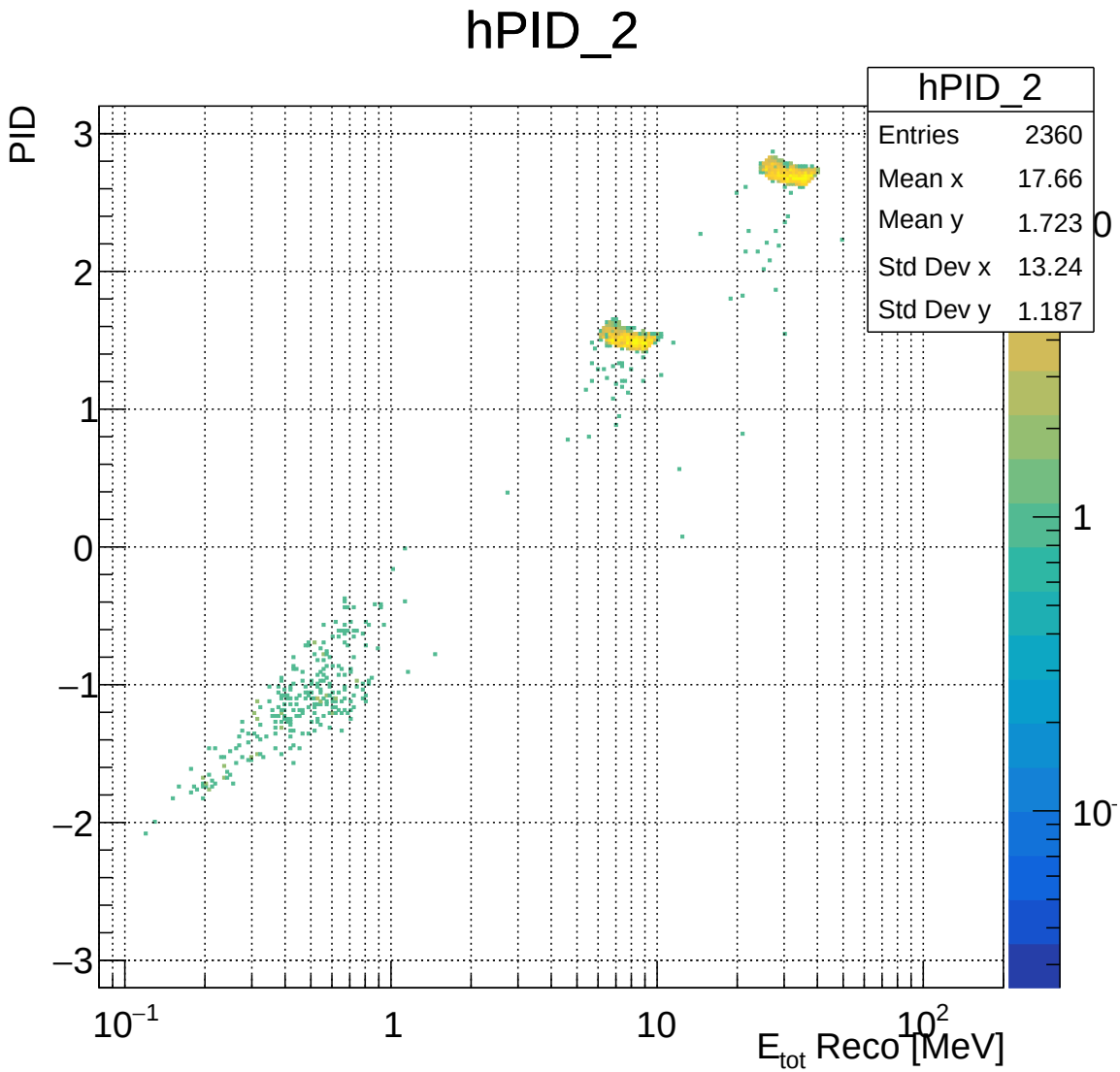


Figure: PID, No Gaussian Smearing, Total Energy is the Energy reconstructed, No Calorimeter.

PID - Non Confinement Violation Factor - NOK

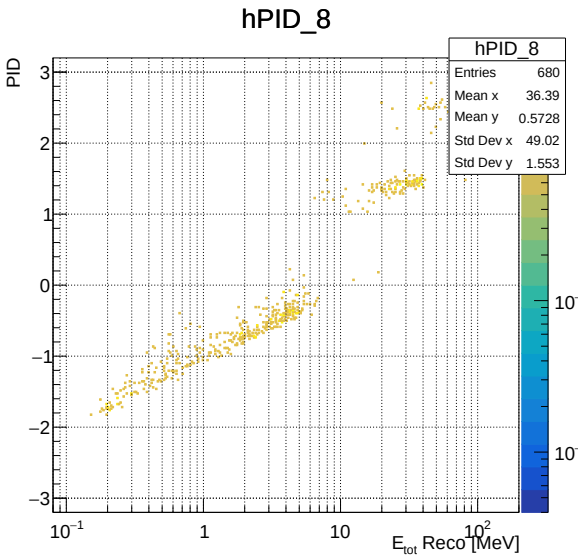


Figure: PID. Convined events but Measured energy is not equal to the MC energy.

PID - Non Confinement Violation Factor - OK

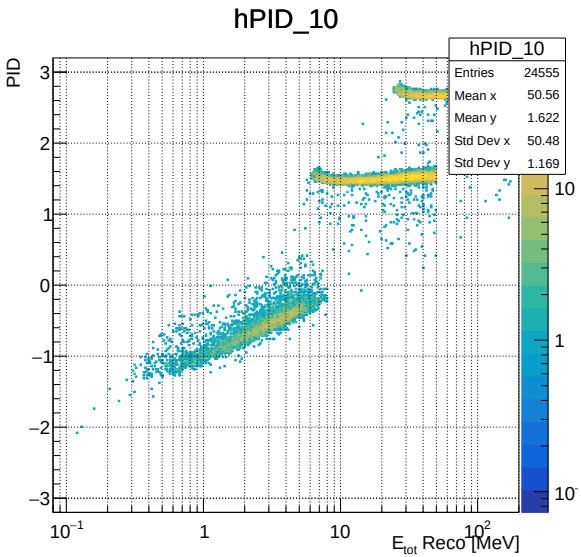


Figure: PID. Convined events and Measured energy is equal to the MC energy.

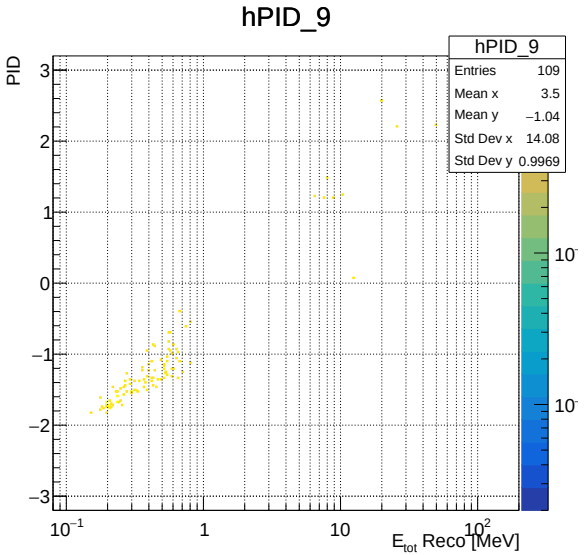


Figure: PID. Convined events but Measured energy is not equal to the MC energy. No Calorimeter.

PID - Non Confinement Violation Factor - OK - No Calorimeter

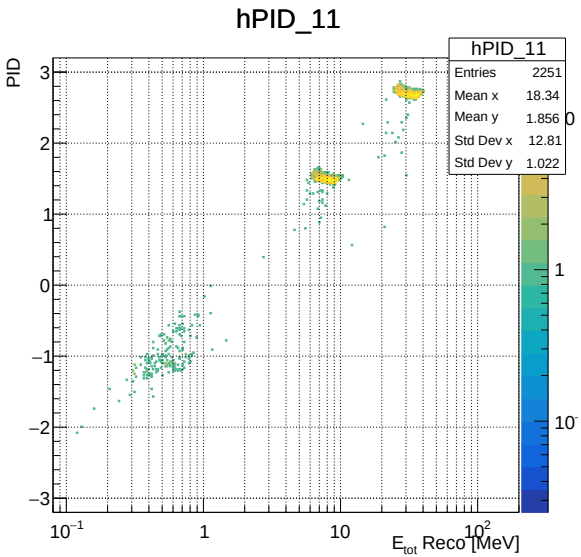


Figure: PID. Convined events and Measured energy is equal to the MC energy. No Calorimeter.

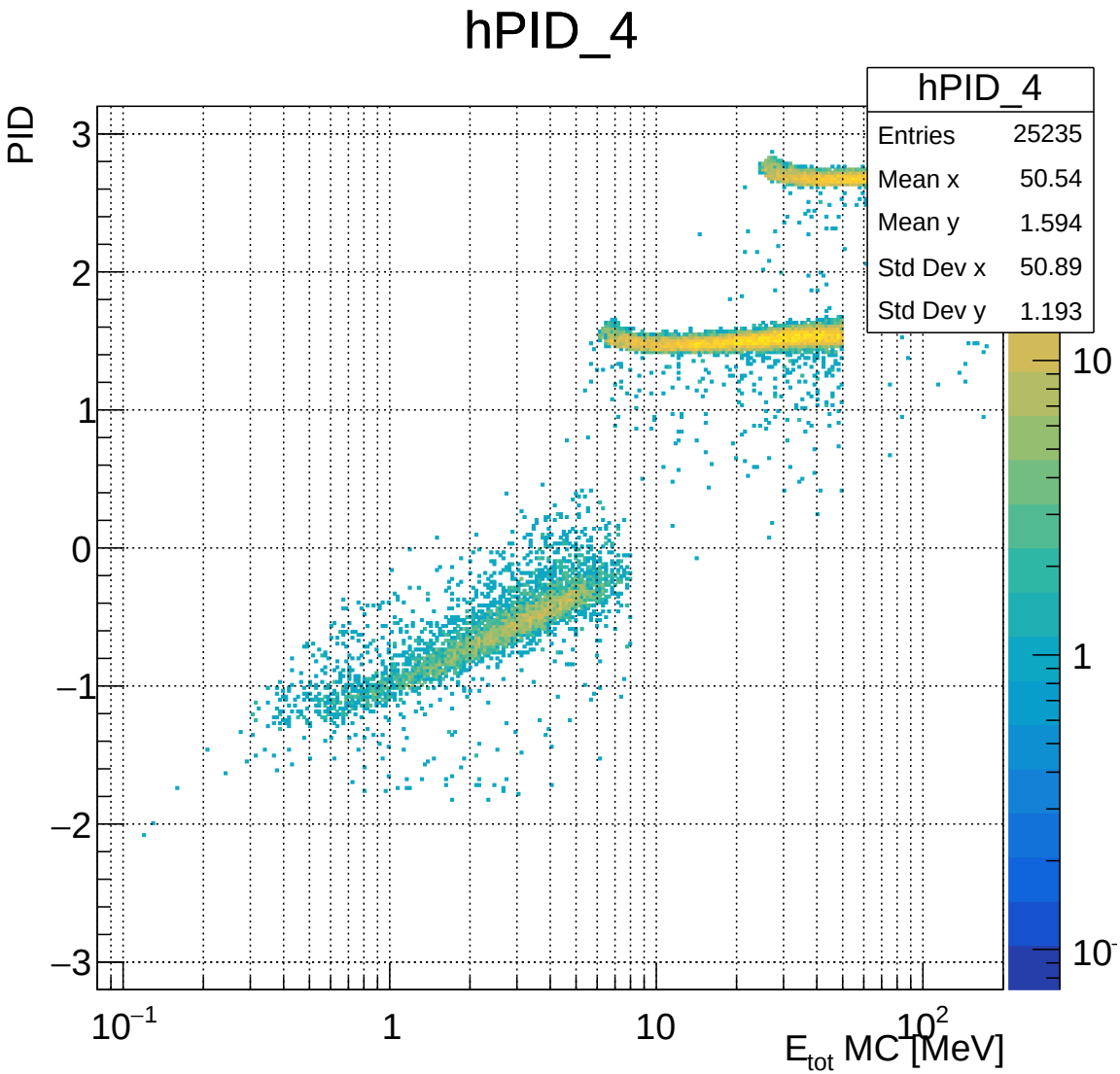


Figure: PID, No Gaussian Smearing, Total Energy is the MC Energy.

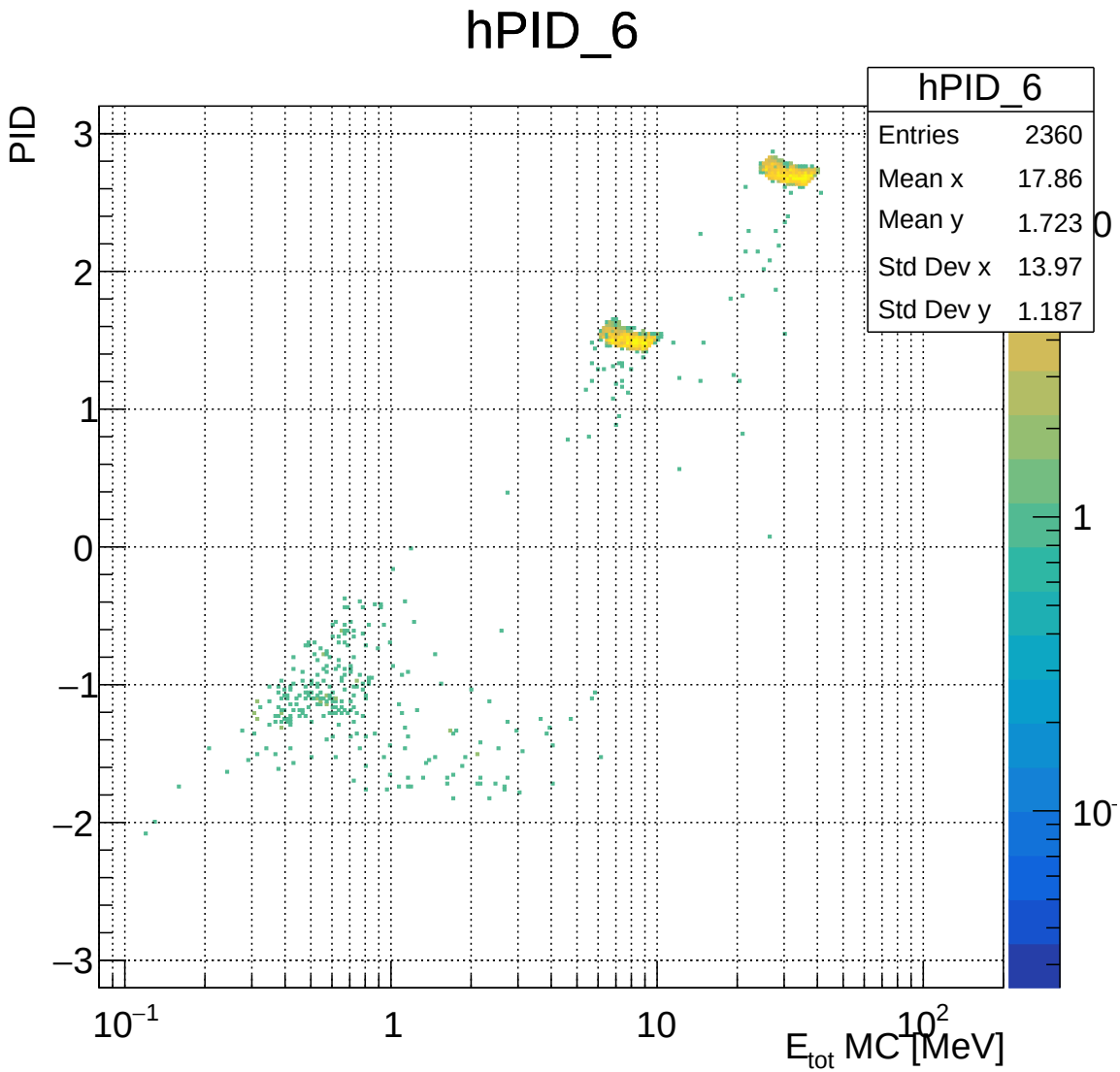


Figure: PID, No Gaussian Smearing, Total Energy is the MC Energy, No Calorimeter.

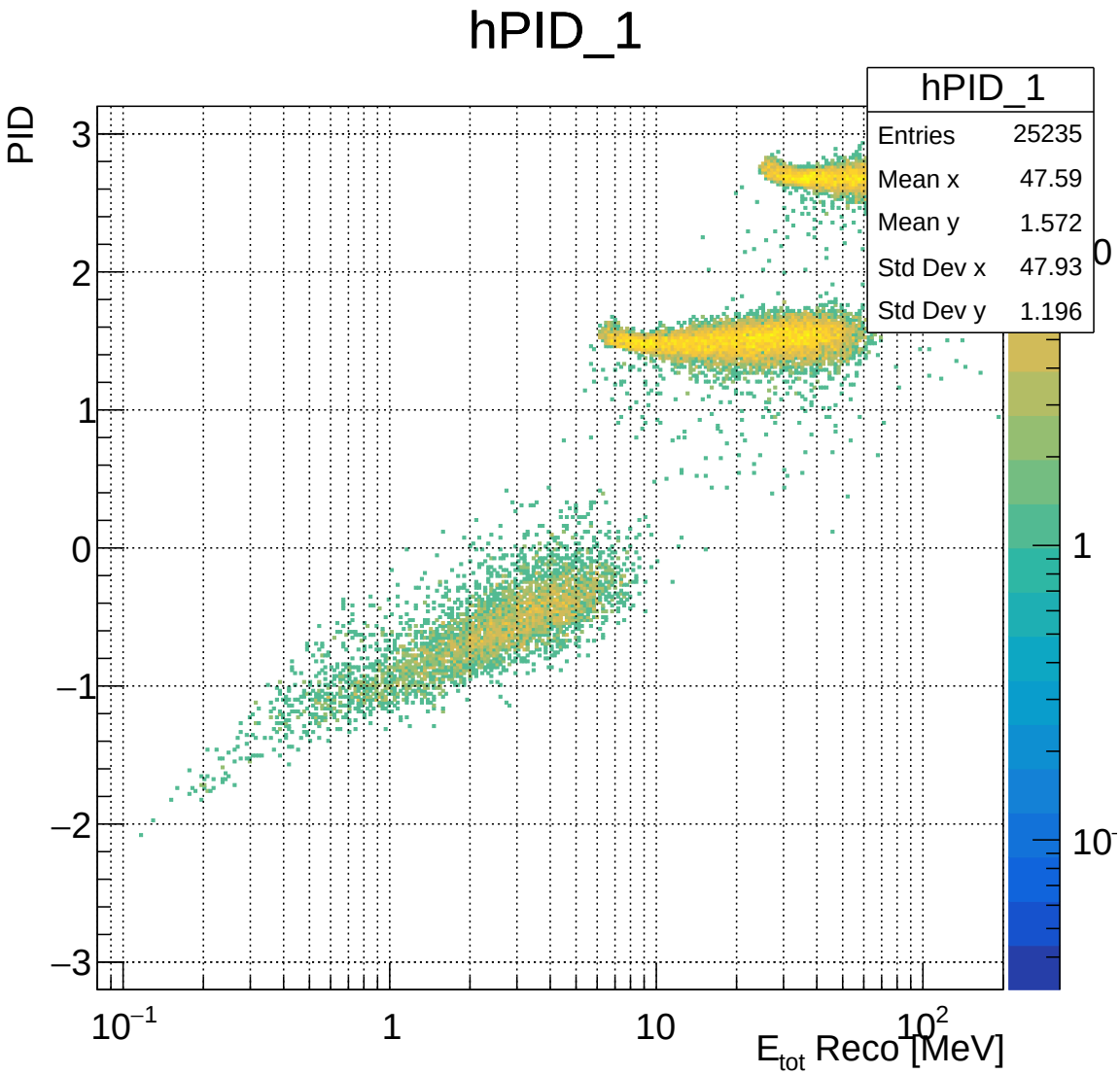


Figure: PID, Gaussian Smearing, Total Energy is the Energy reconstructed.

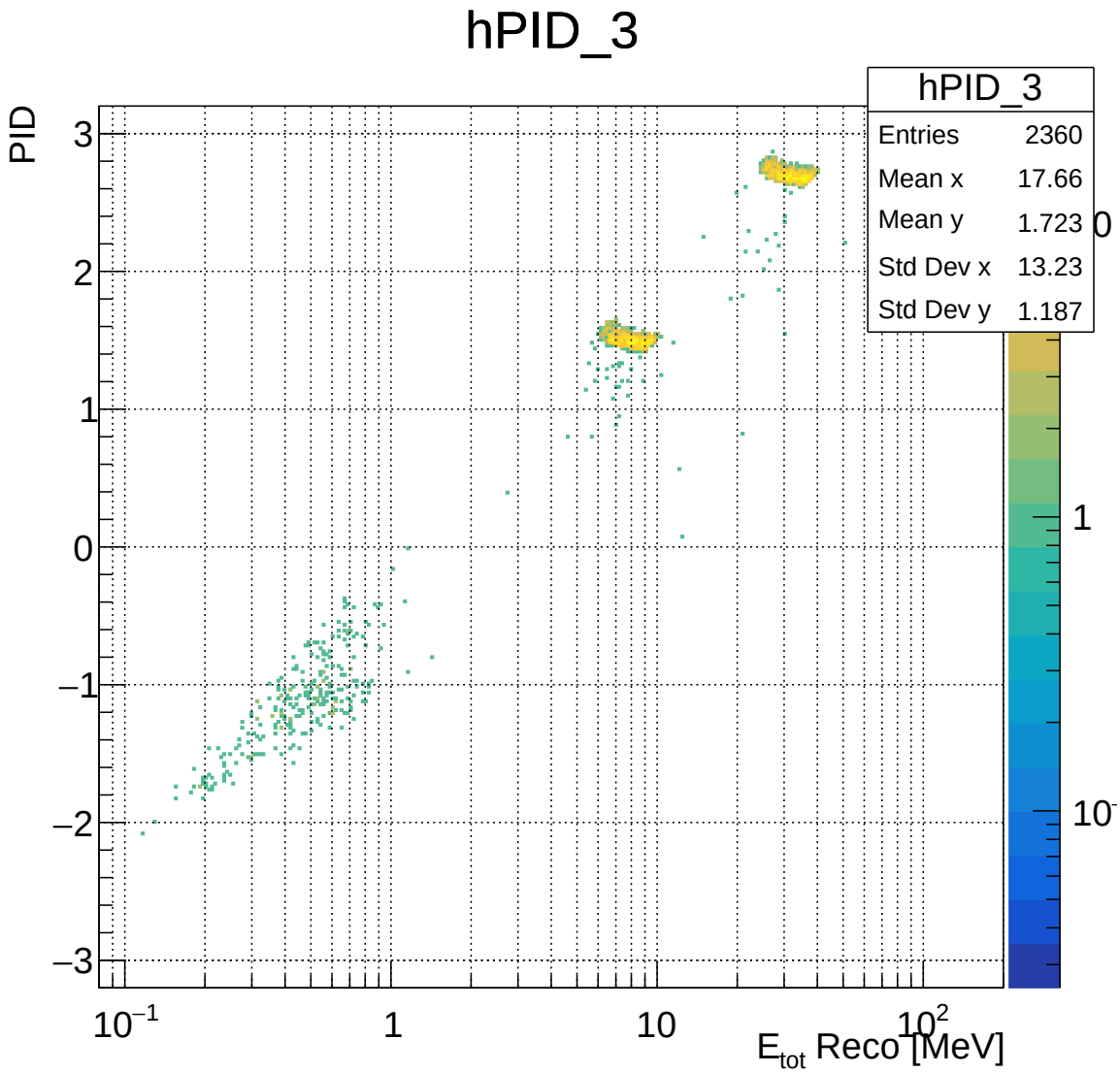


Figure: PID, Gaussian Smearing, Total Energy is the Energy reconstructed, No Calorimeter.

PID MC Energy Gaussian Smearing

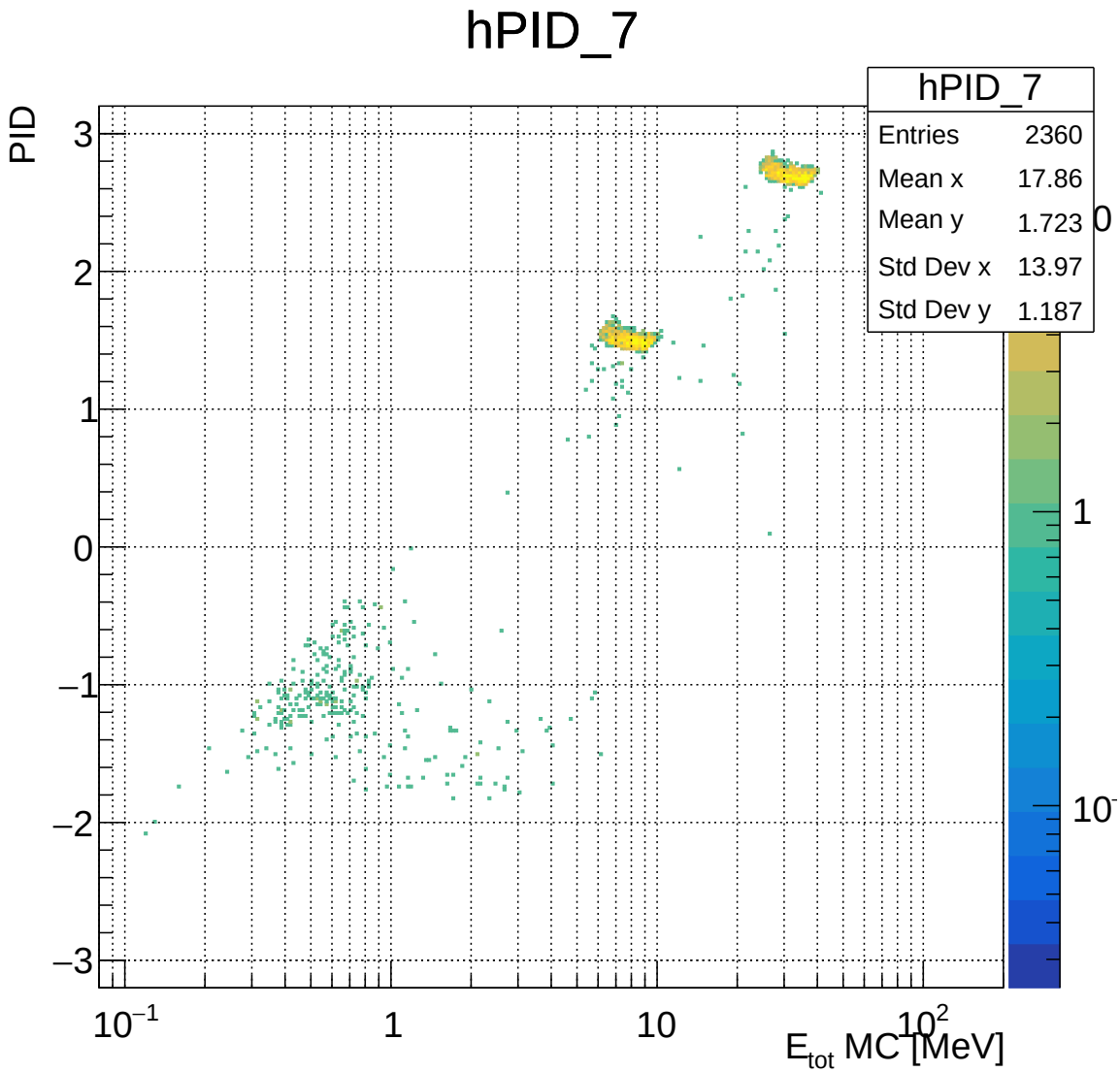


Figure: PID, Gaussian Smearing, Total Energy is the MC Energy, No Calorimeter.

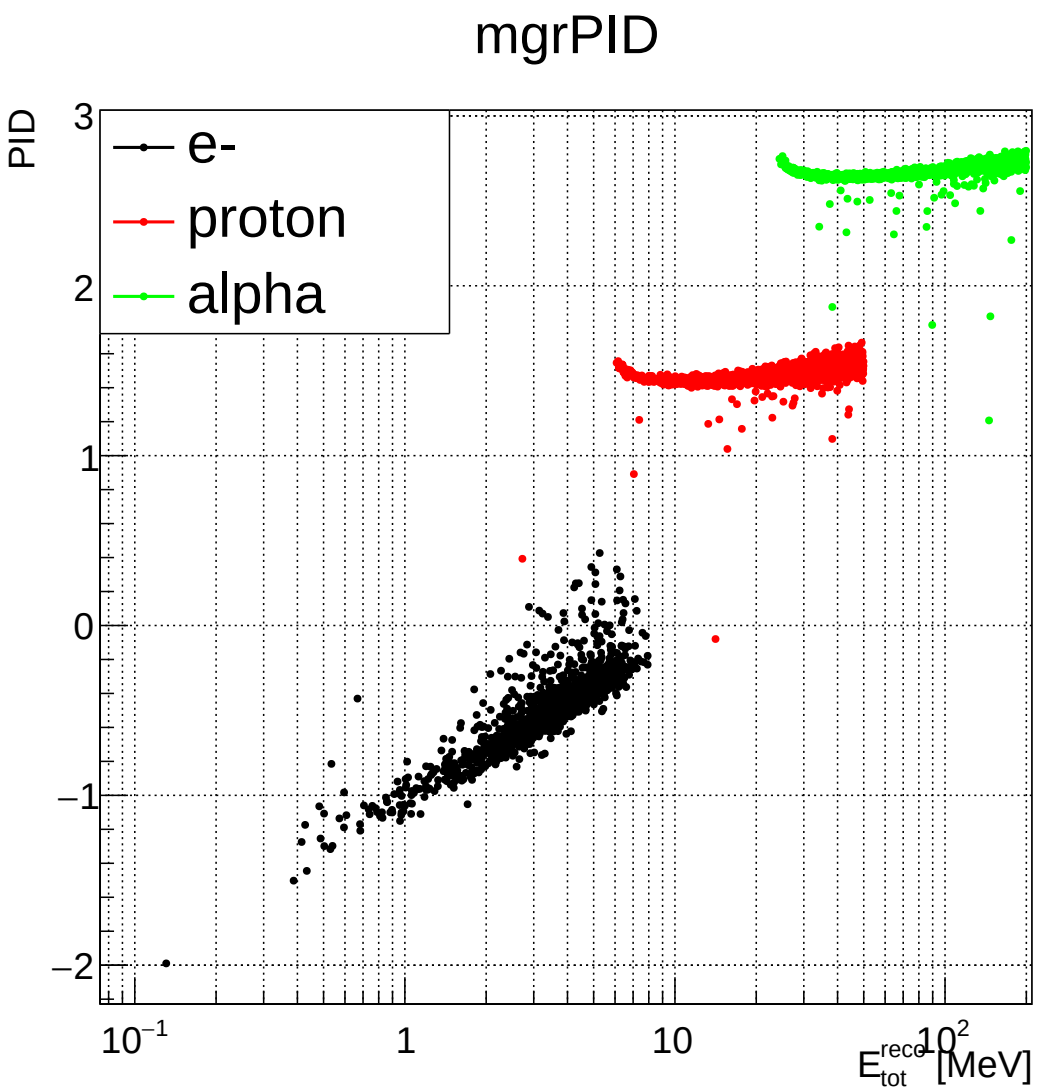


Figure: PID, Gaussian Smearing, Total Energy is the Energy reconstructed, No Calorimeter.

MC quantities for e-_t0

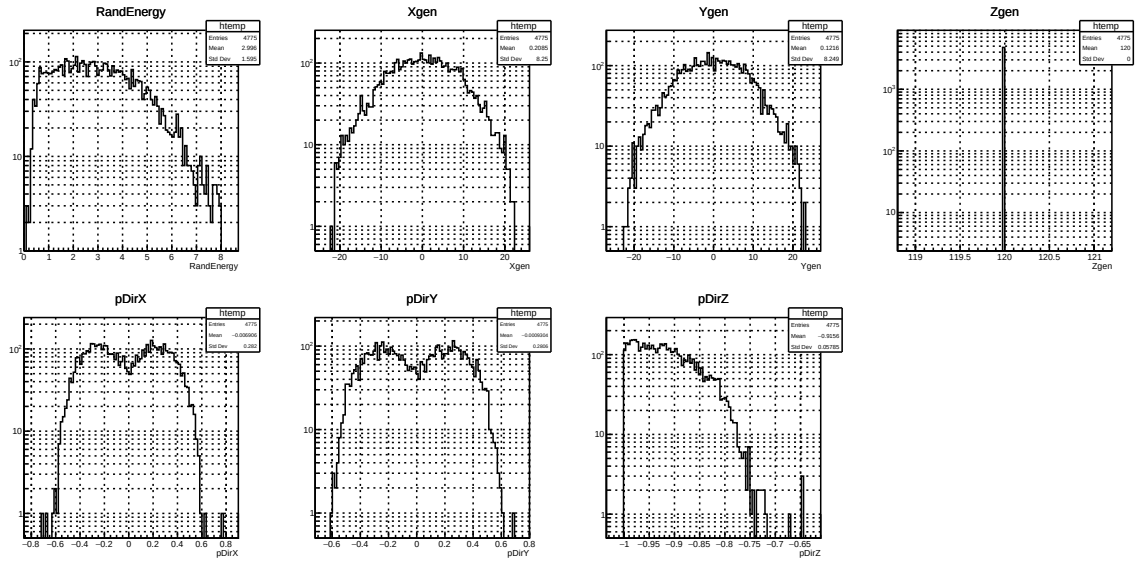


Figure: MC quantities

Energies distribution for e-

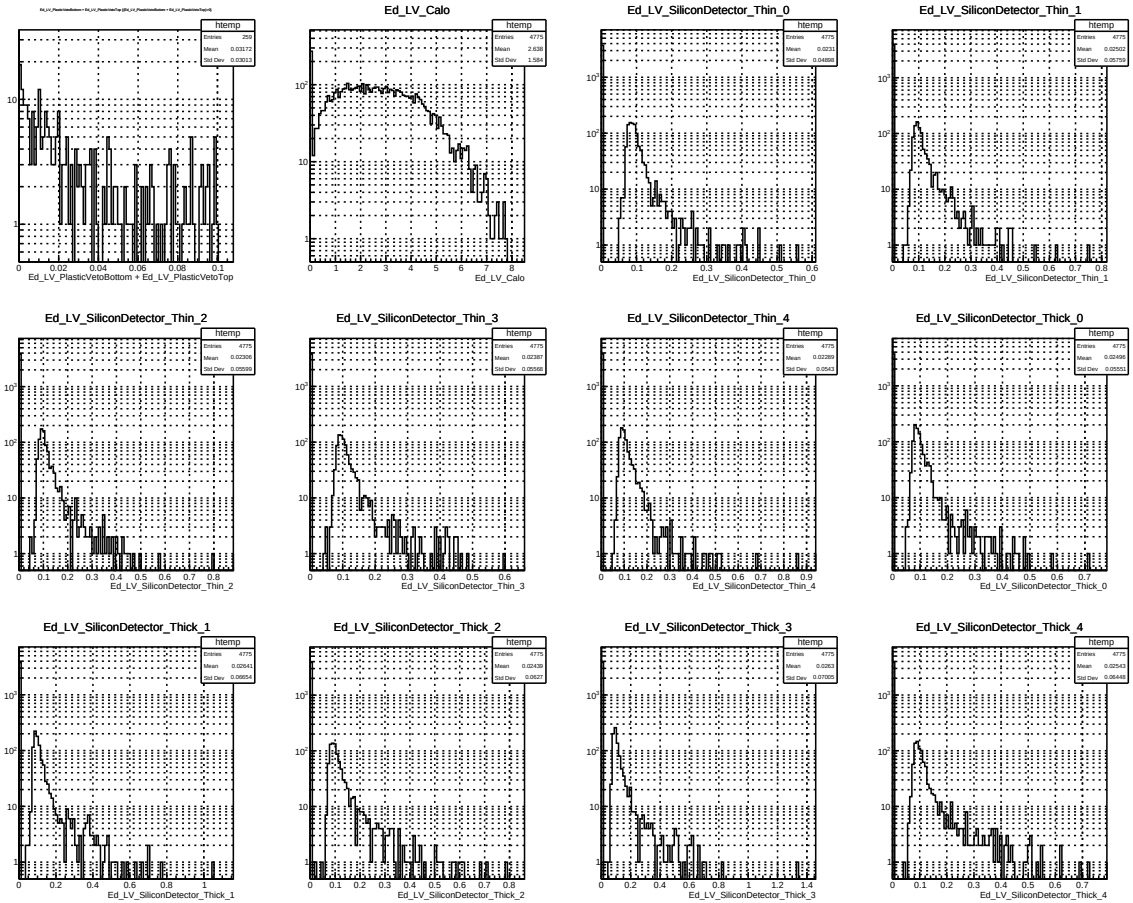


Figure: Detected energies

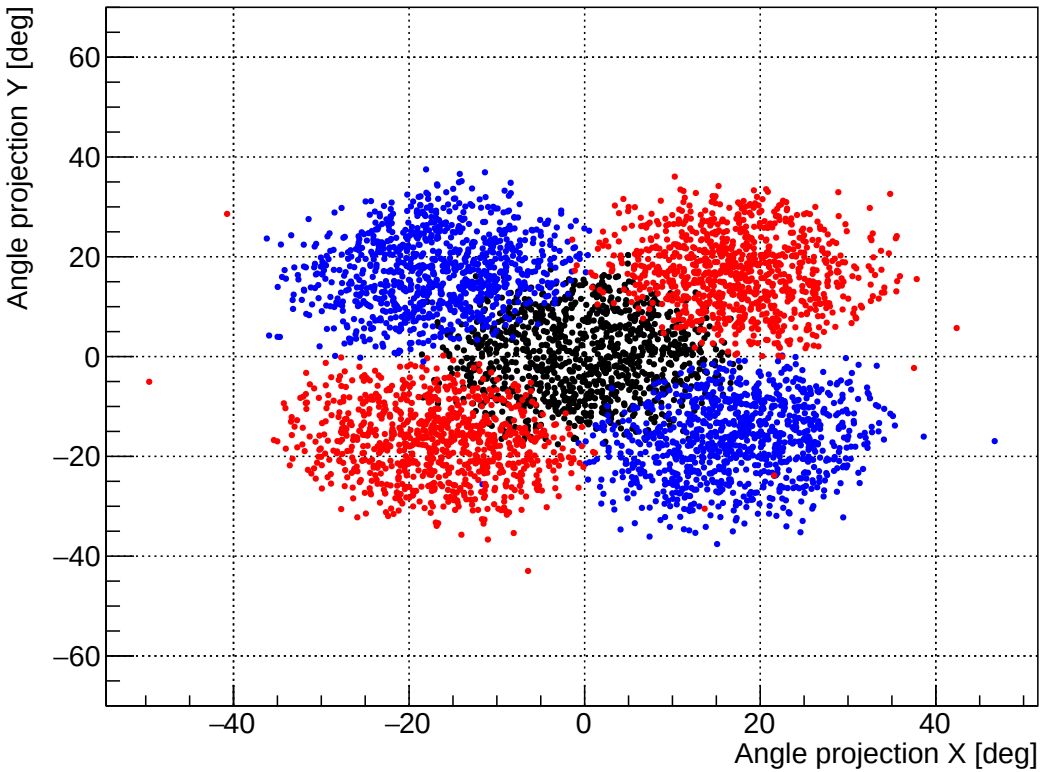
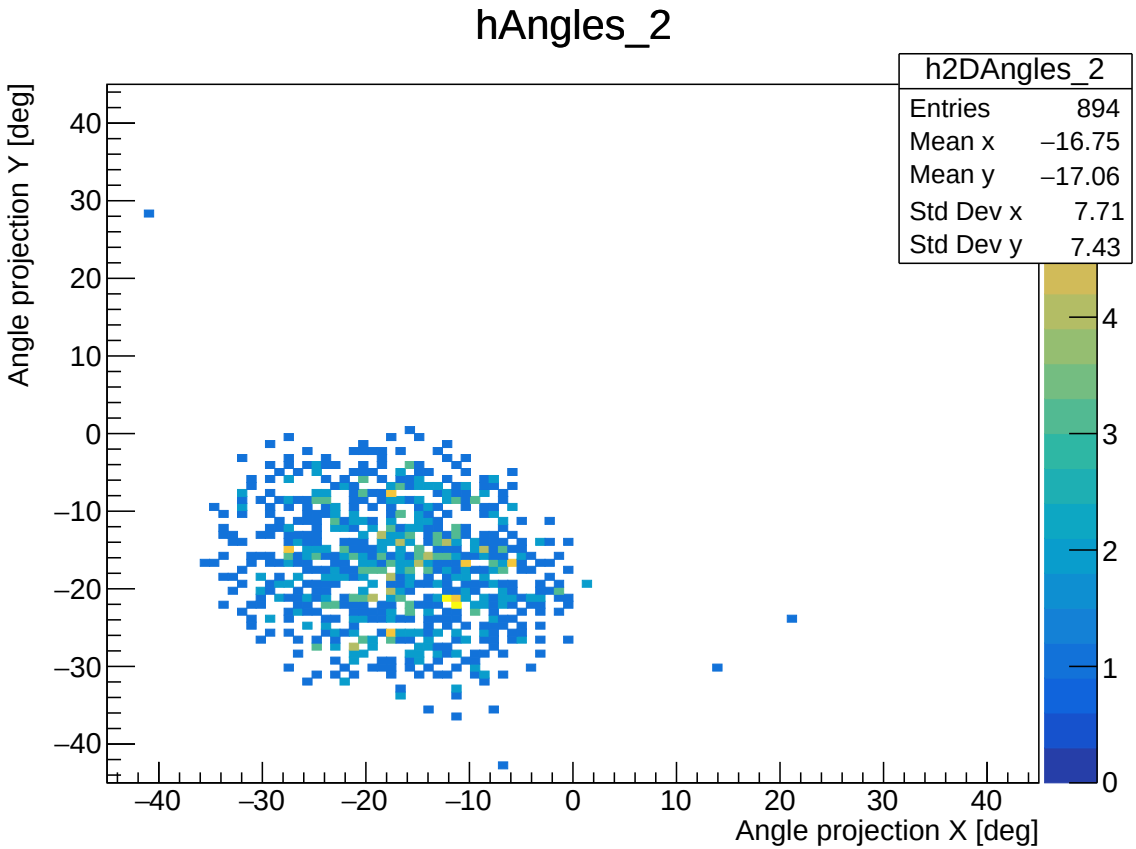


Figure: Angles distribution



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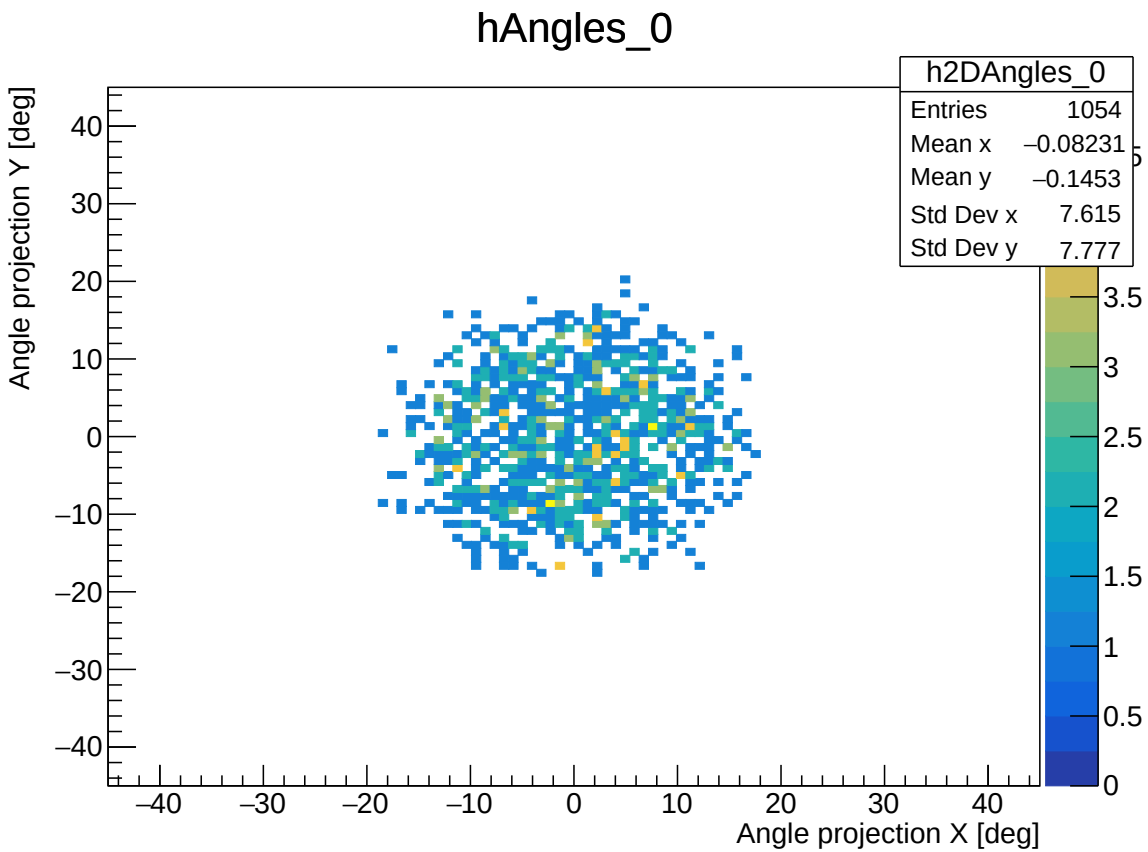


Figure: Angles distribution

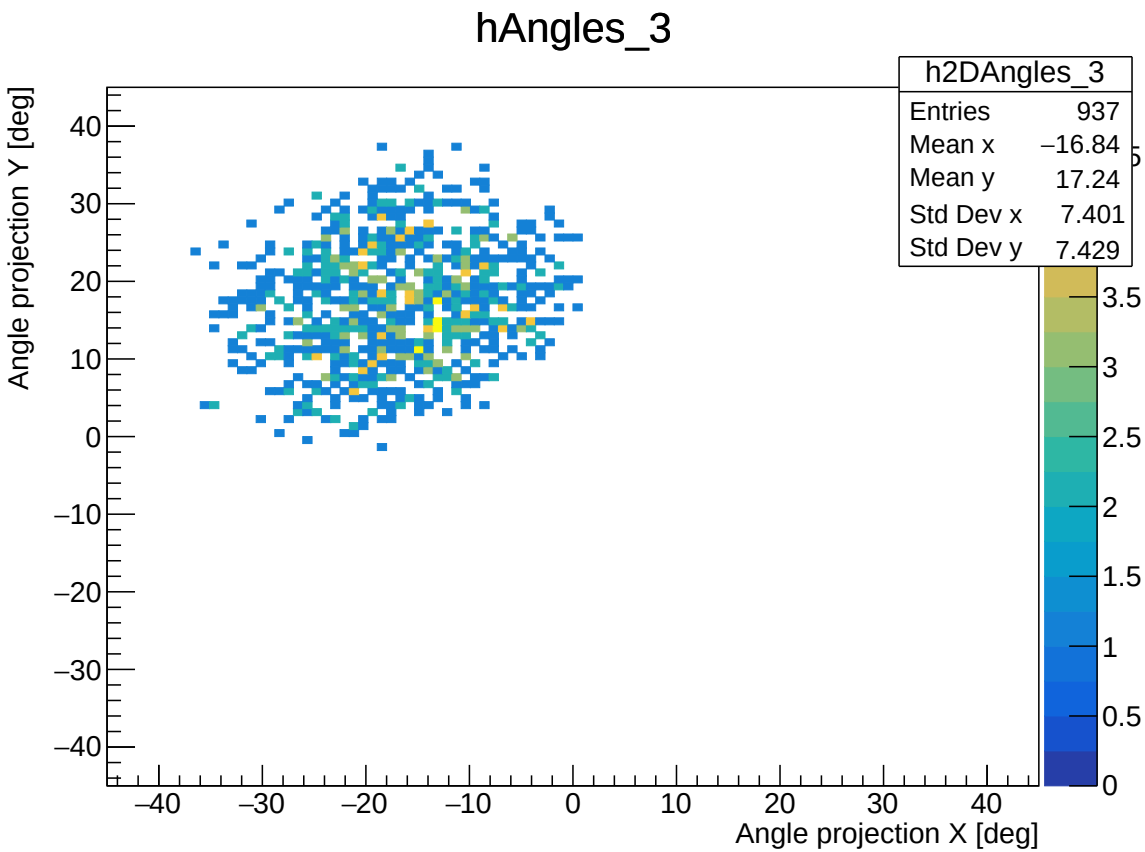
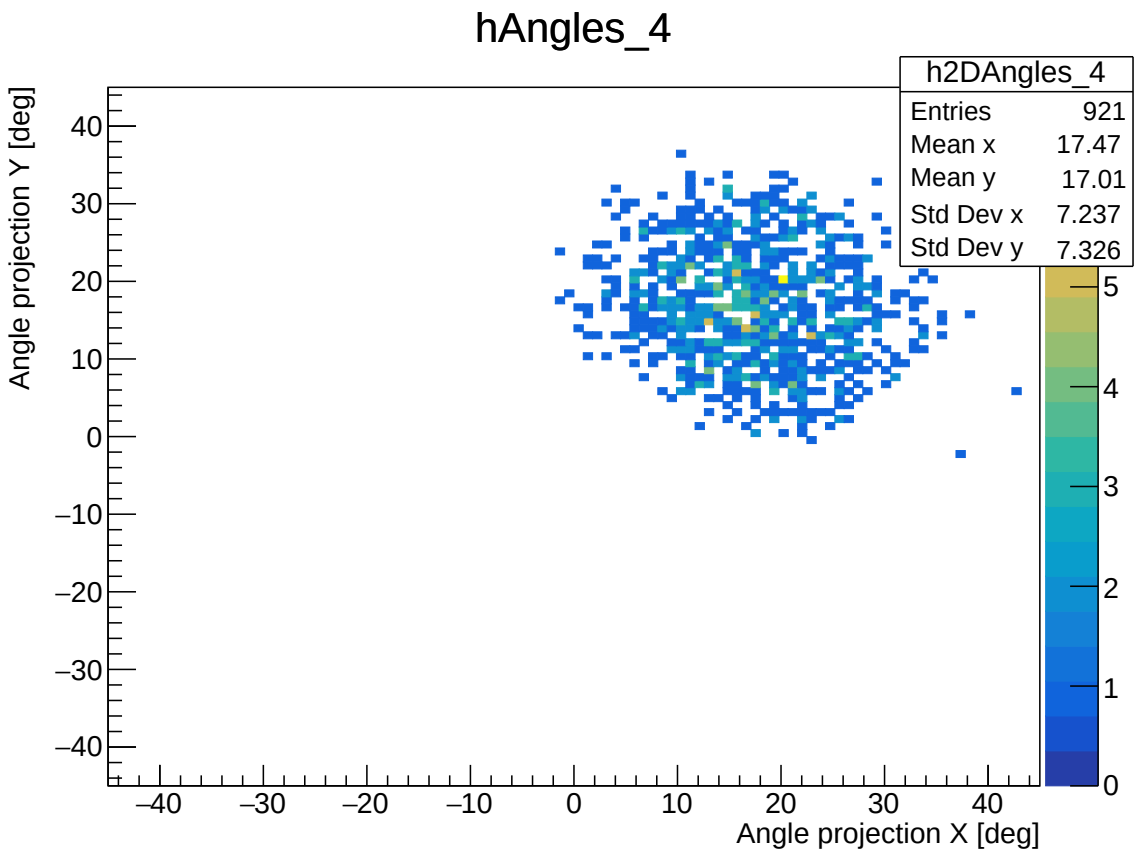


Figure: Angles distribution



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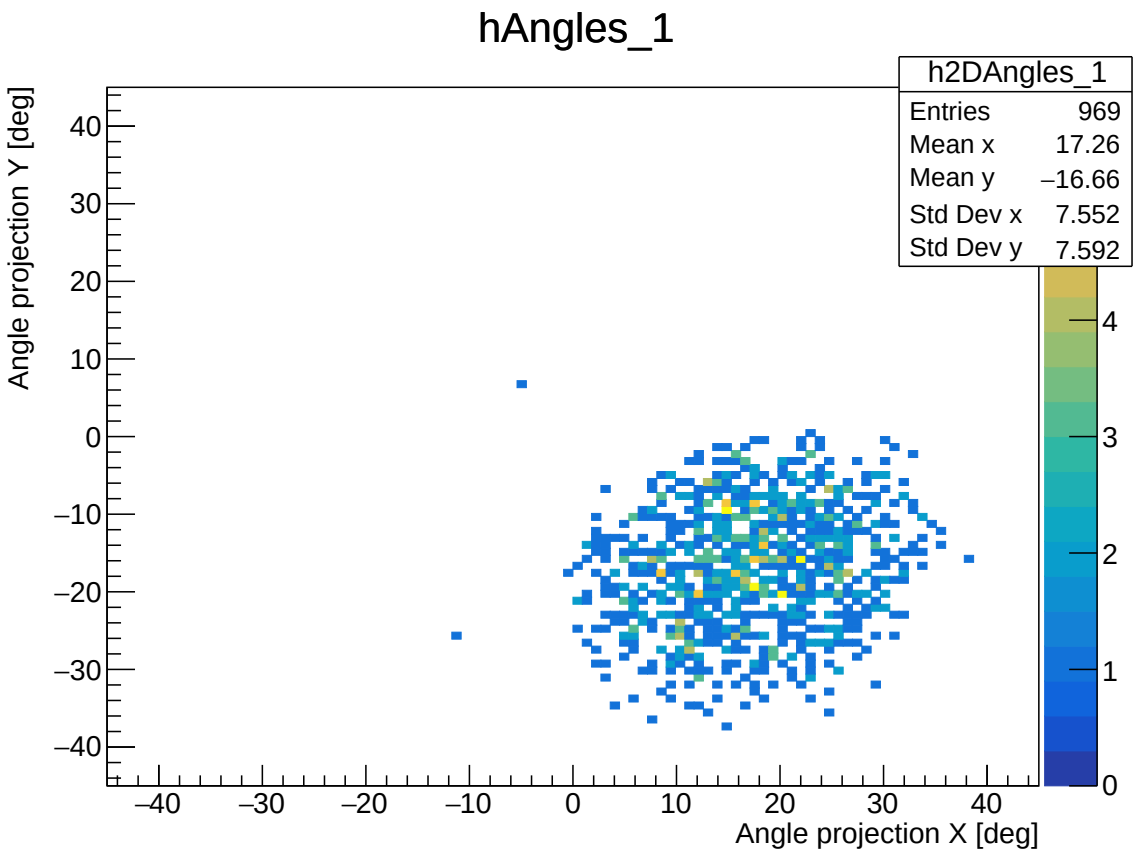

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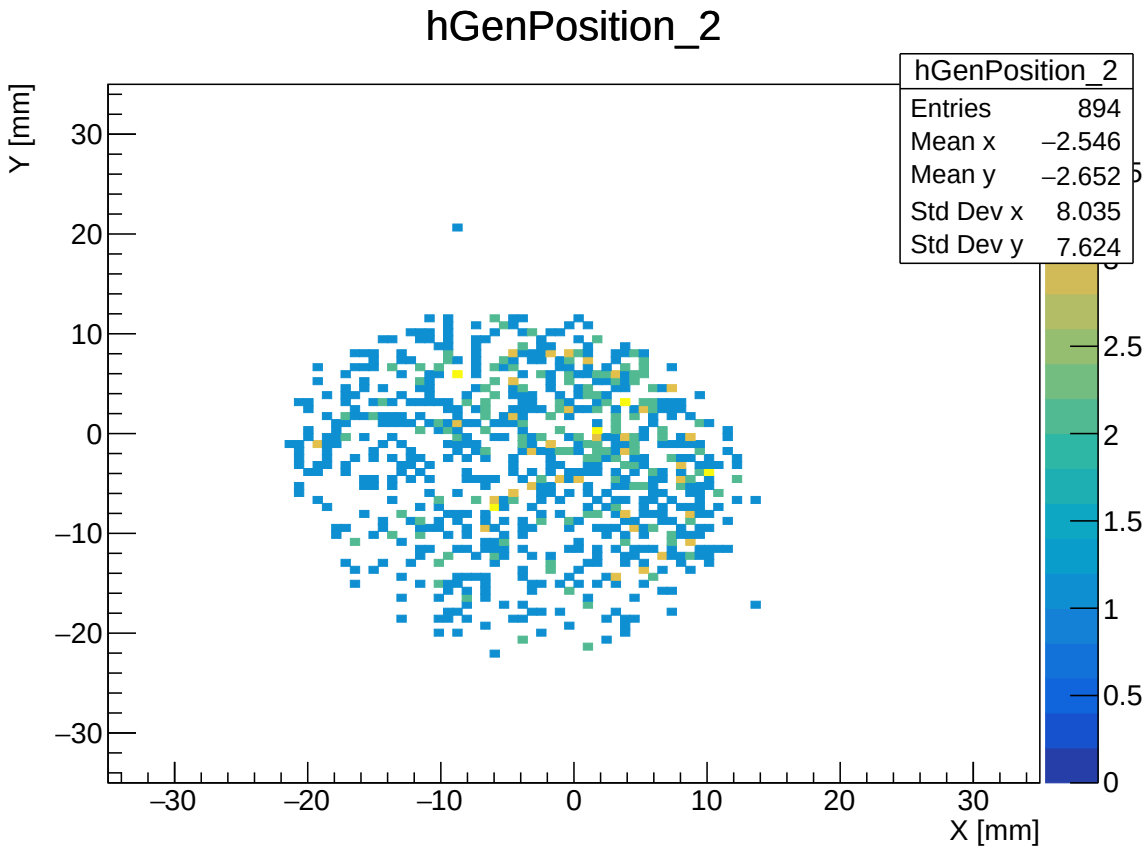


Figure: Generation Position

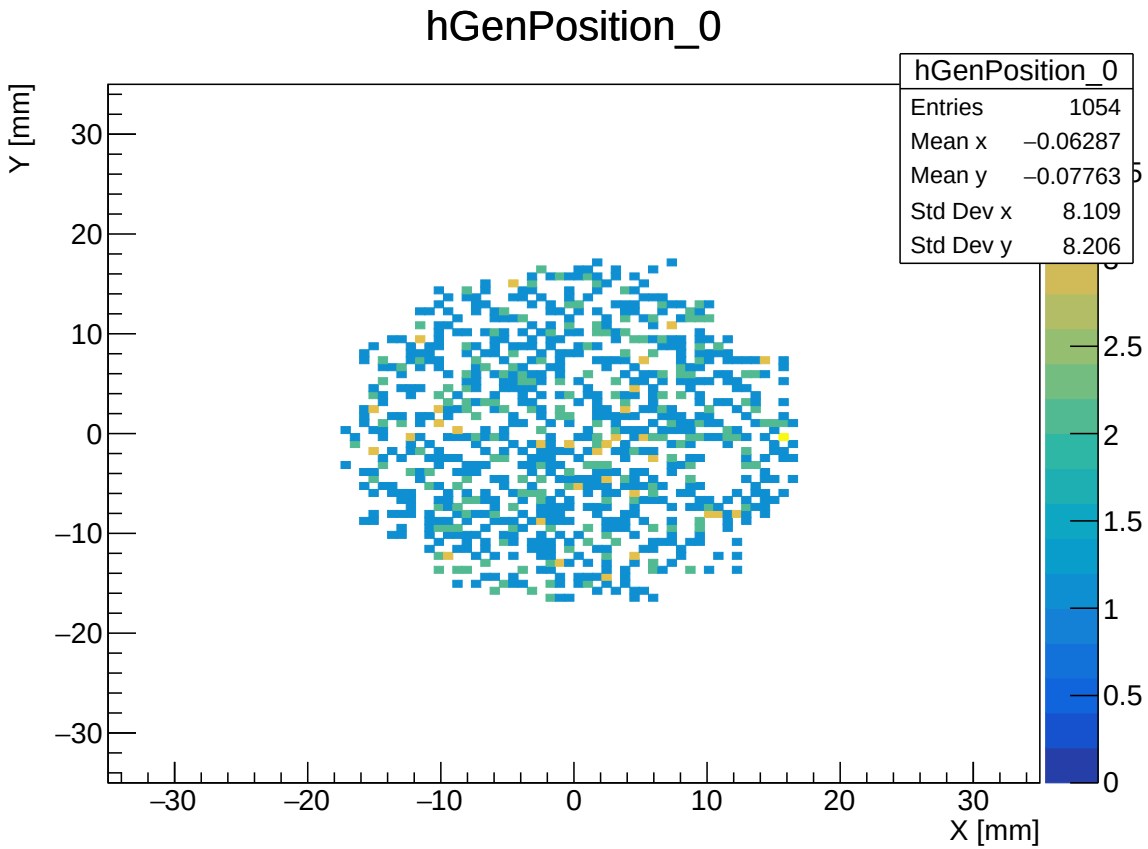


Figure: Generation Position

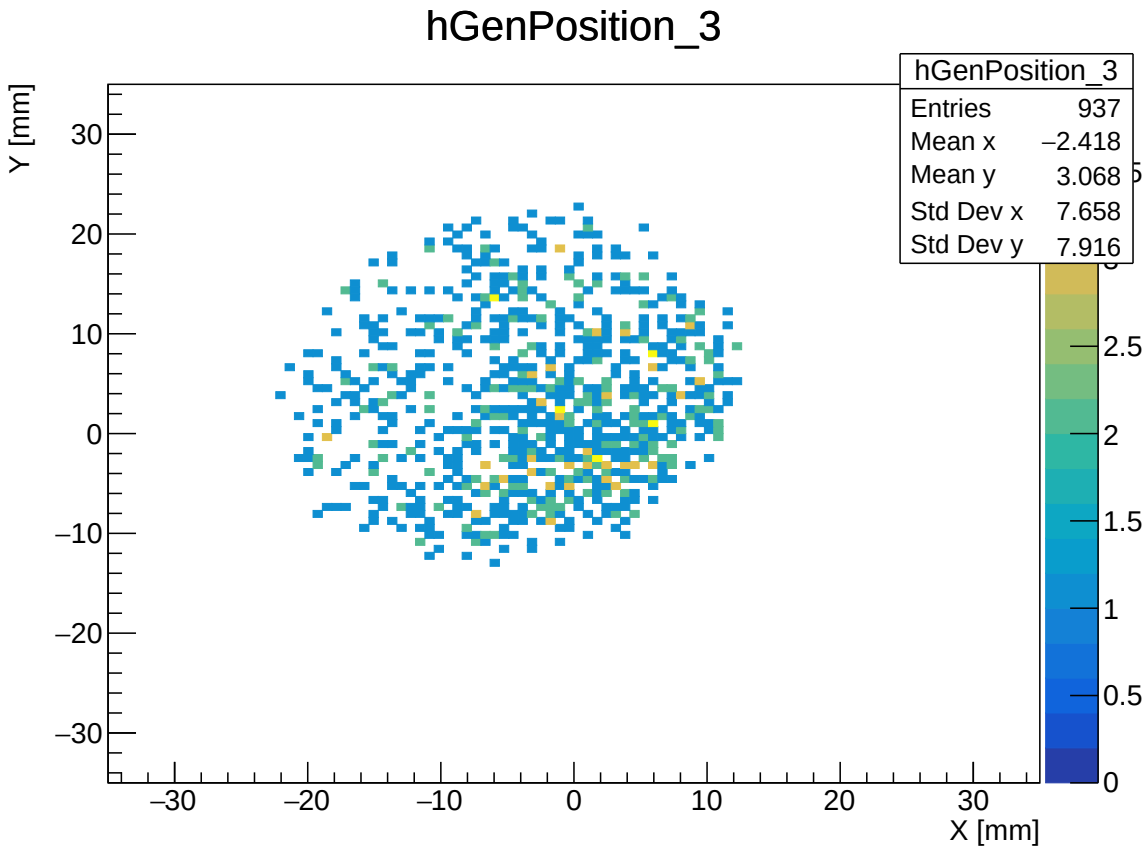
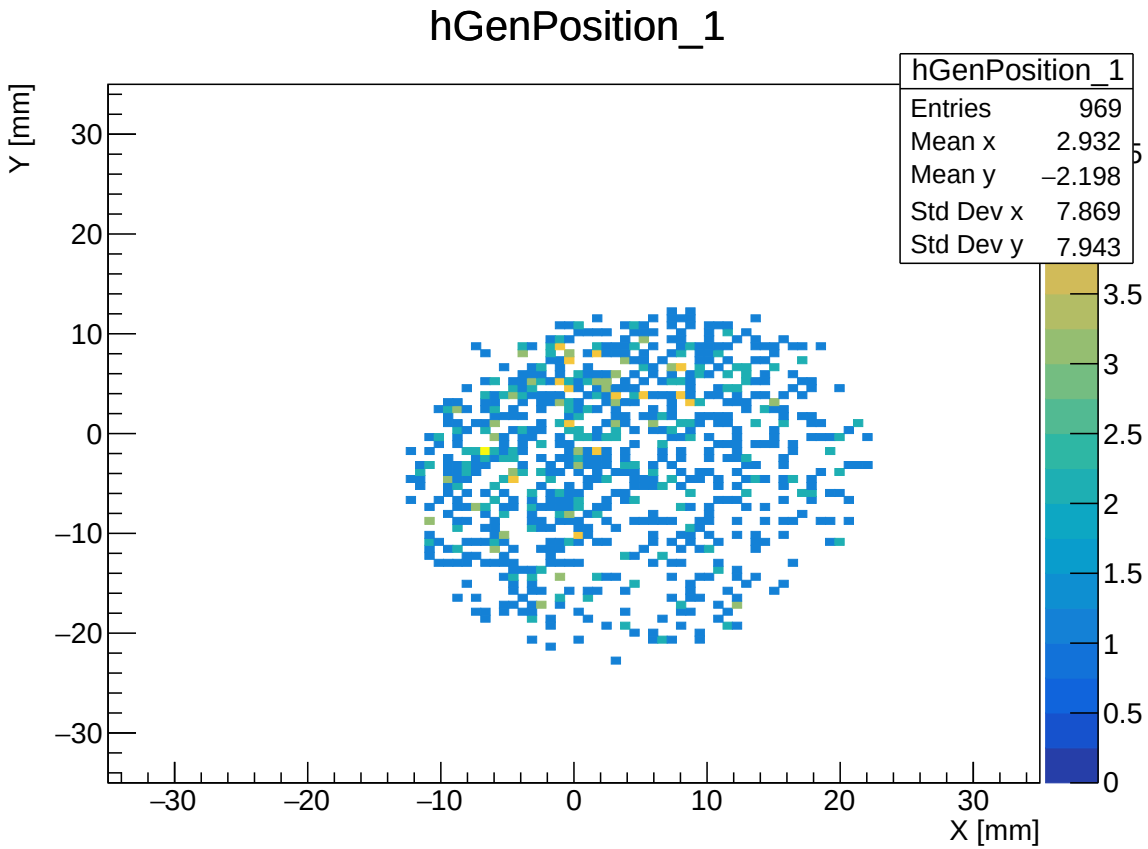


Figure: Generation Position



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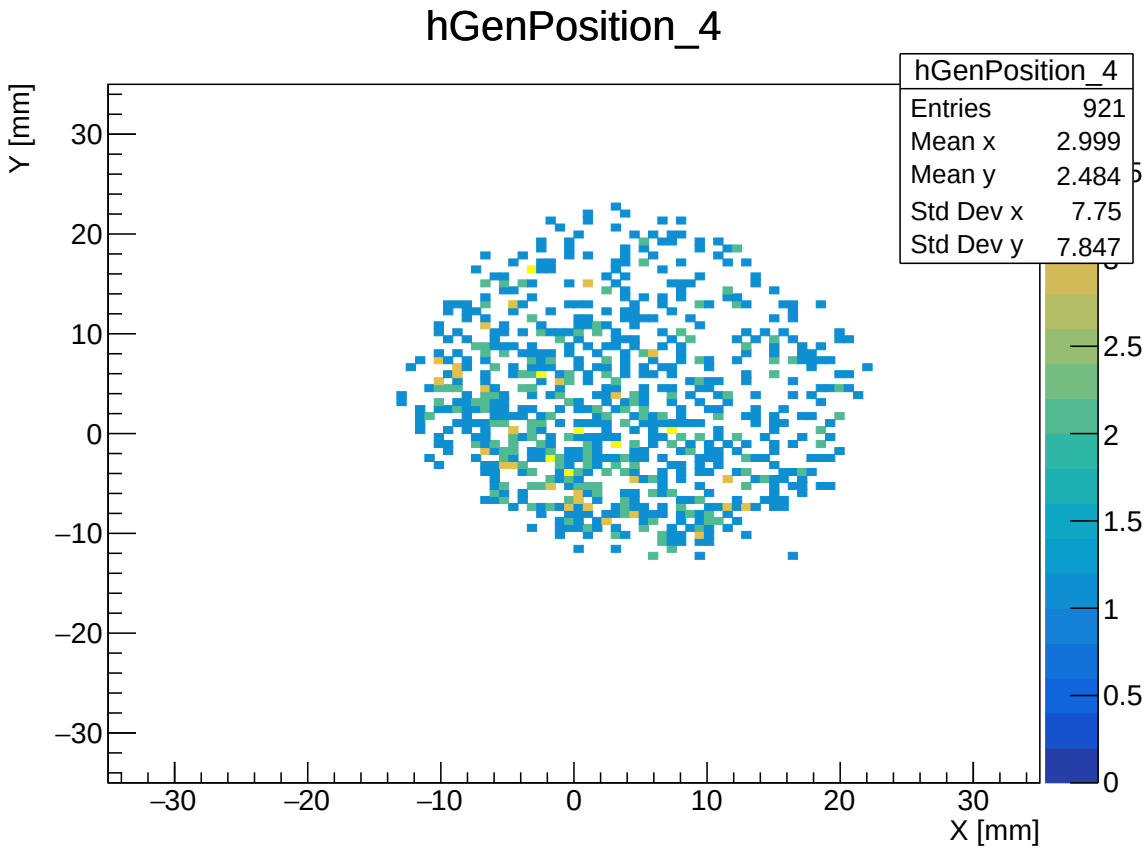


Figure: Generation Position

MC quantities for proton_t0

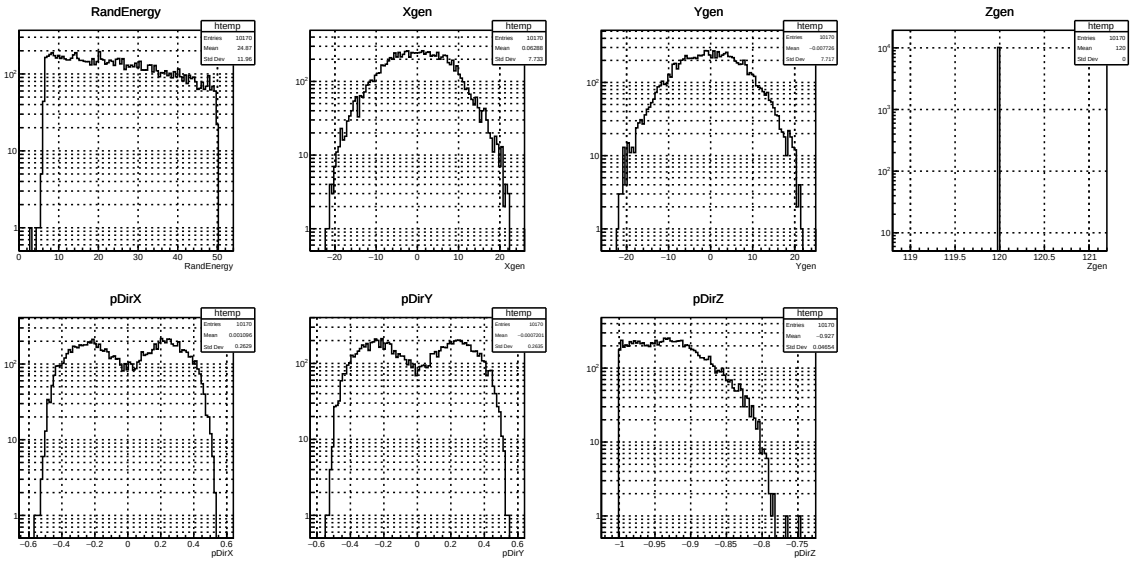


Figure: MC quantities

Energies distribution for proton

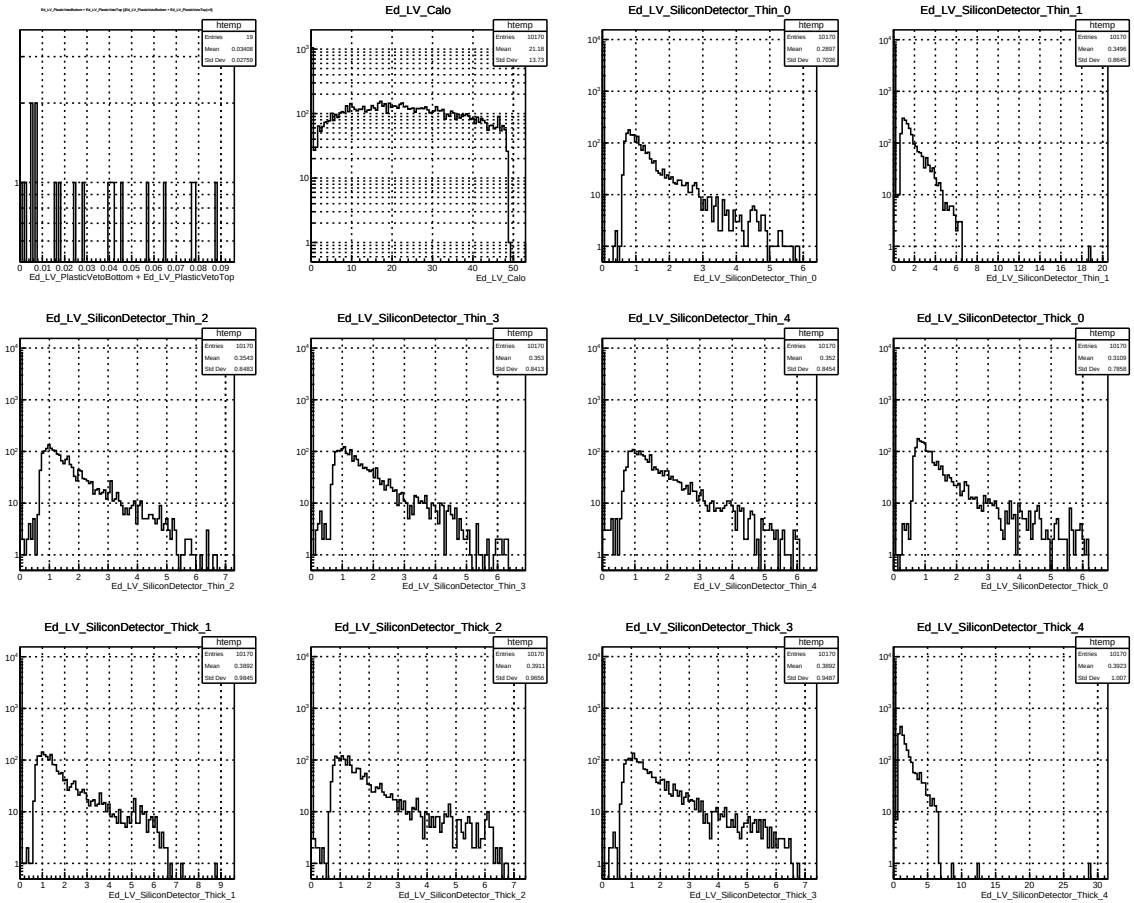


Figure: Detected energies

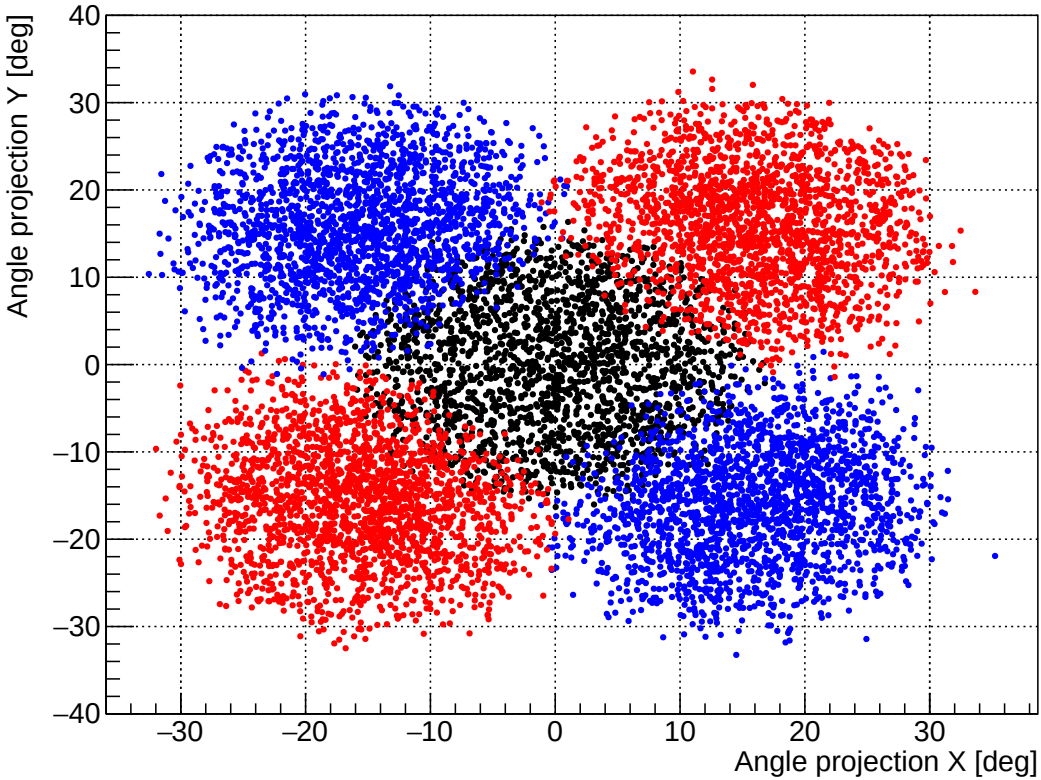
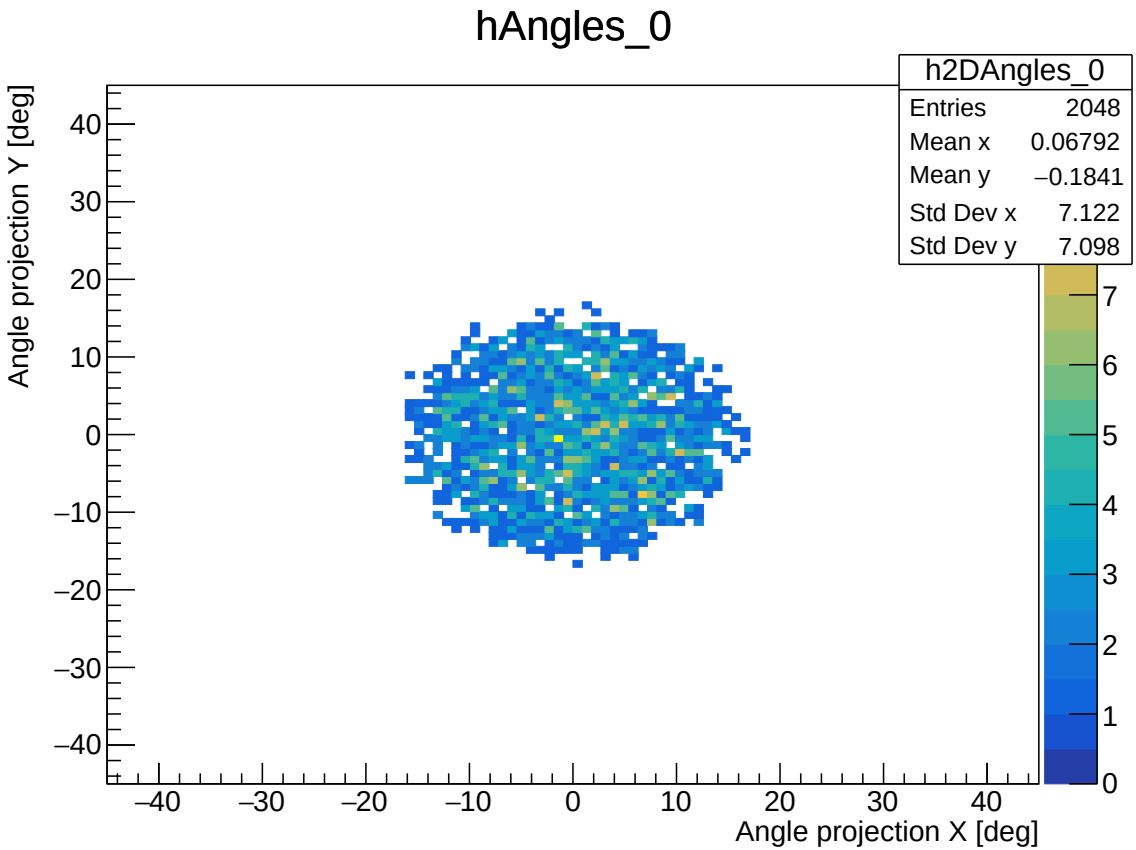


Figure: Angles distribution



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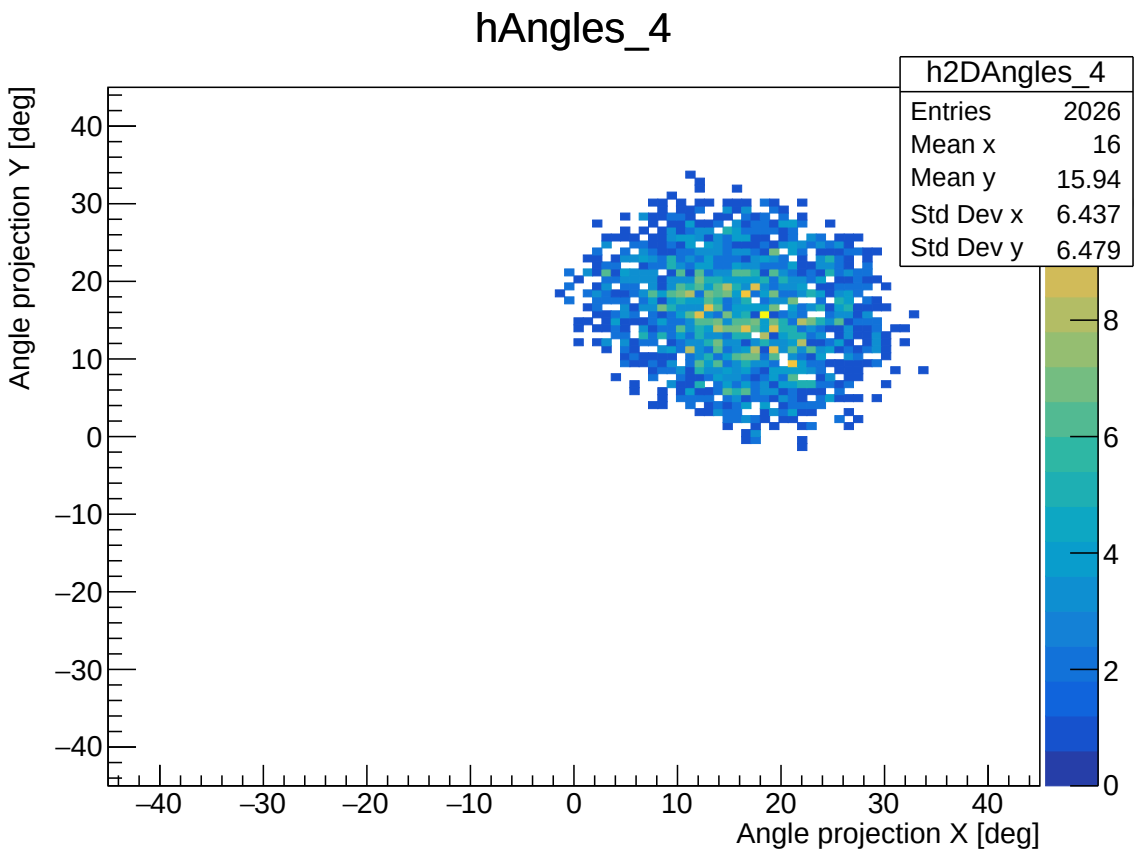

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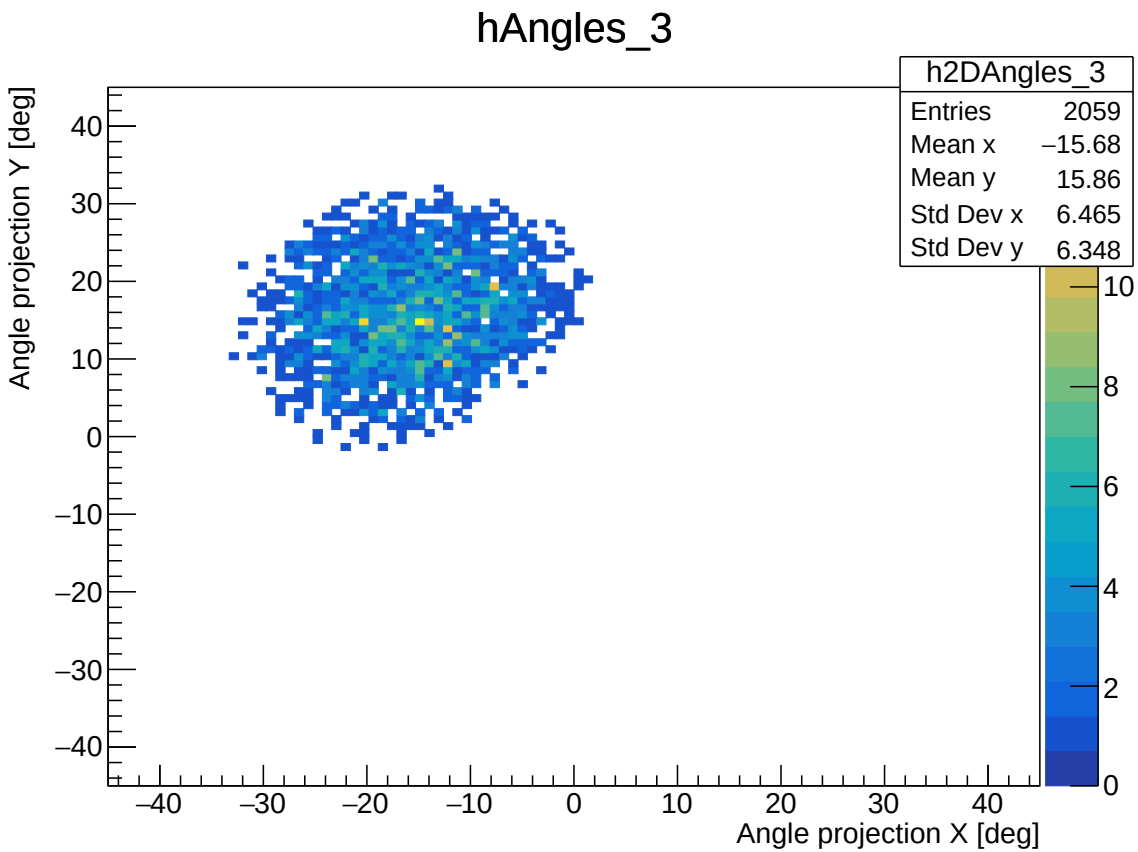

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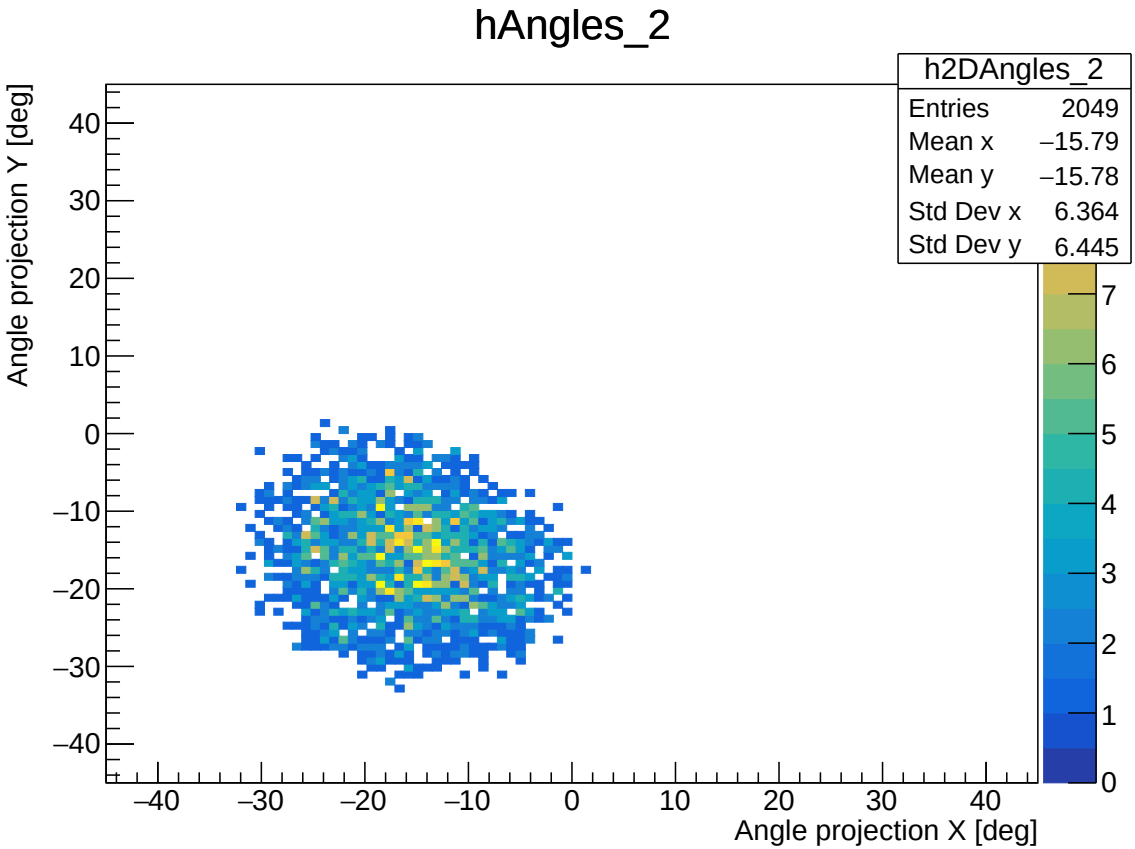

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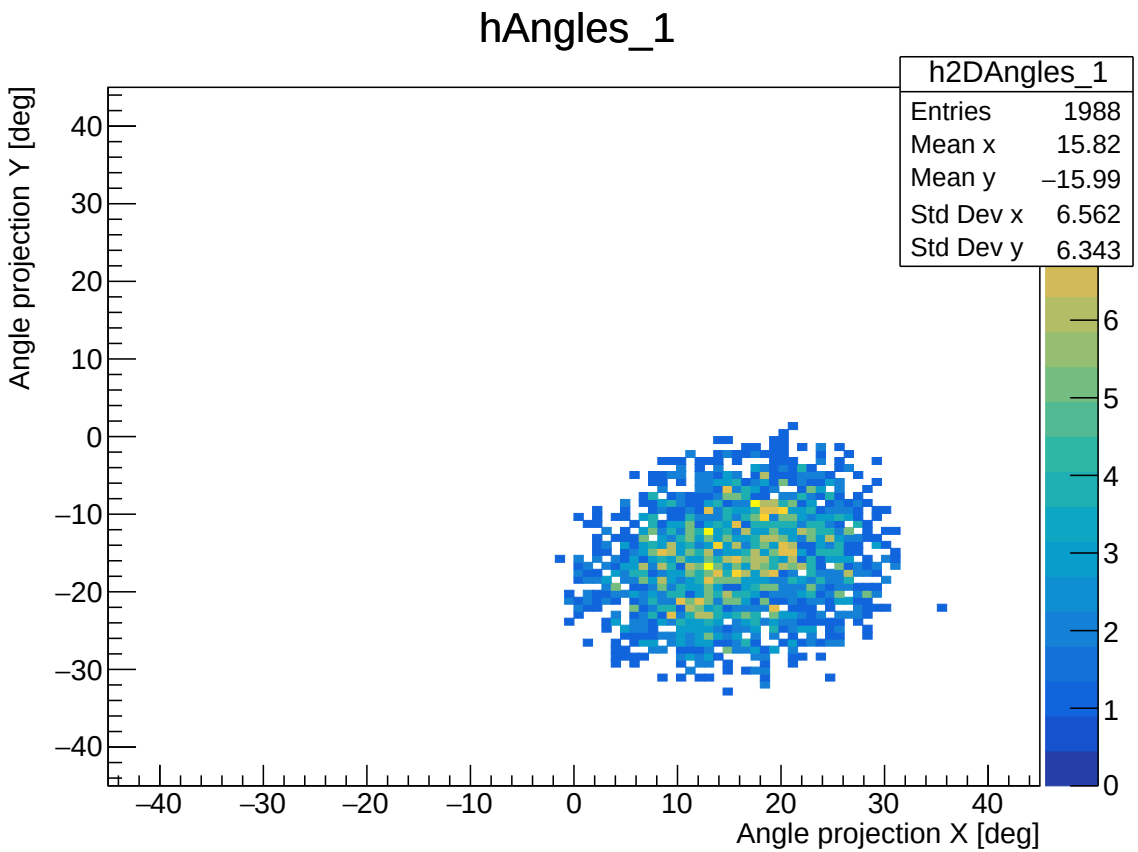

Figure: Angles distribution

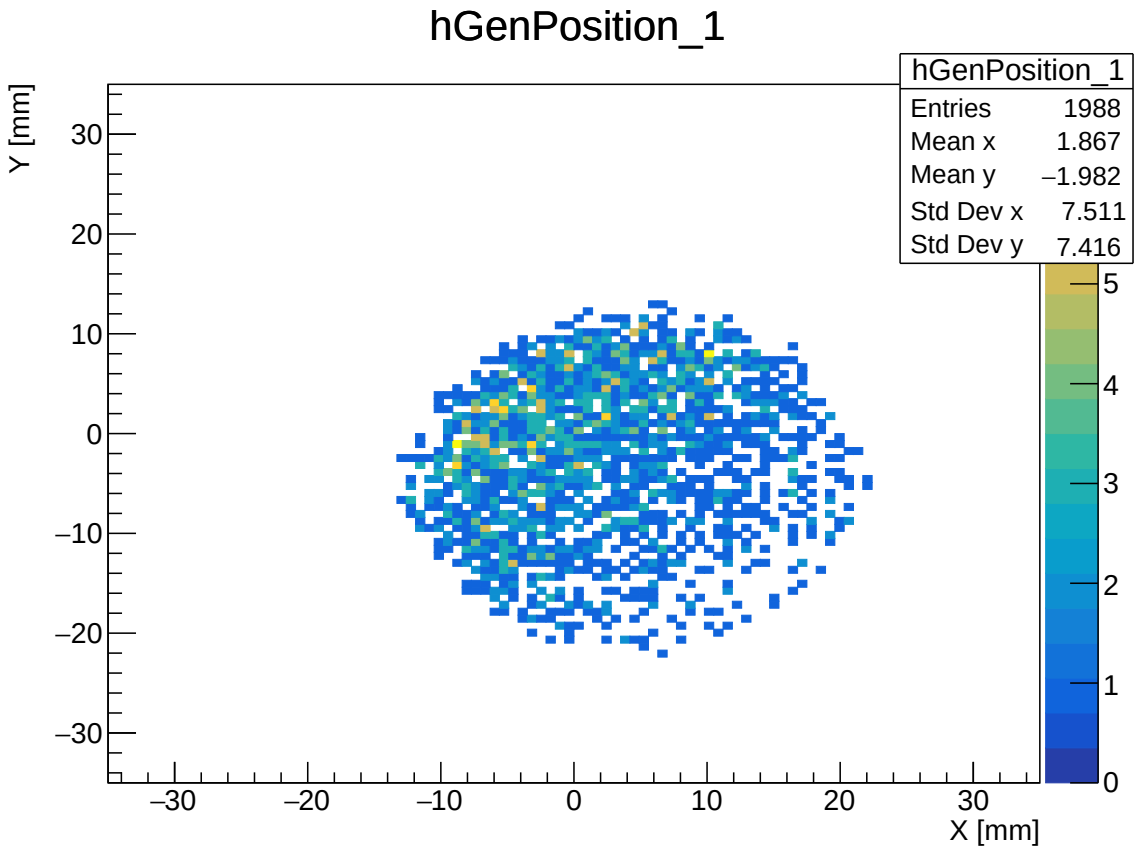

Figure: Generation Position

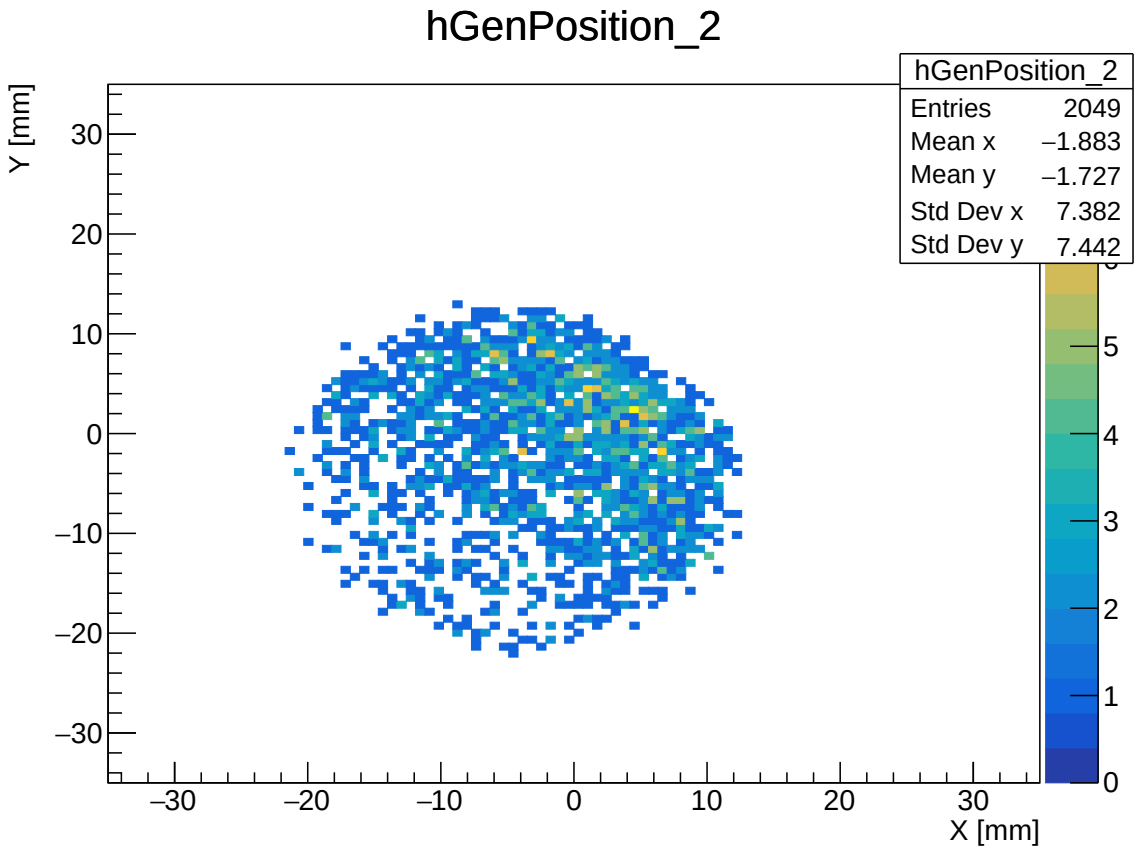

Figure: Generation Position

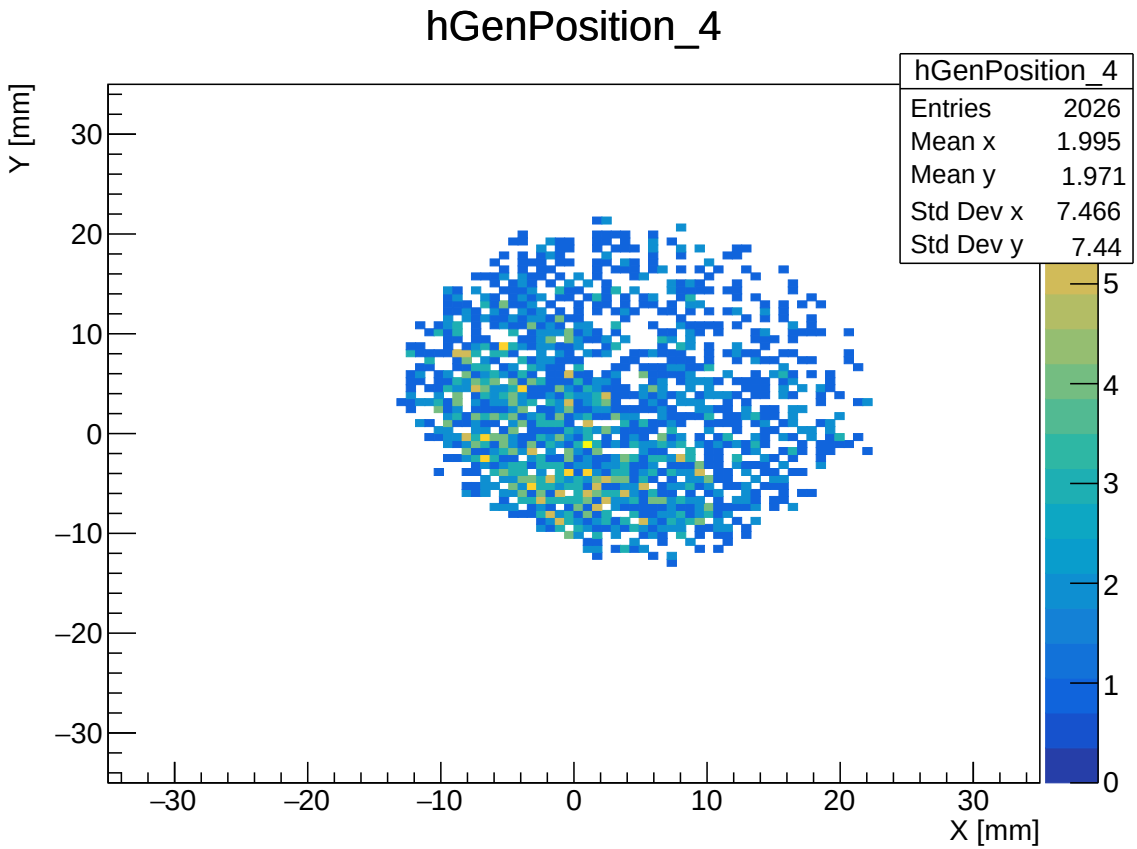

Figure: Generation Position

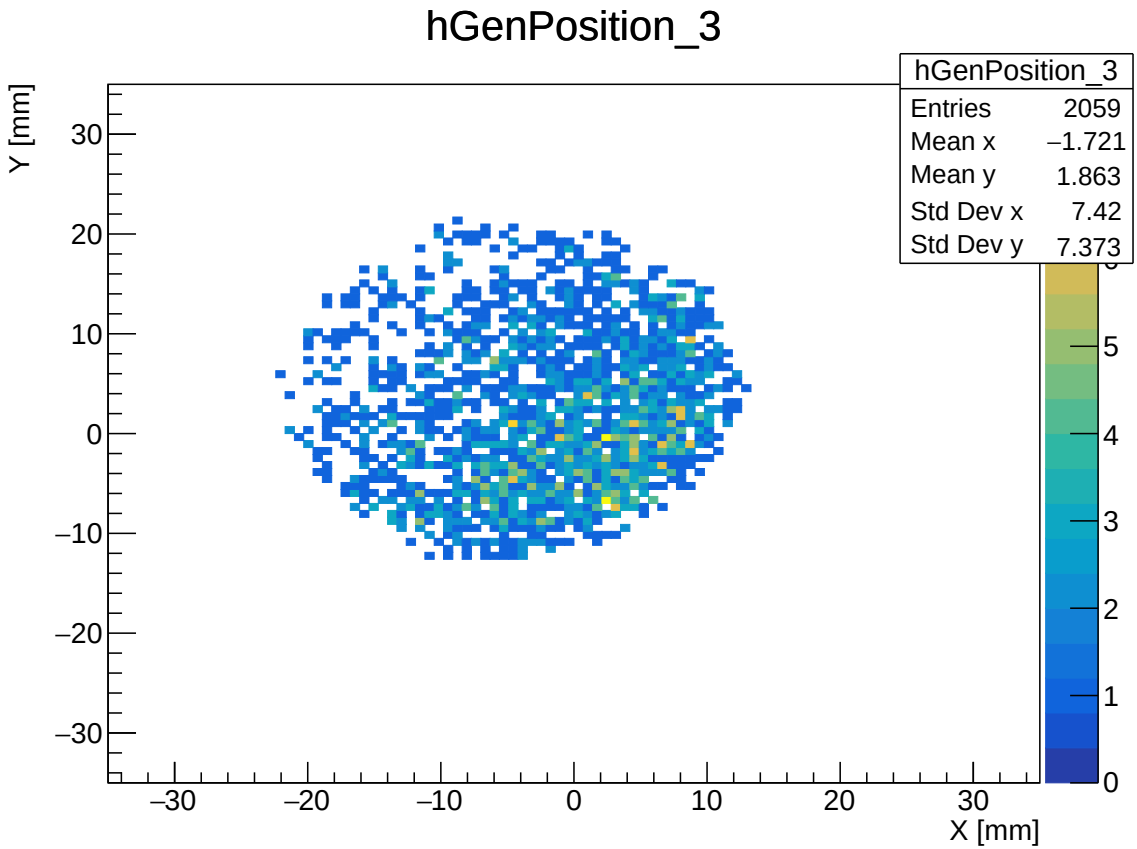

Figure: Generation Position

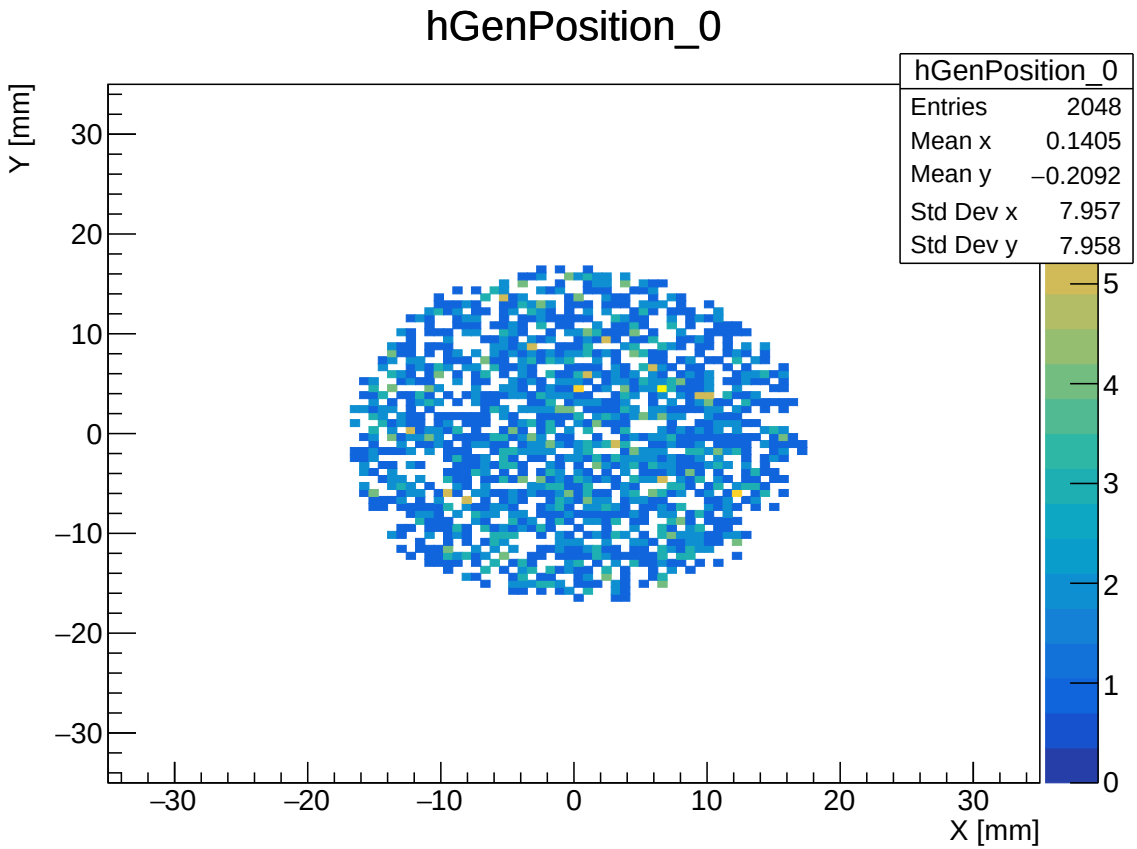

Figure: Generation Position

Geometric factors for proton

Geometric factors for proton

MC quantities for alpha_t0

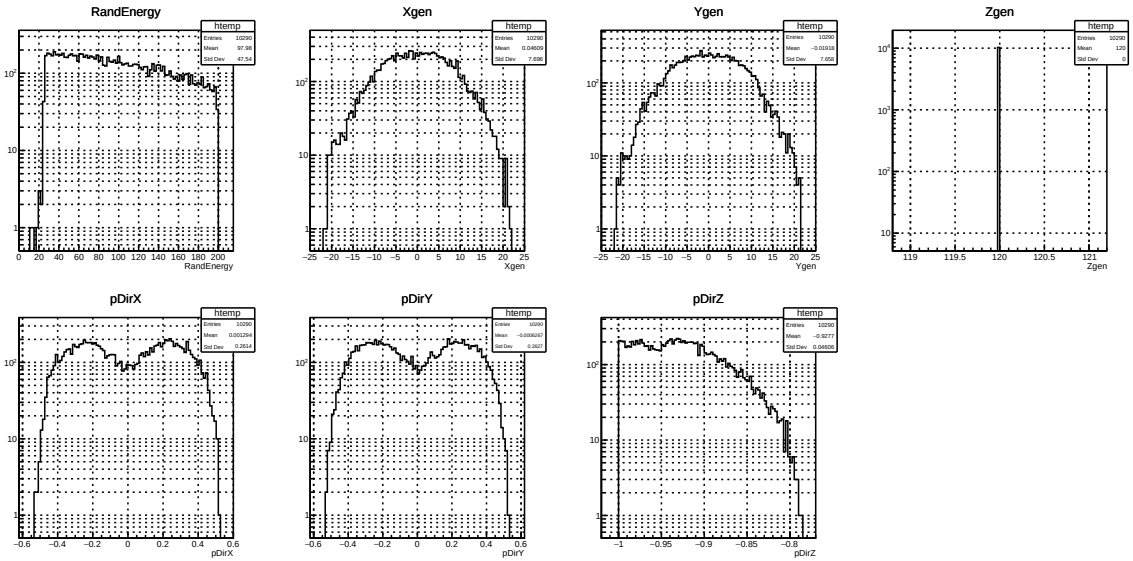

Figure: MC quantities

Energies distribution for alpha

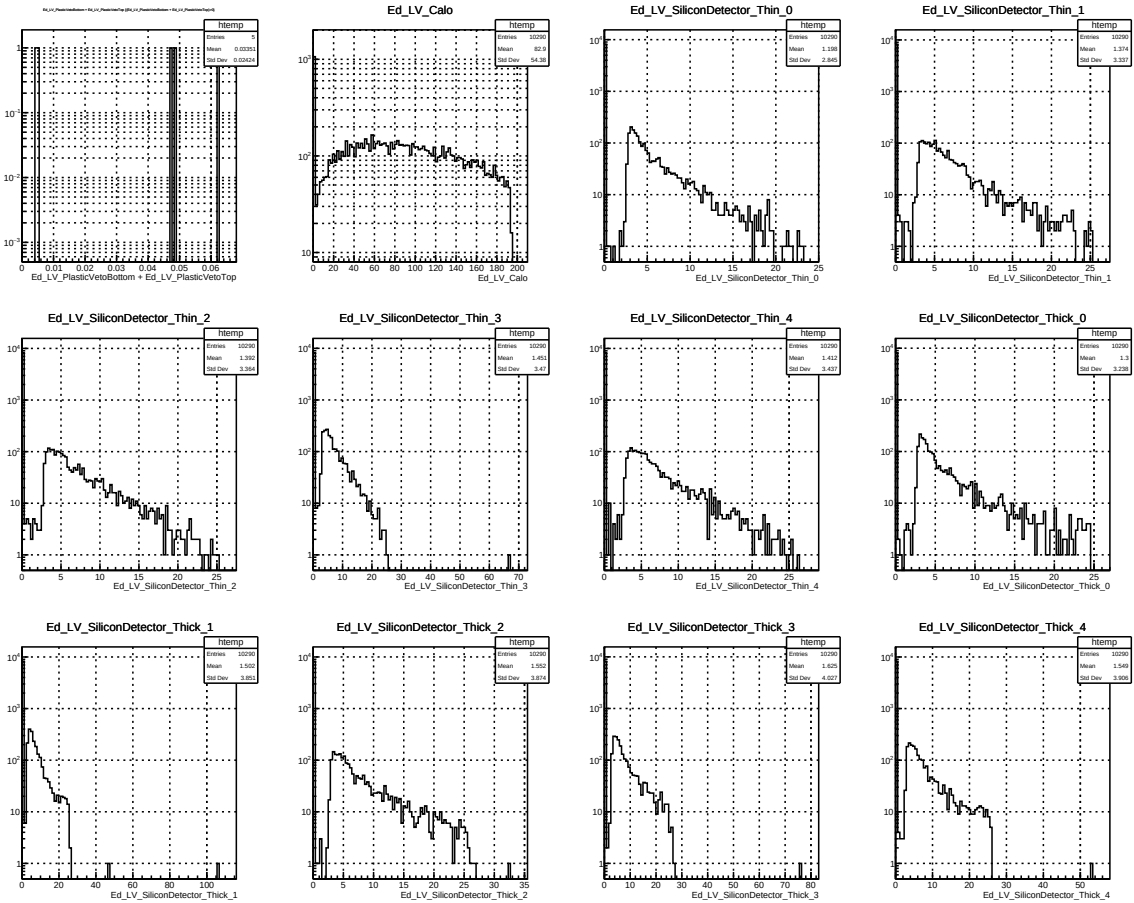

Figure: Detected energies

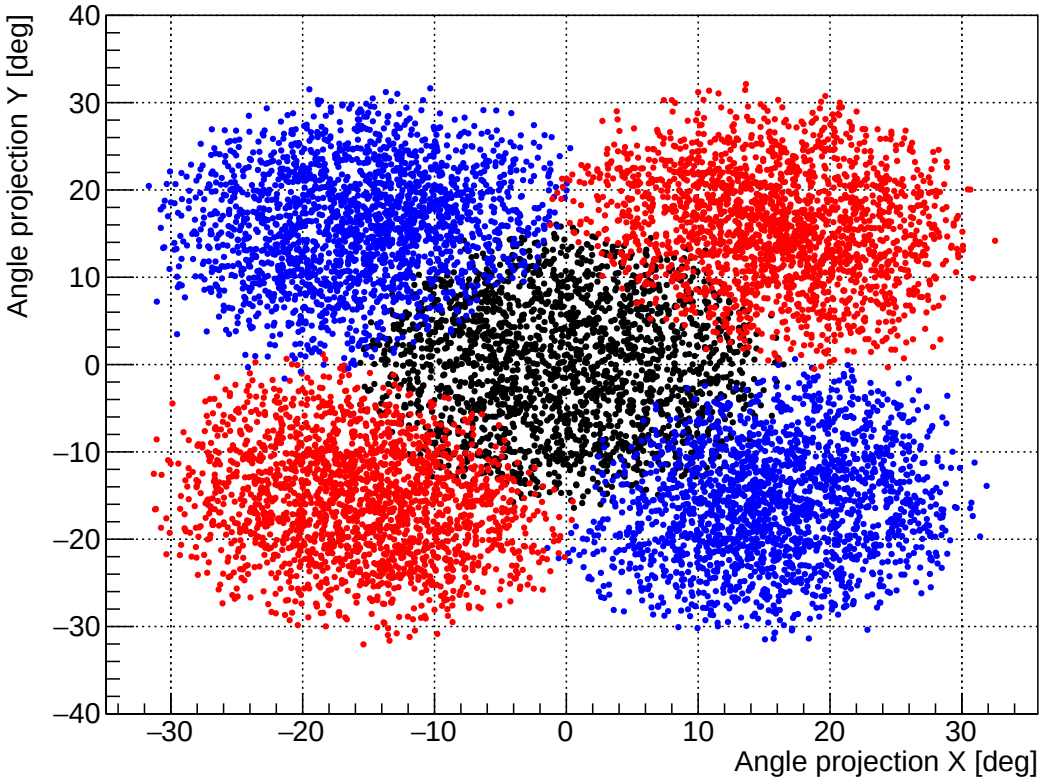

Figure: Angles distribution

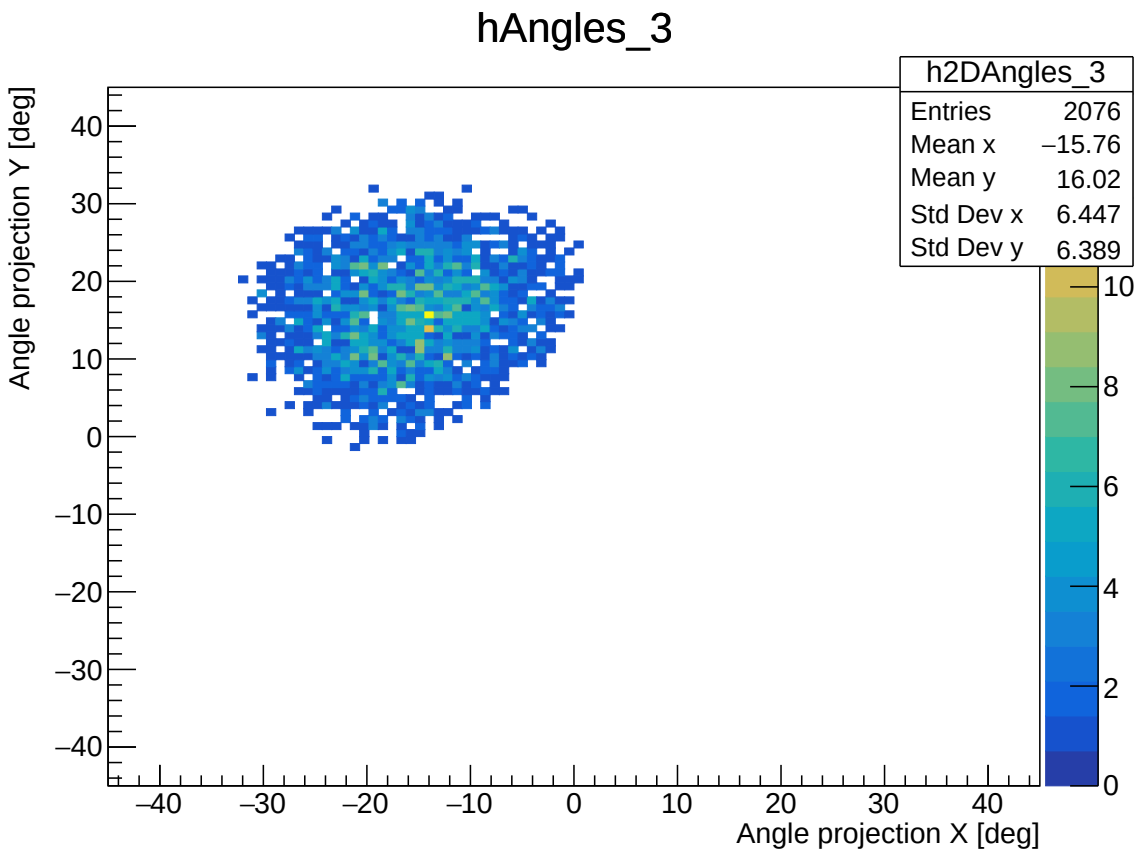

Figure: Angles distribution

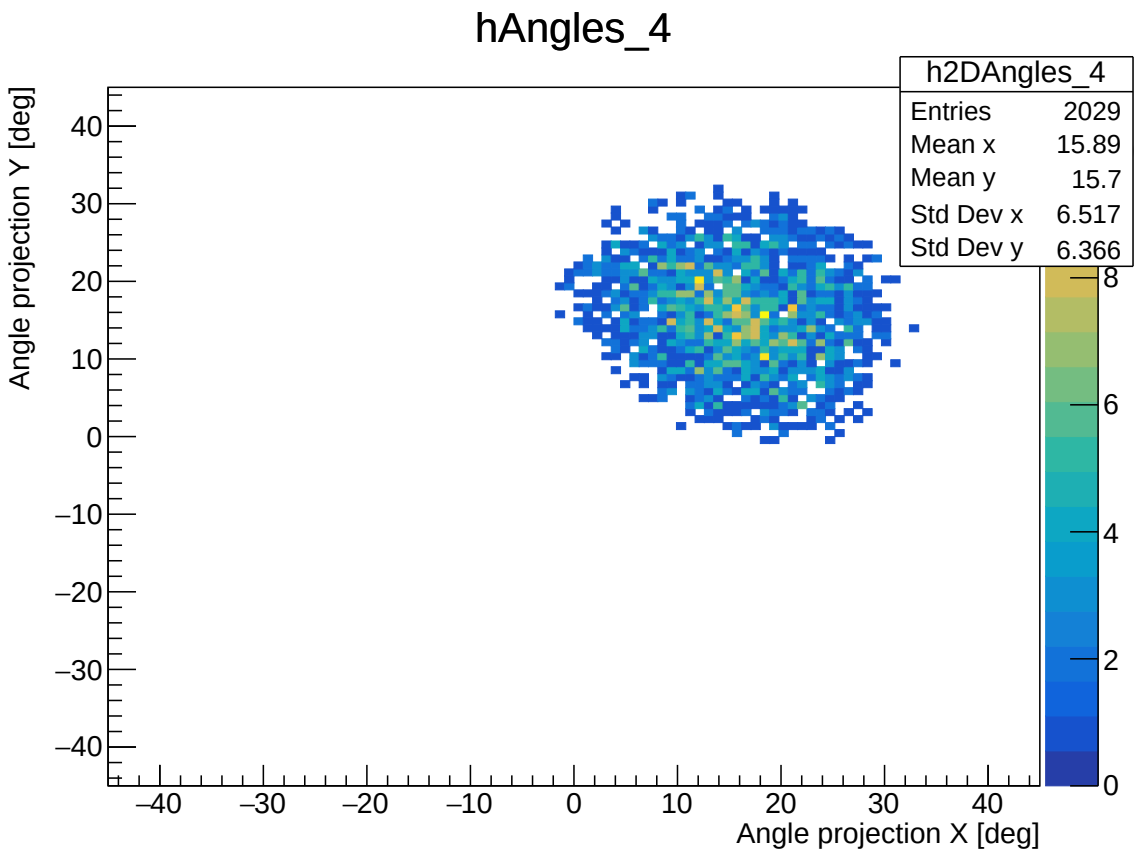

Figure: Angles distribution

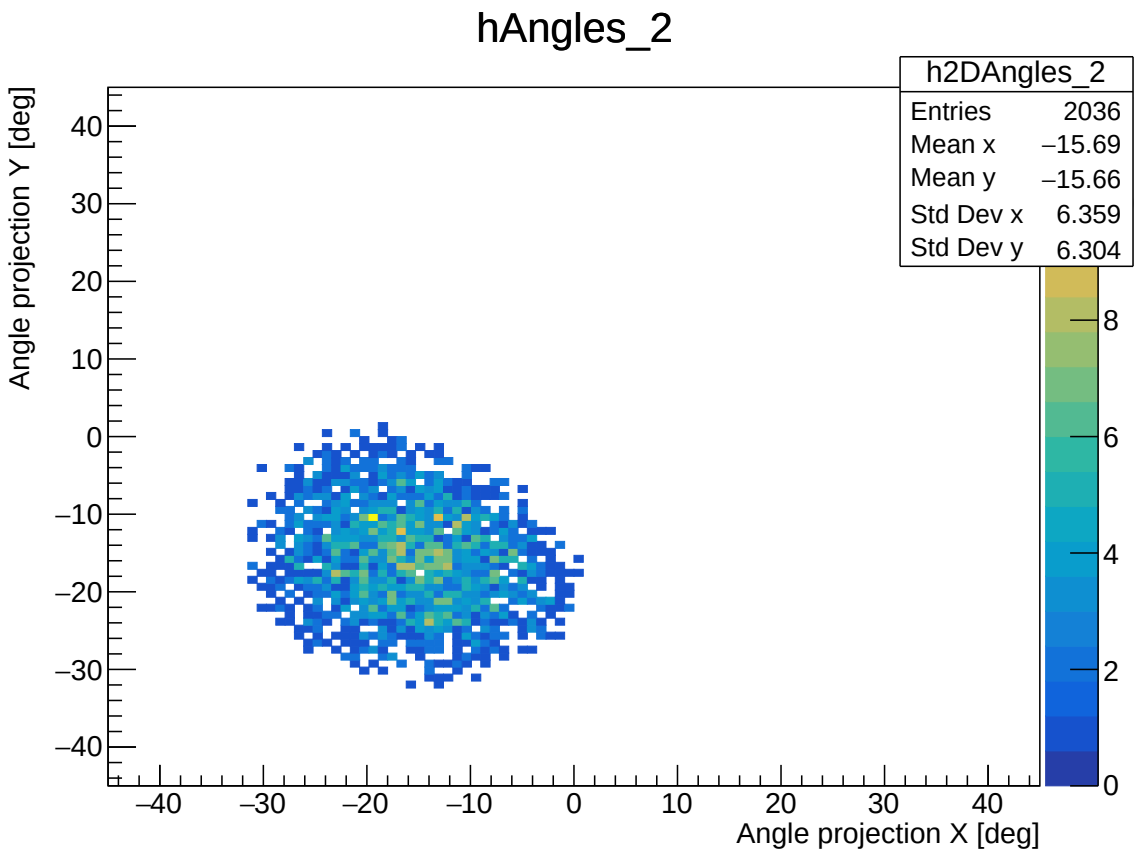

Figure: Angles distribution

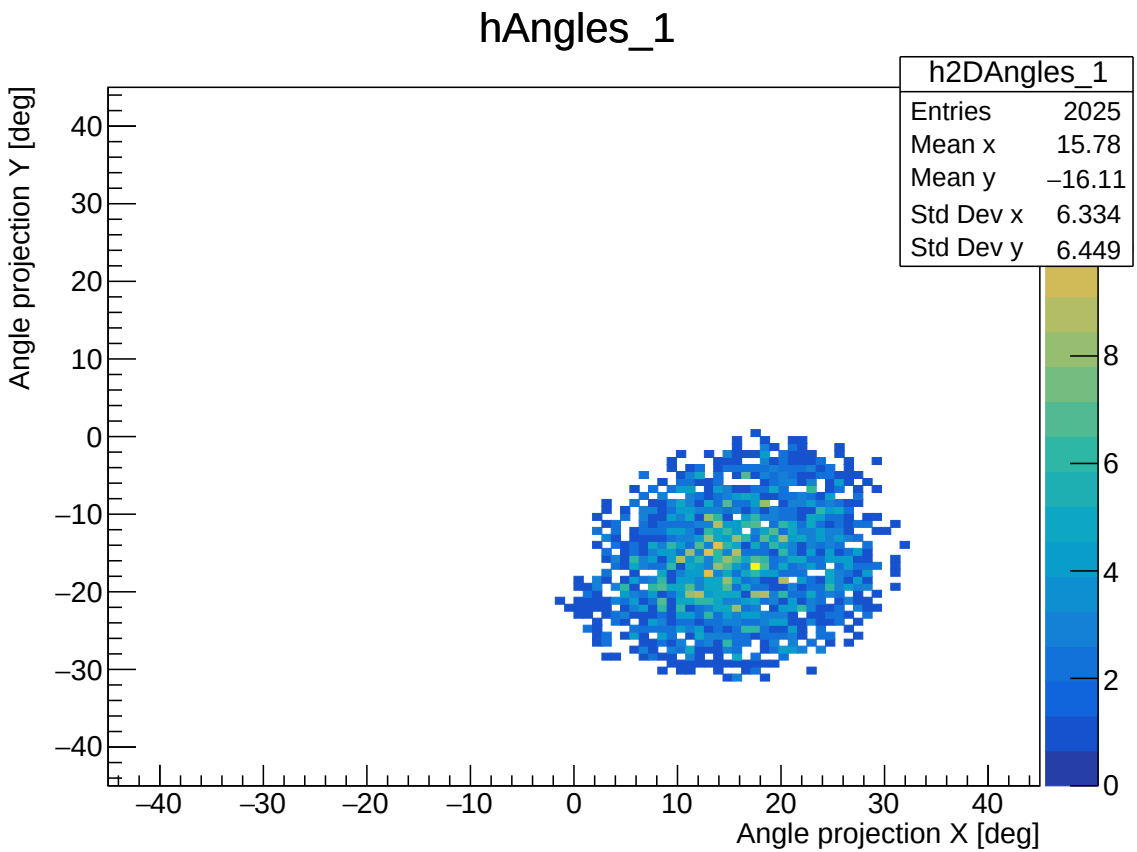

Figure: Angles distribution

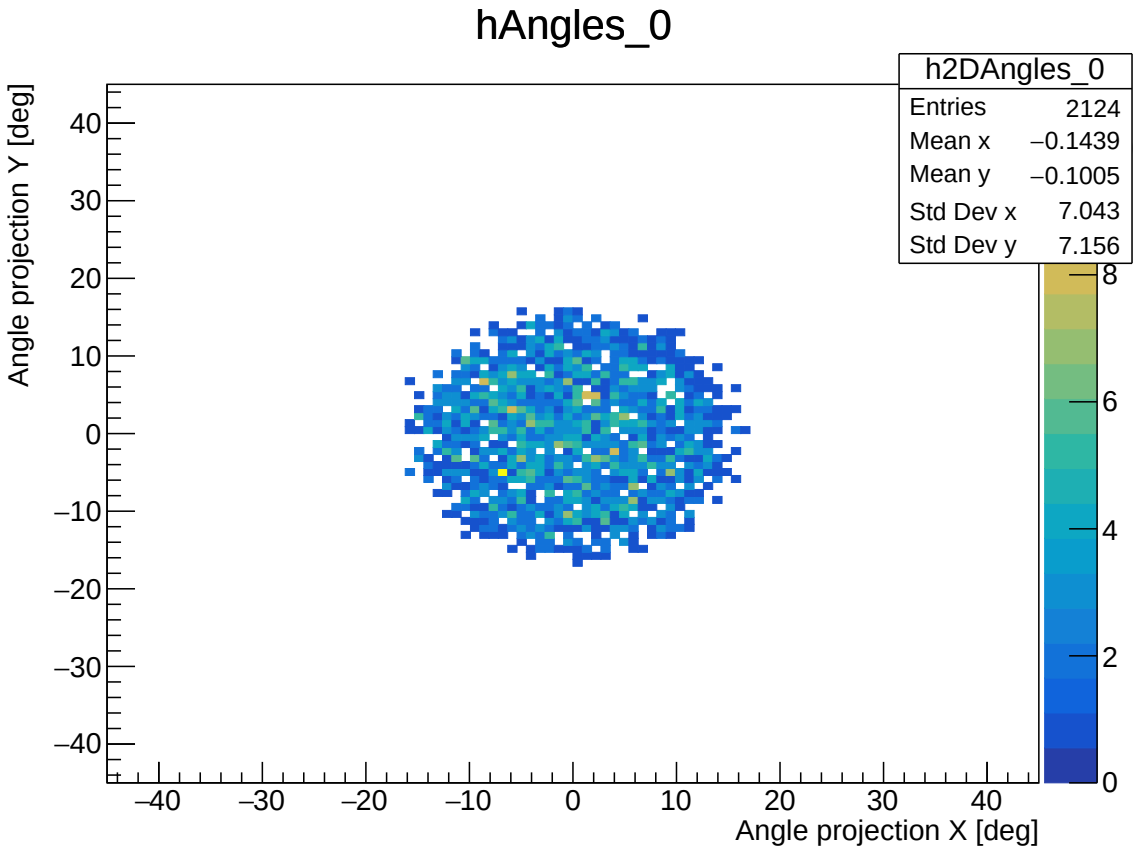

Figure: Angles distribution

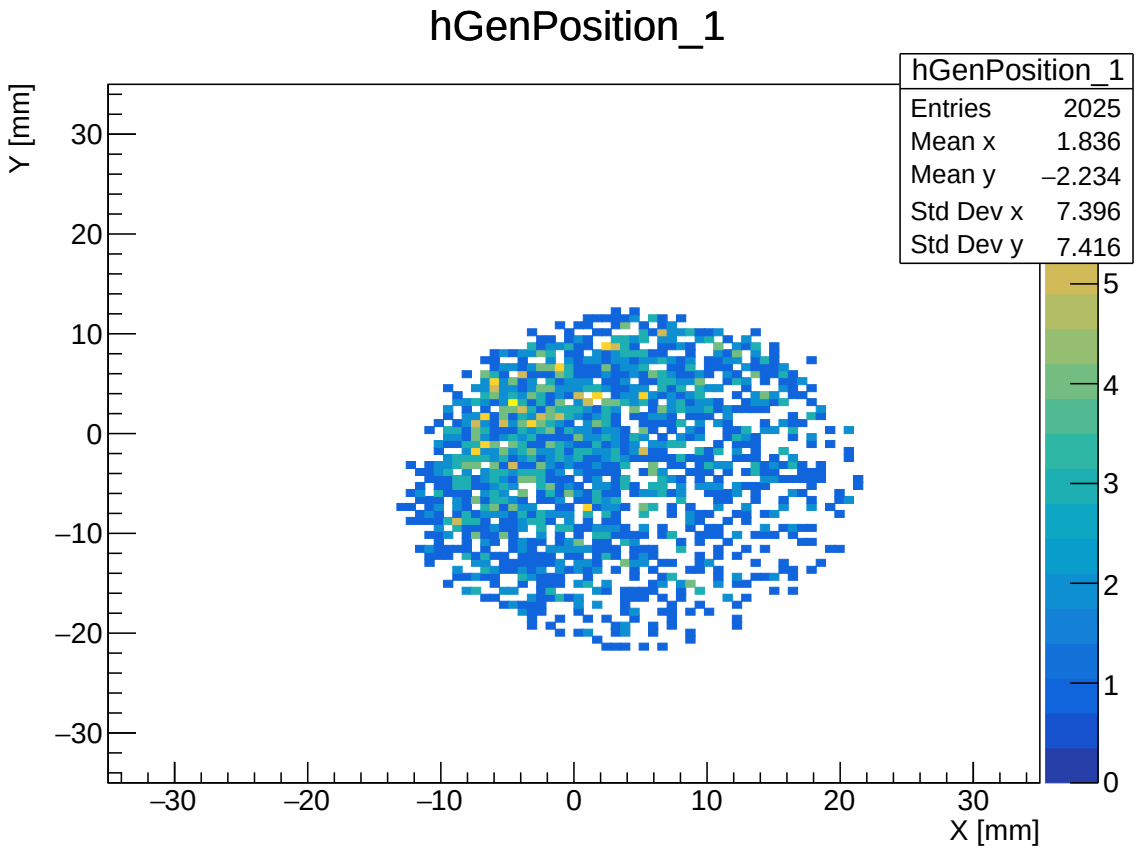

Figure: Generation Position

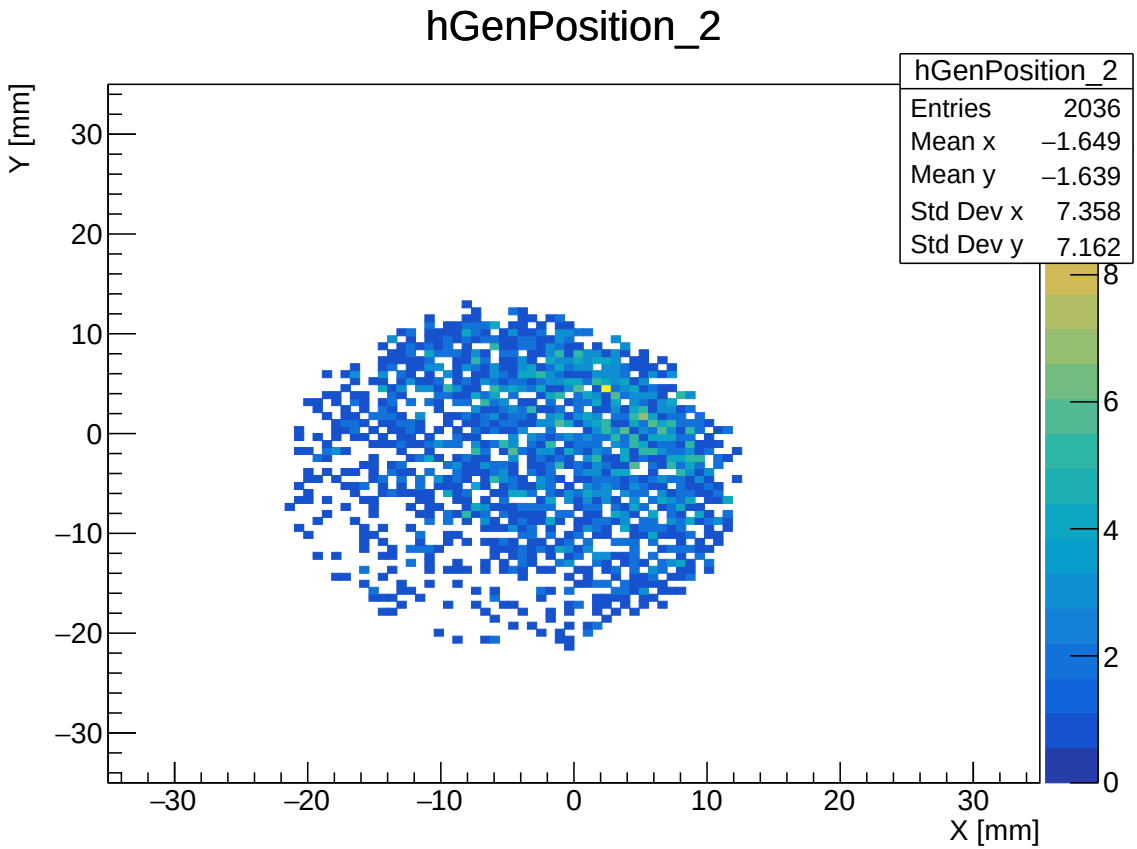

Figure: Generation Position

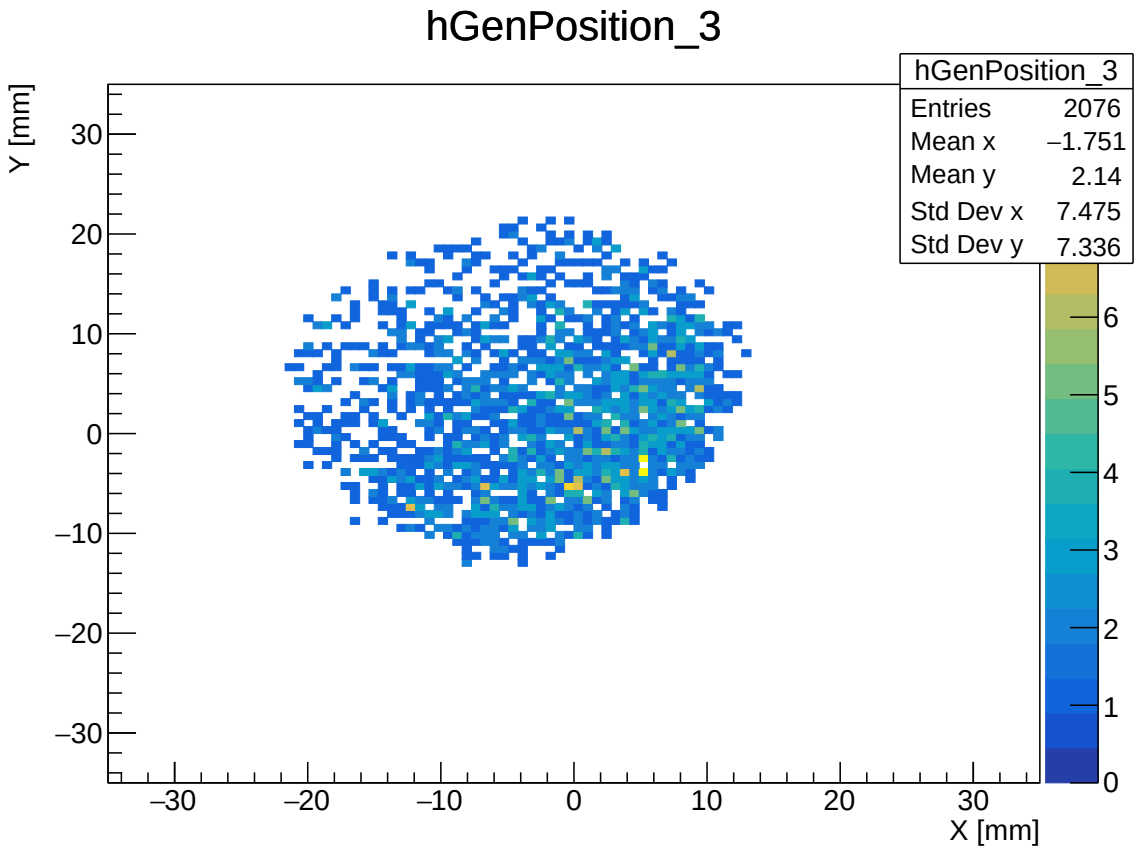

Figure: Generation Position

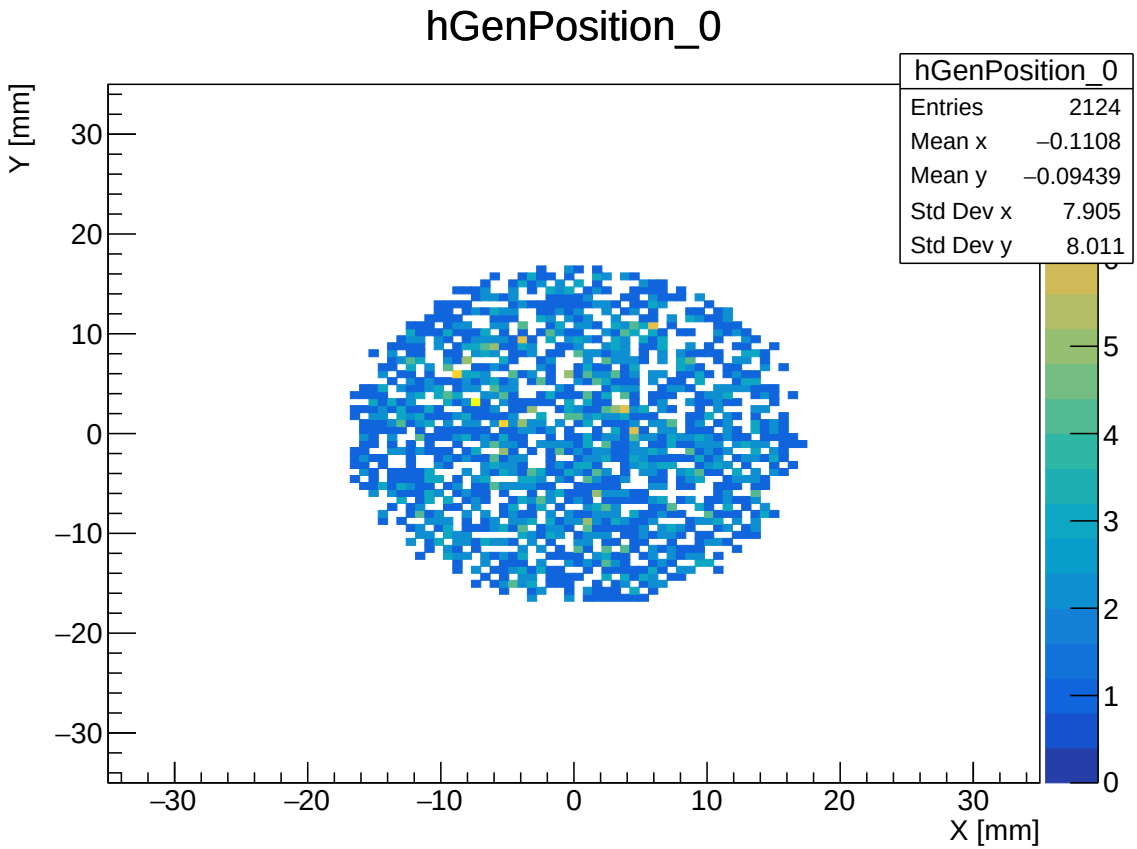

Figure: Generation Position

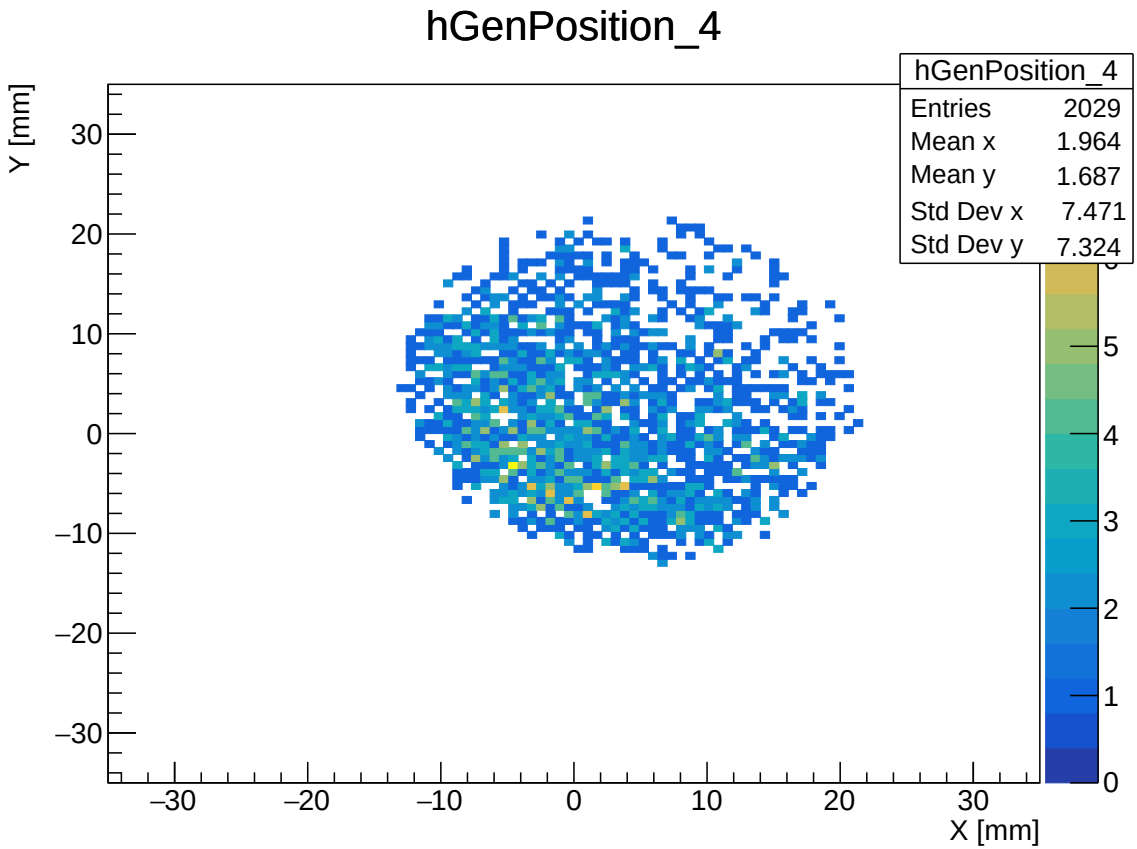

Figure: Generation Position

Geometric factors for alpha

Geometric factors for alpha

Geometric factors for all particles