Calorimeter reconstruction

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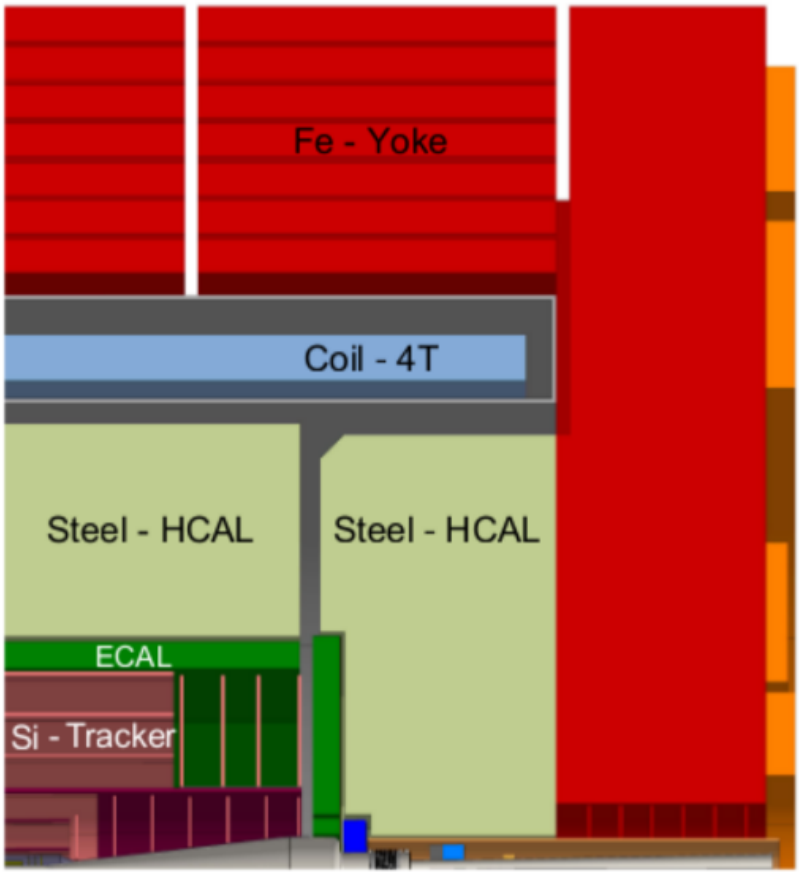
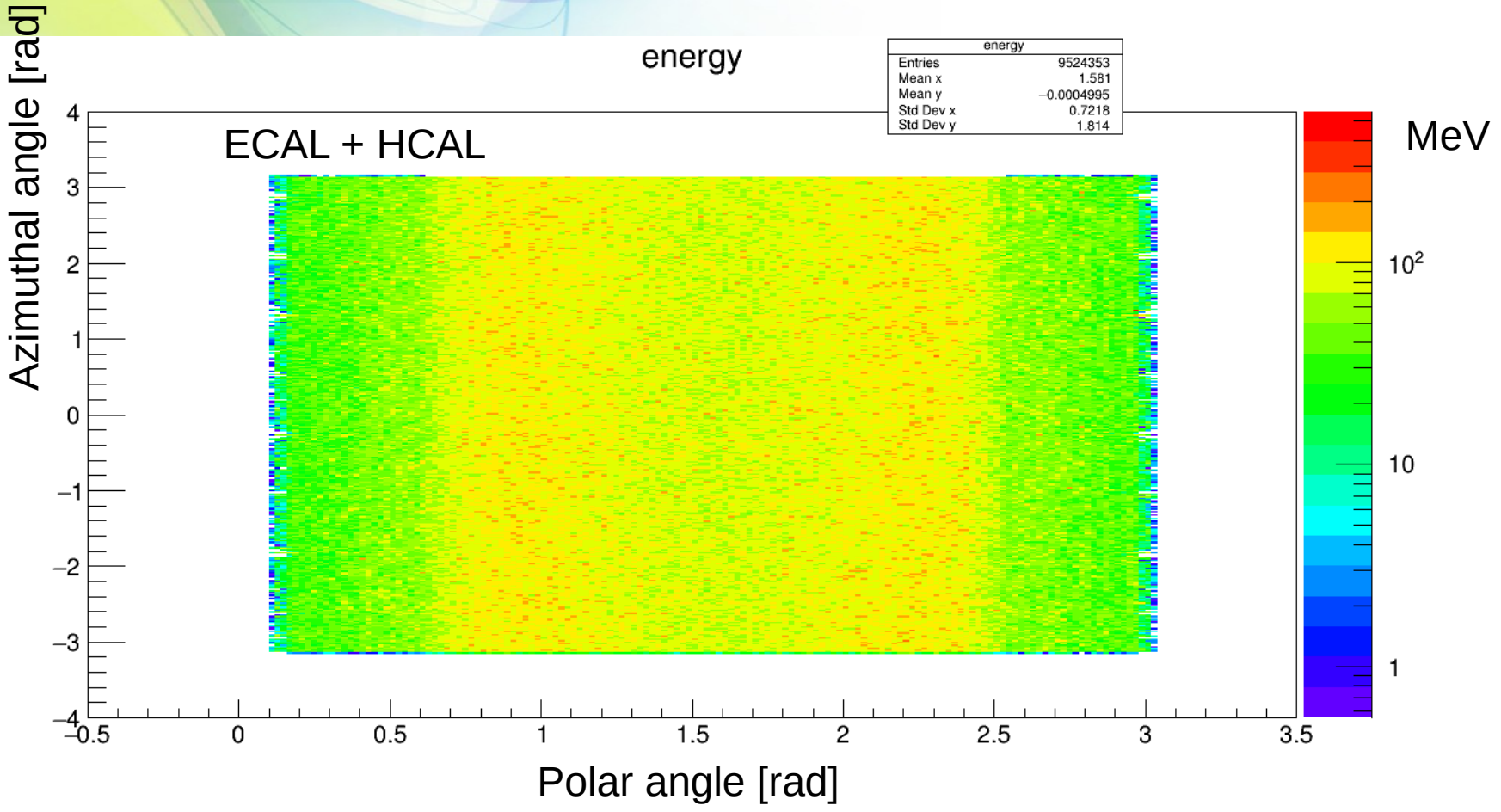
CLIC calorimeter

ECAL: silicon sensors and W absorbers

HCAL: scintillating tiles and steel absorber

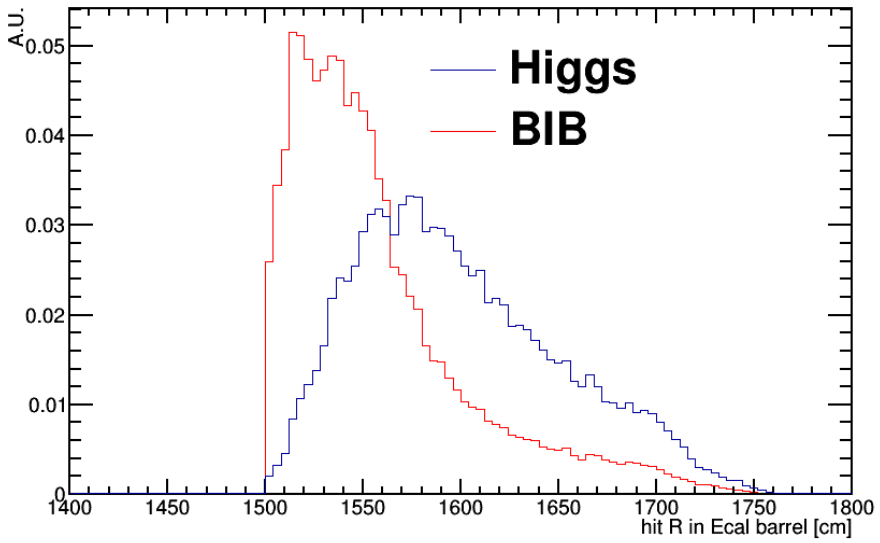


BIB occupancy at 1.5 TeV

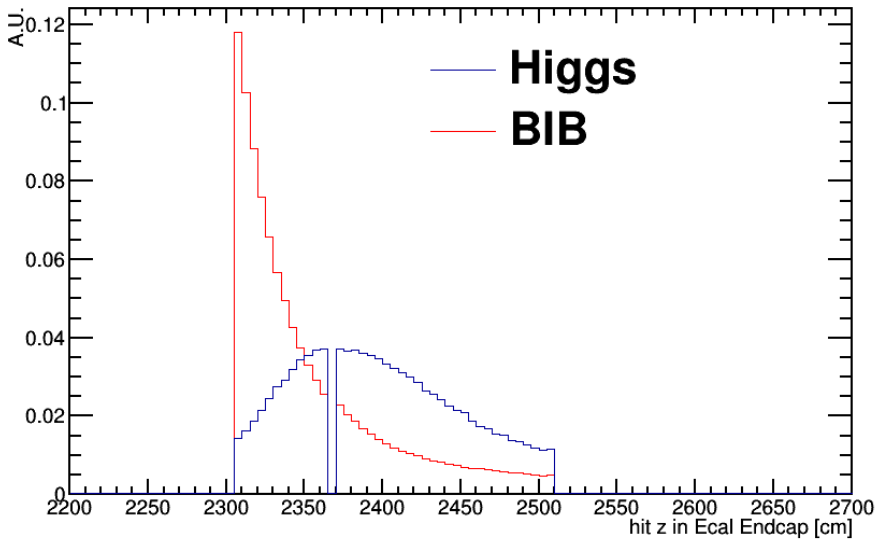


Longitudinal hits distribution

Ecal Barrel



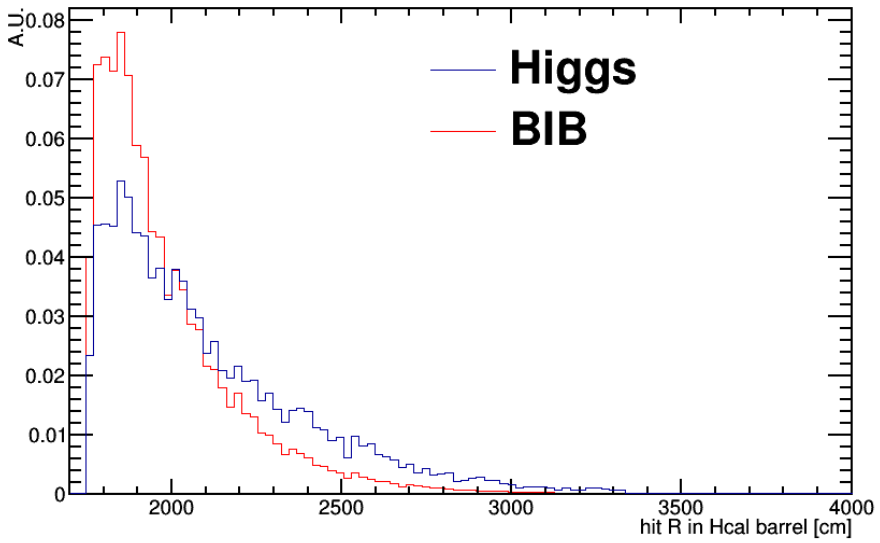
Ecal Endcap



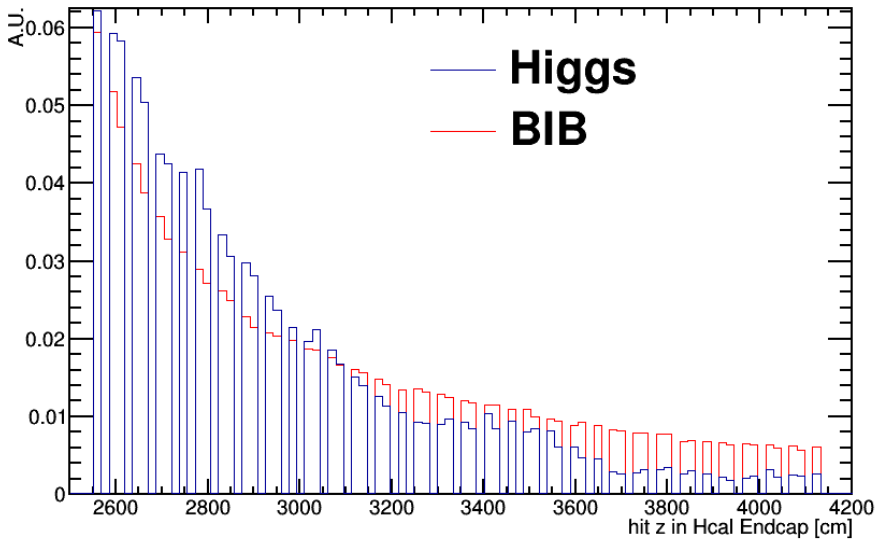
Do we need a shield/preshower before ECal?

Longitudinal hits distribution

Hcal Barrel



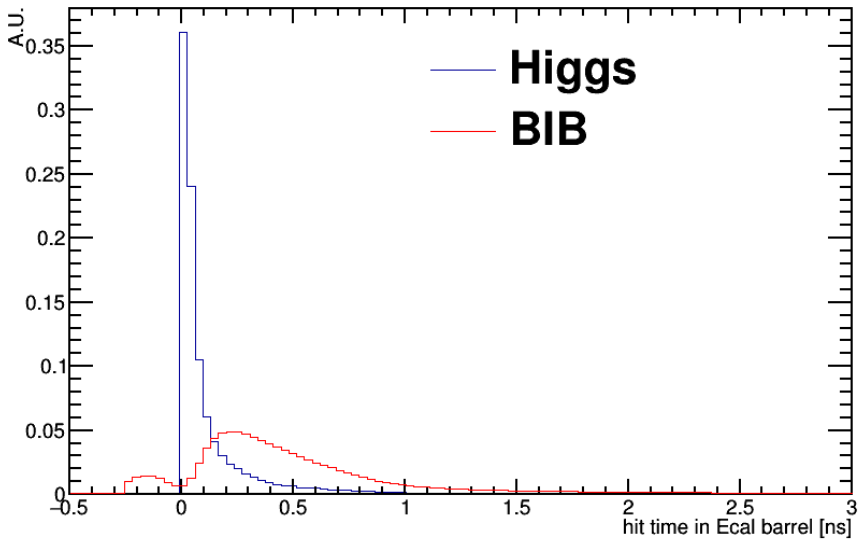
Hcal Endcap



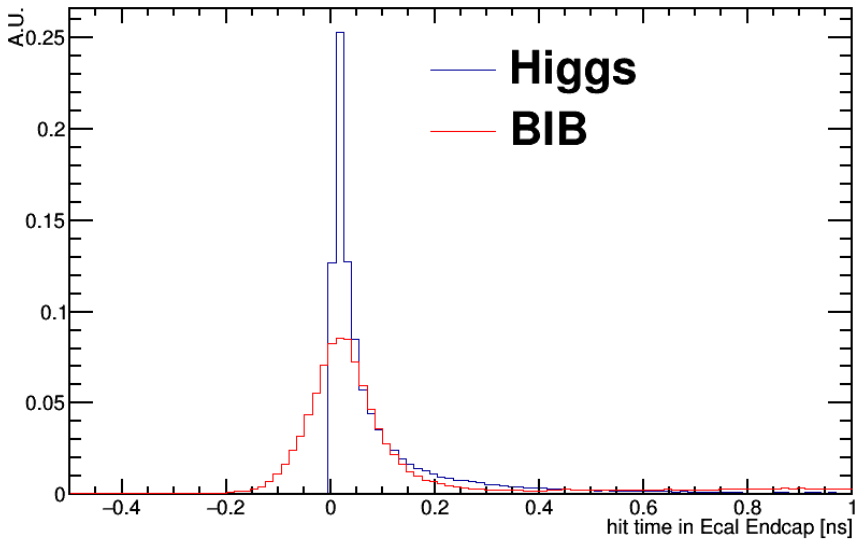
HCal hit occupancy ~ 1/10 ECal hit occupancy

Hits time of arrival

Ecal Barrel



Ecal Endcap

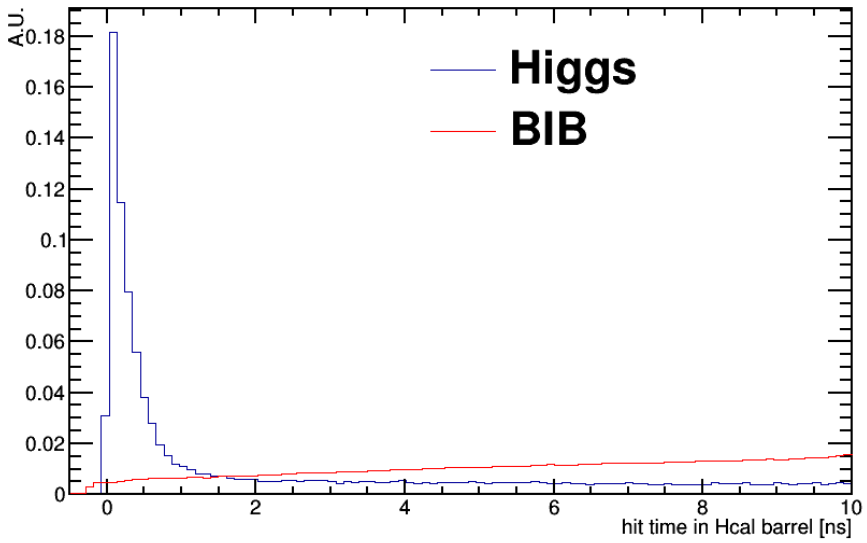


Time wrt photon arrival time

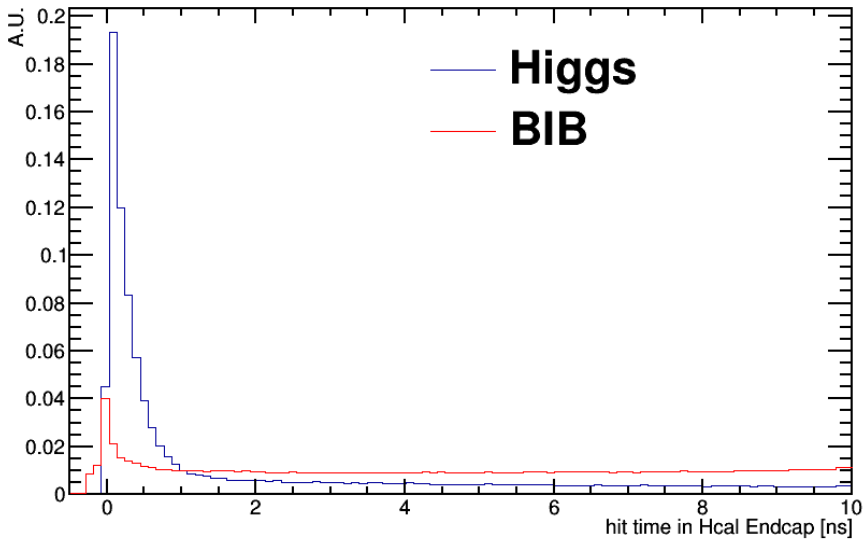
Time measurement useful for Ecal Barrel but not for Endcap (?)

Hits time of arrival

Hcal Barrel



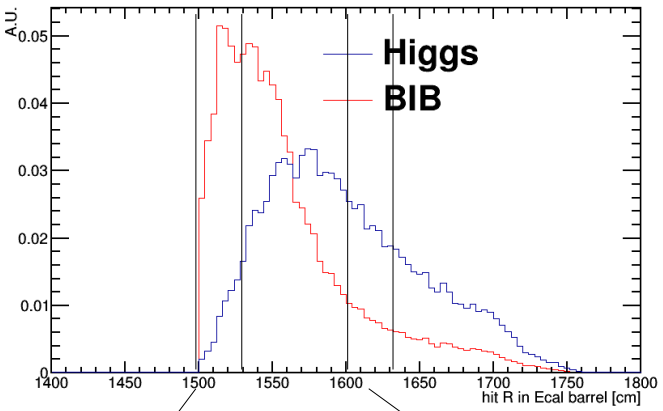
Hcal Endcap



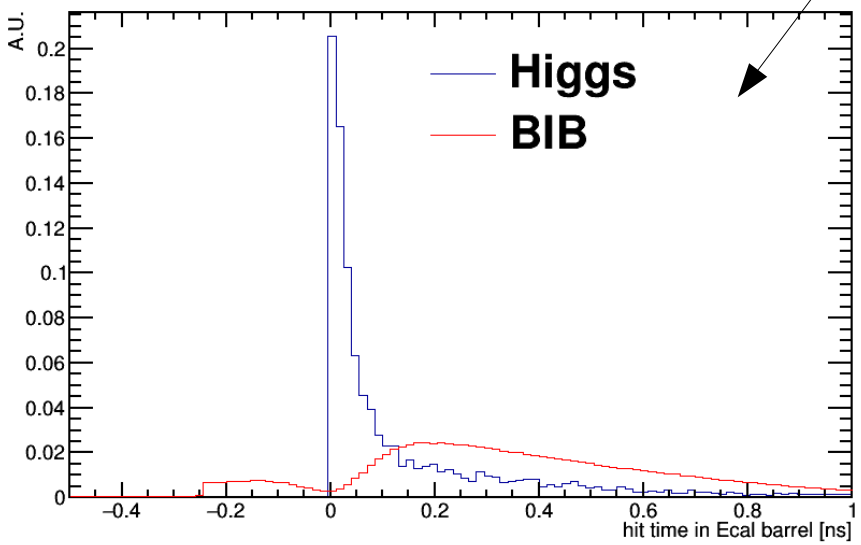
Time wrt photon arrival time

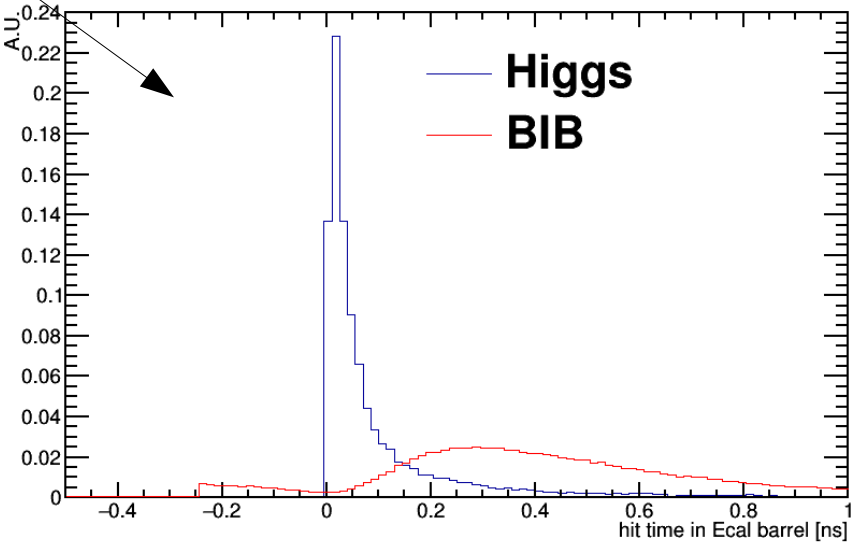
A rough time measurement can help to get rid of most of BIB in HCAL

Hits time of arrival at different depths



Ecal Barrel
Longitudinal hits distribution

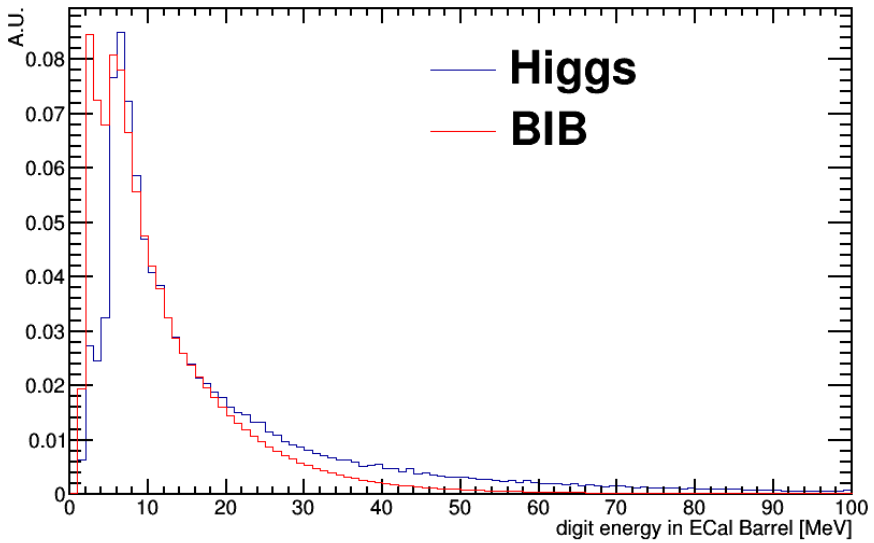




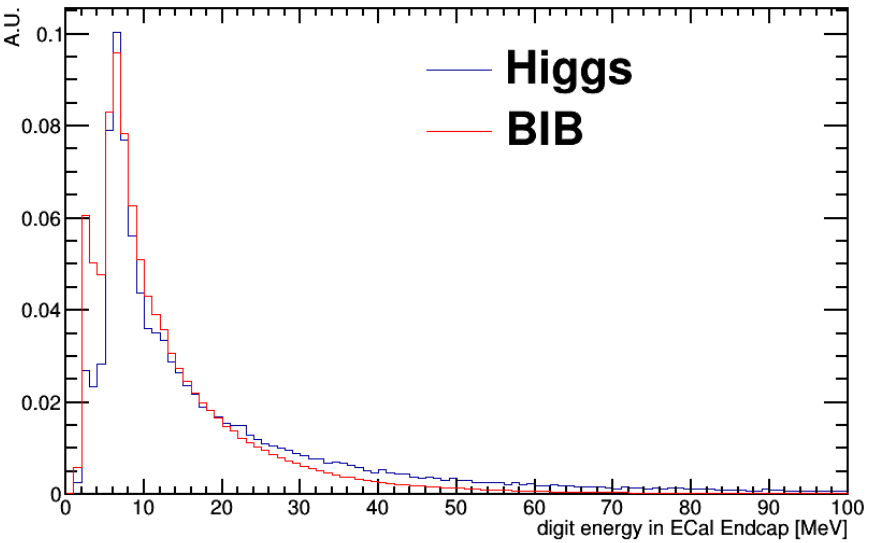
Time wrt photon arrival time

Measured energy in sensors (after digitization)

Ecal Barrel

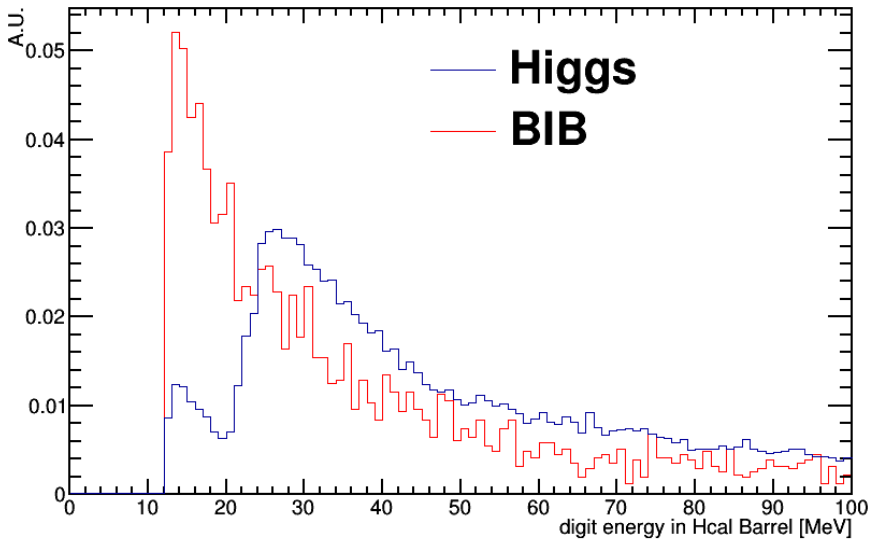


Ecal Endcap

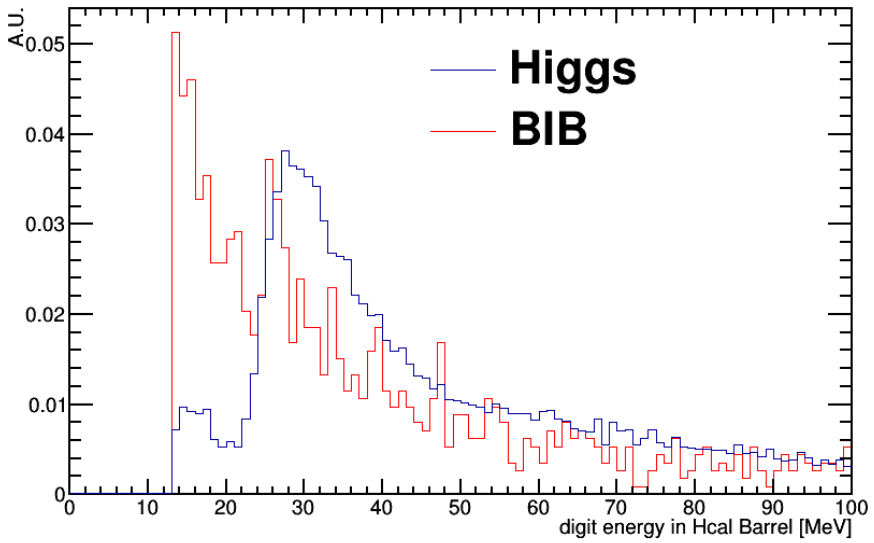


Measured energy in sensors (after digitization)

Hcal Barrel

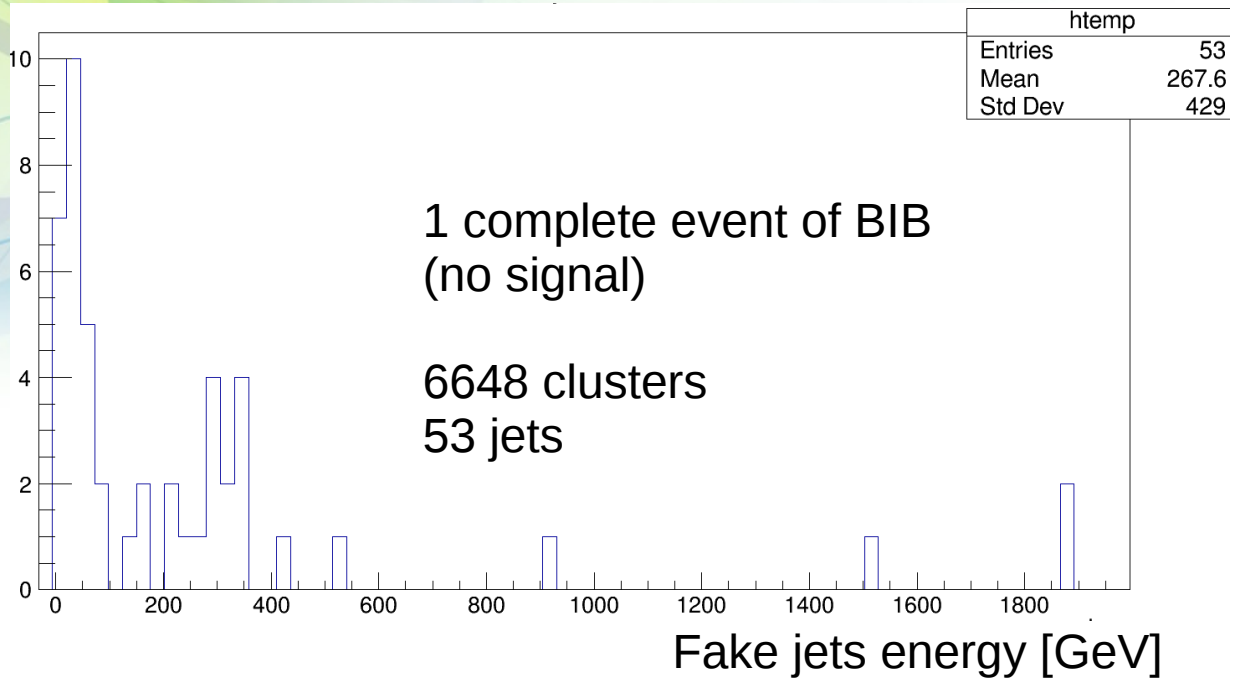


Hcal Endcap



Jets reconstruction with BIB

Hits → Digits → PandoraClusters → Jets



- Aggressive time window [-0.25,0.25]
- Default energy thresholds
- 62 GB ram necessary…
- Processing time: 4d 7h 46'

Next steps

- Define energy thresholds for hits (not physical), digits and clusters
- Define time windows
- These parameters should be different for Ecal/Hcal and Barrel/Endcap
- Remove hits in first ECal layers (= not reading sensors, like a shield) ?
- Compare reco jets of BIB+signal with MC truth
- When we will have tracks → Particle Flow
- For now a different technique should be applied (background subtraction?)