

SDHCAL release validation

CALICE CIEMAT meeting

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Slides for release validation of SDHCAL in ILCSoft (proposal)

The following slides are the proposal/comparisons we suggest to validate a given release or MC production for the SDHCAL in the framework of ILCSoft.

We focus on 3 studies that will give an overview of the detector simulation:

- Hit multiplicity.
- Longitudinal and radial profiles.
- Linearity of the reconstructed energy w.r.t MC thruth.

Each item is studied and compared in 3 scnearios (test beam 2018, uds sample, 250 GeV 2020 simulation).

Hit Multiplicity (π^{\pm})

uds sample (camilo)

to be done



test beam 2018 (Hector)

to be done



250 GeV (when simulation gets done)

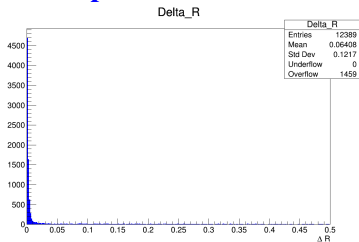
to be done



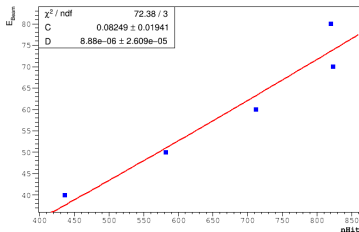
- The number of hits associated to a particle passing any threshold.
- We should have an explanation for every difference we spot.

Longitudinal and radial profile (π^\pm)

uds sample



test beam 2018 (ΔR)



250 GeV (when simulation gets

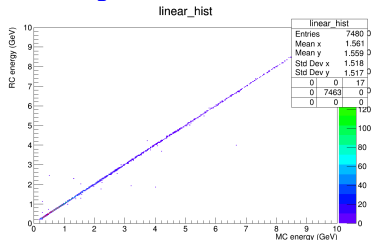
to be done

done)

- Could be either measured with ΔR or as average number of hits per plane / layers.
- How wide and deep the shower gets (depends on the material in front and the thresholds).

Linearity of the reconstructed energy (π^\pm)

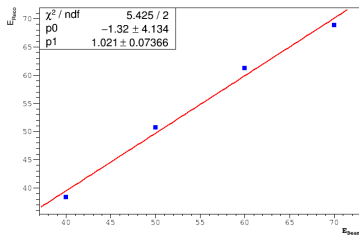
uds sample



250 GeV (when simulation gets done)

to be done

test beam 2018



- When enough data, the resolution as a function of energy could be also considered.

Conclusions

- This is a proposal. Comments things to add things to delete?
- Goal is to have everything, all pltos ready for the SDHCAL meeting on the 6th of february.
- Then to share in an ILD meeting

Backup

