

Single particle response with ORCA (preliminary)

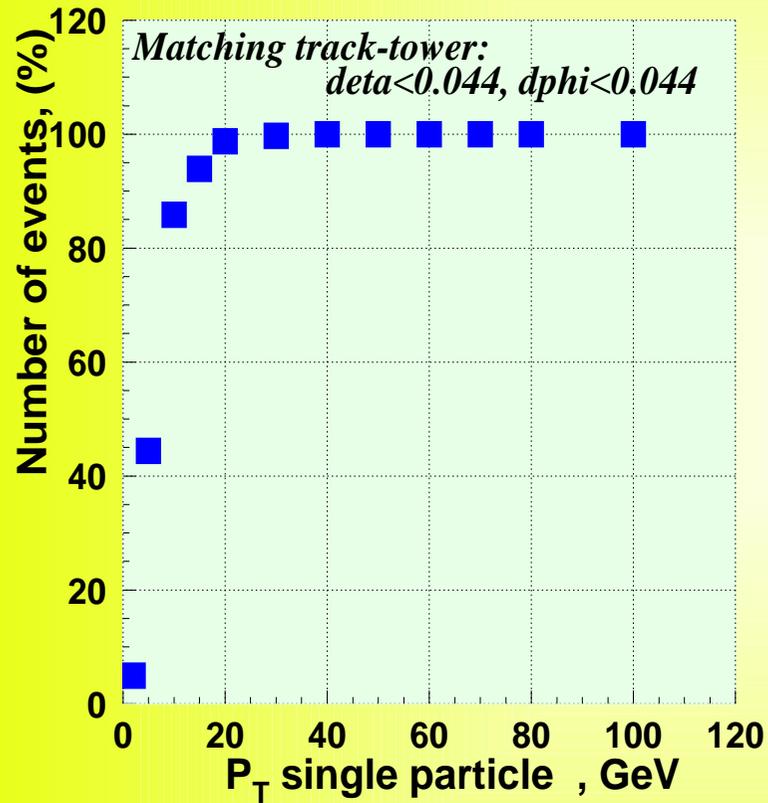
I.Vardanyan, O.Kodolova

For using tracker information in jet energy correction one need to create the library of expected responcees of single (isolated) particles.

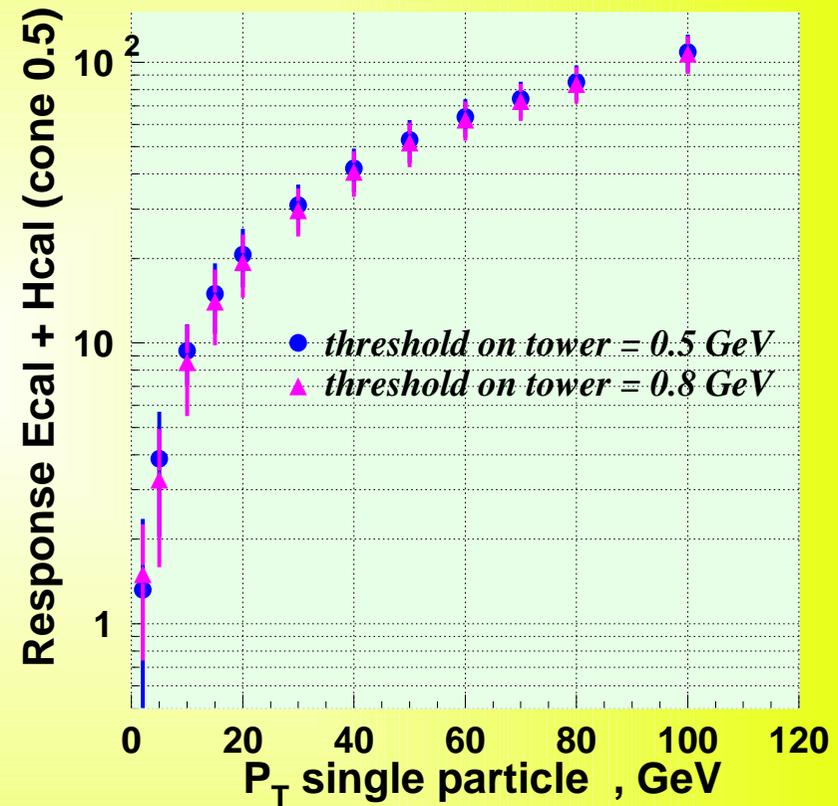
General conditions:

-  **Pions are generated with CMSIM125 and digitized with ORCA_6_2_0**
-  **The entry point of charged particles to ECAL is found using propagation with GtfPropagator from vertex to outer tracker layer and GEANE wrapper inside crystall volume.**
-  **5x5 crystall matrix from tower is considered as cluster around entry point. This is temporary solution untill possibility to create the any matrix around entry point will be provided.**
-  **We consider the pion as interacted if $E_{5 \times 5} > 0.5$ GeV and non-interacted if $E_{5 \times 5} < 0.5$ GeV**

Matching track with 5x5 crystals matrix (tower).

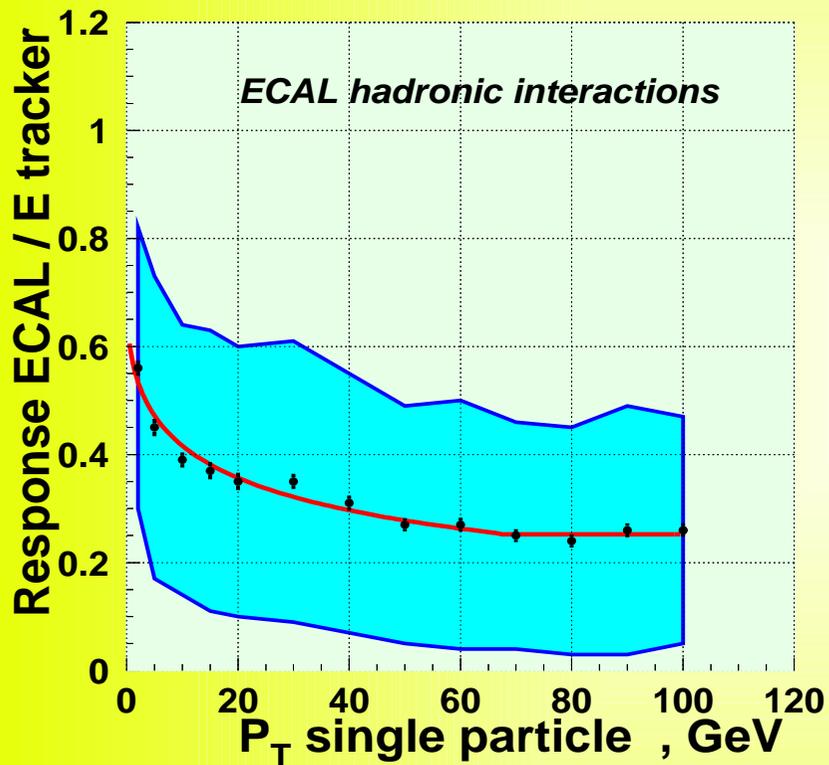


Response (ECAL+HCAL) in cone 0.5 with different thresholds on tower.

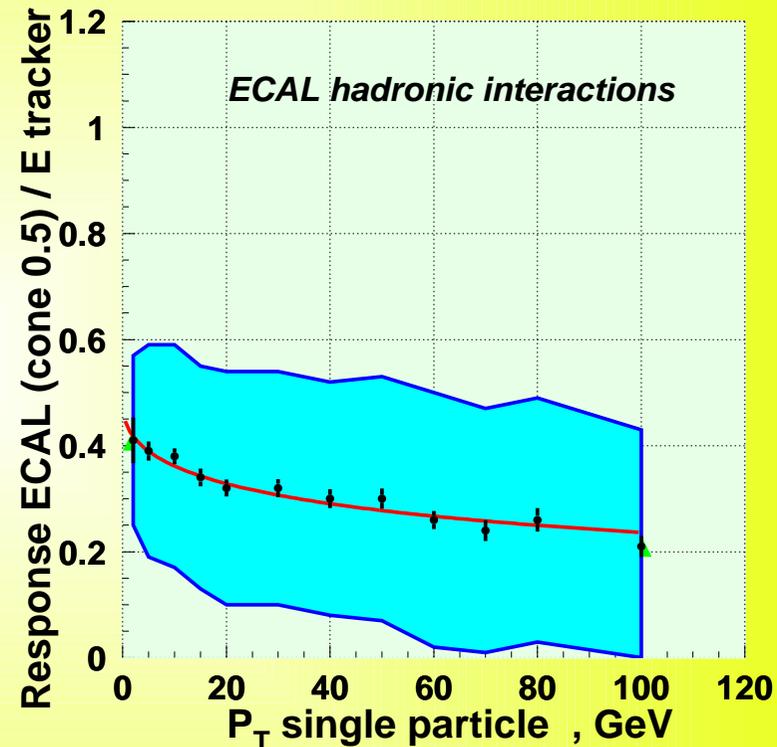


Comparison ORCA620 and CMSIM121 data

Mean responses in ECAL for particles interacted in ECAL



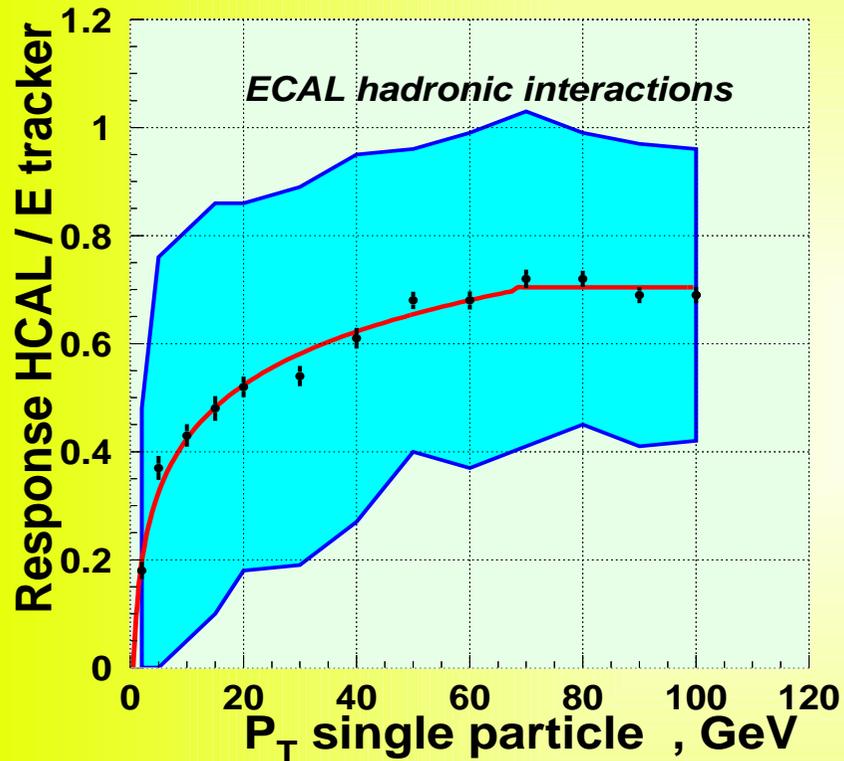
CMSIM121
Full response
no threshold on tower



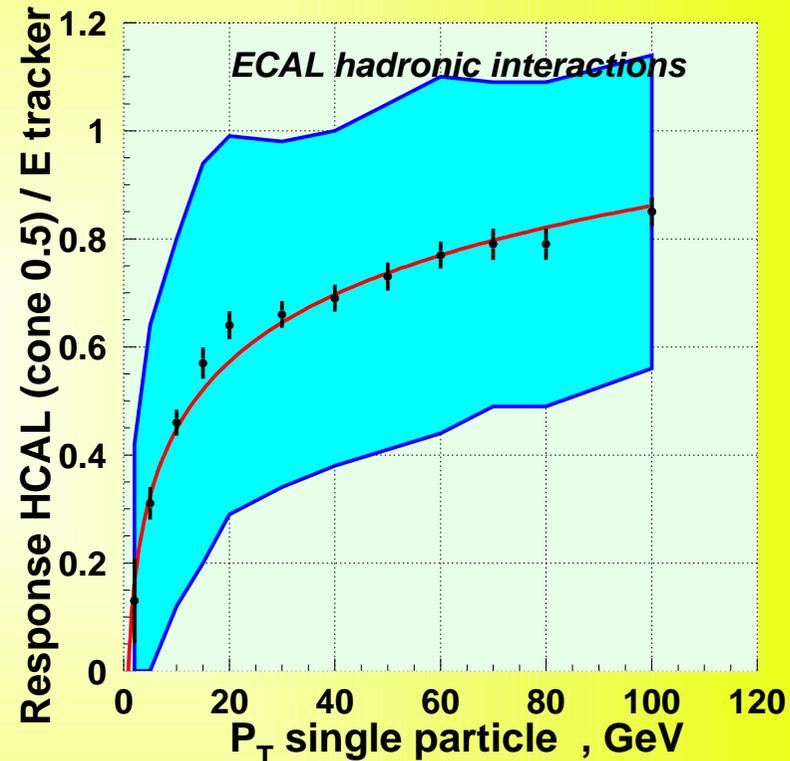
ORCA620
response in cone 0.5
threshold for tower 0.5 GeV

Comparison ORCA620 and CMSIM121 data

Mean responses in HCAL for particles interacted in ECAL



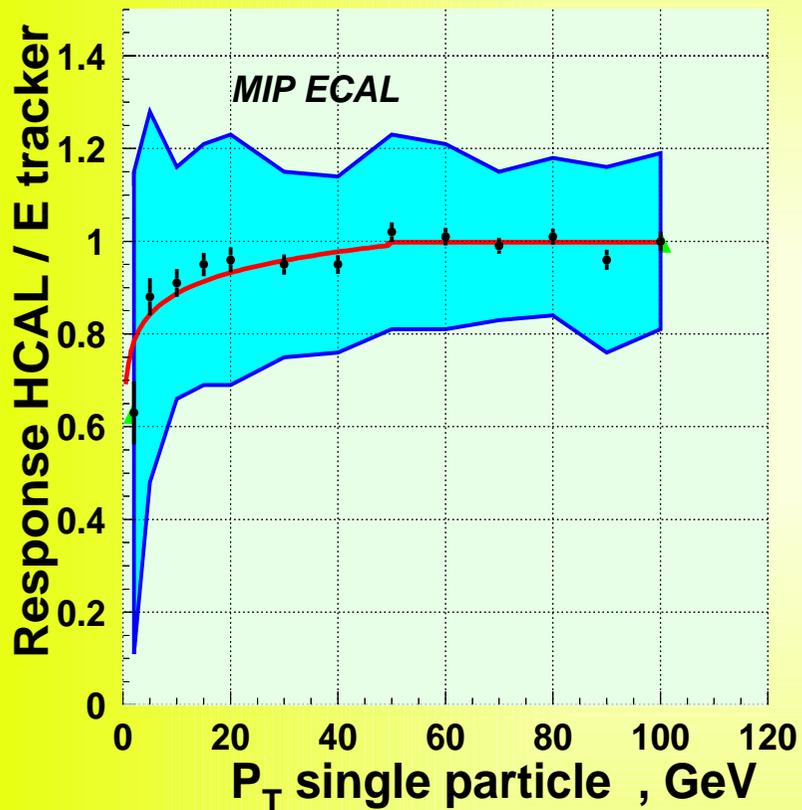
CMSIM121
Full response
no threshold on tower



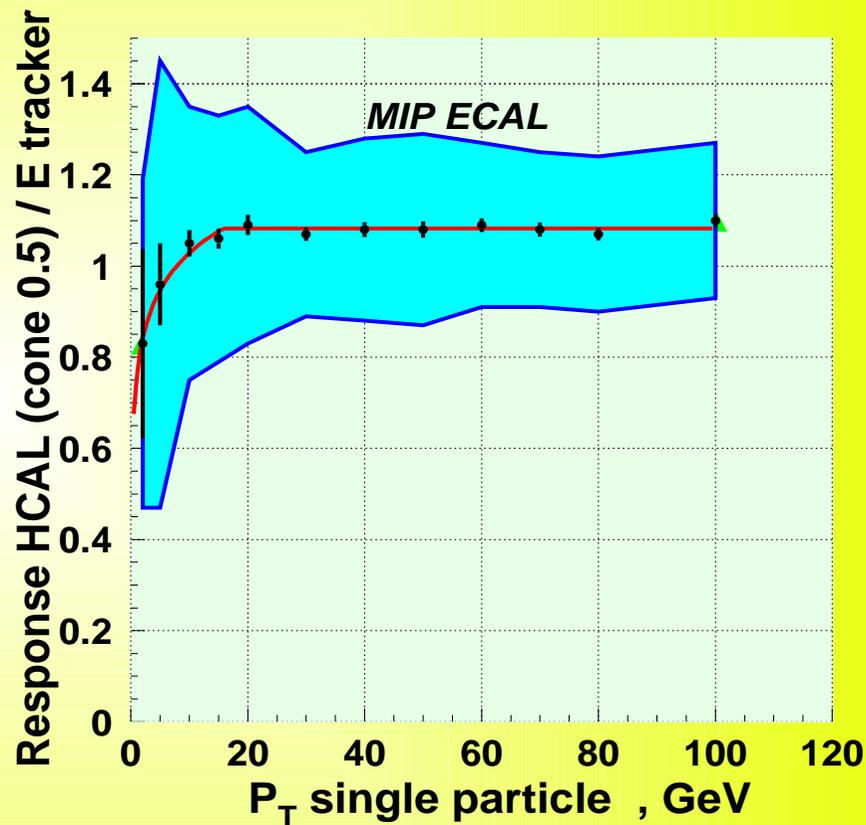
ORCA620
response in cone 0.5
threshold for tower 0.5 GeV

Comparison ORCA620 and CMSIM121 data

Mean responses in HCAL for particles non-interacted in ECAL

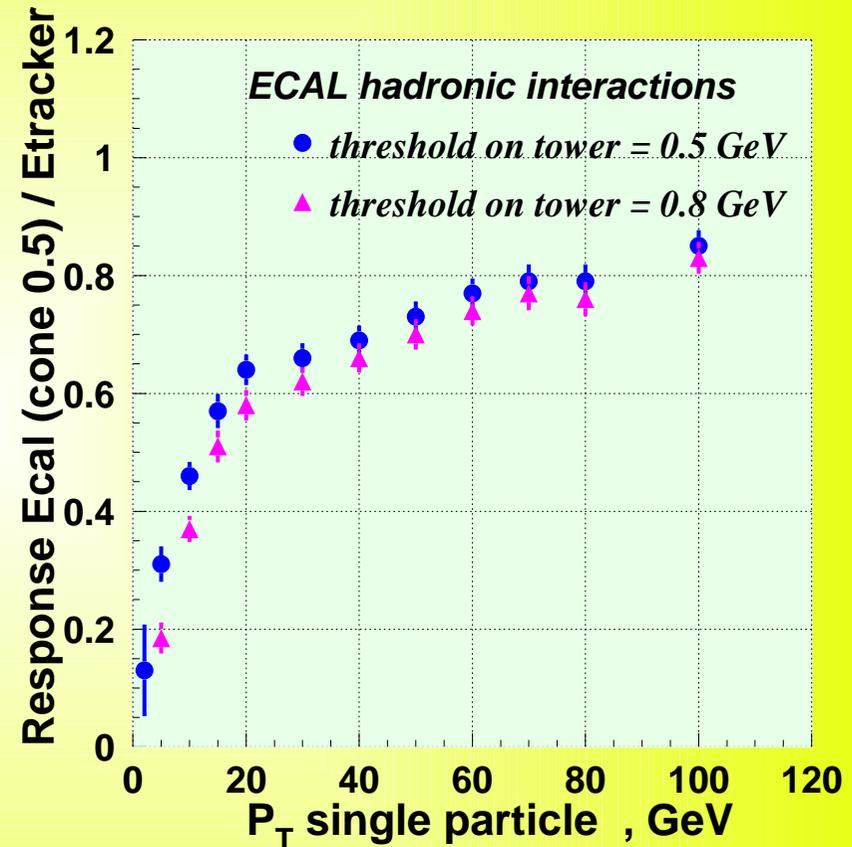
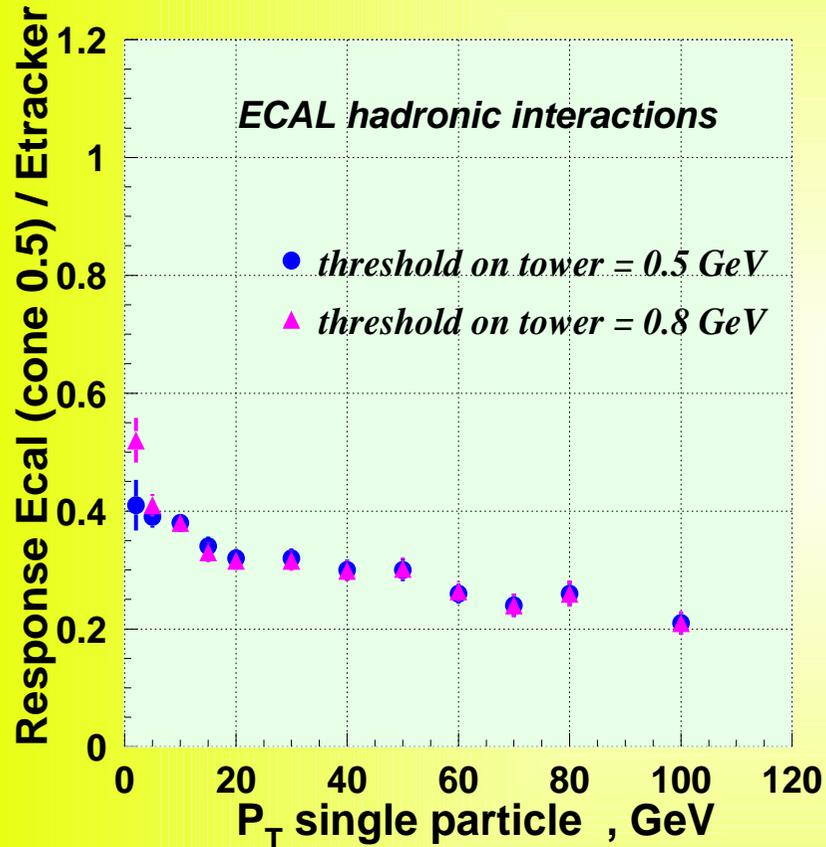


CMSIM121
Full response
no threshold on tower



ORCA620
response in cone 0.5
threshold for tower 0.5 GeV

Responses in cone 0.5/Etracker for ECAL and HCAL with different threshold on tower



Probably we need separated thresholds for ECAL and HCAL part of tower.