News

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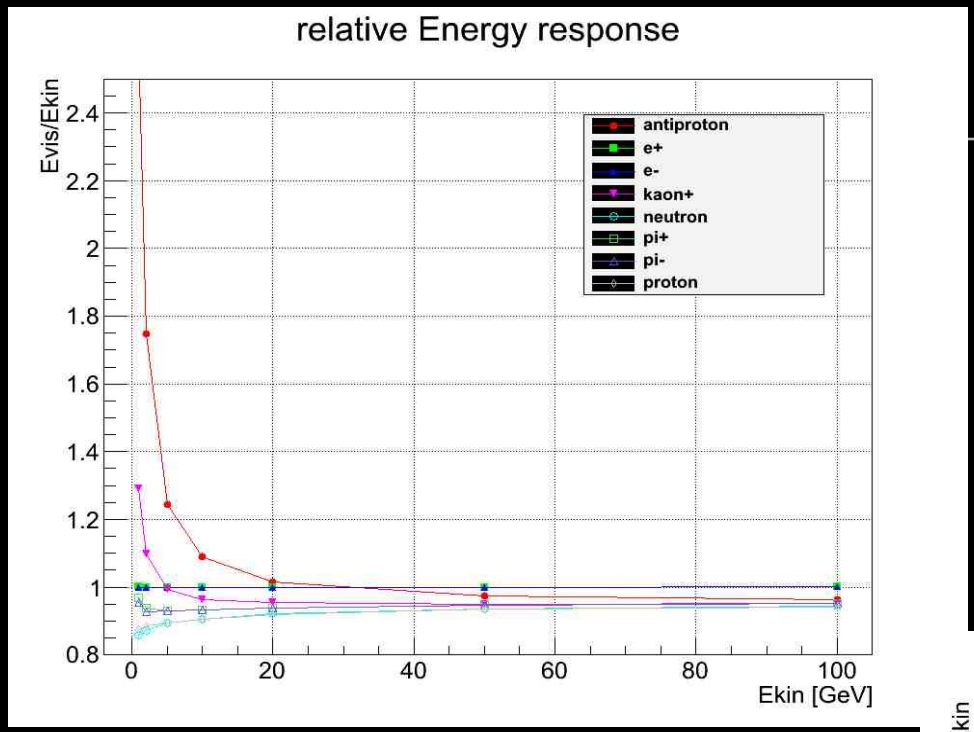
What's new

- **Added install target make install: copies all necessary files, sets run time path etc.**
- New example to automate the analysis:
  - response.cc: loops over all input files and produces nice histograms with response differnt particles
  - lalength.cc: routine to find the original interaction. Then shower is characterized with respect to begin of the shower --> still needs optimization of the algorithmn.
- In the grid subdirectoy there are examples how to run CaTS on Fermi Grid
- Data sets:

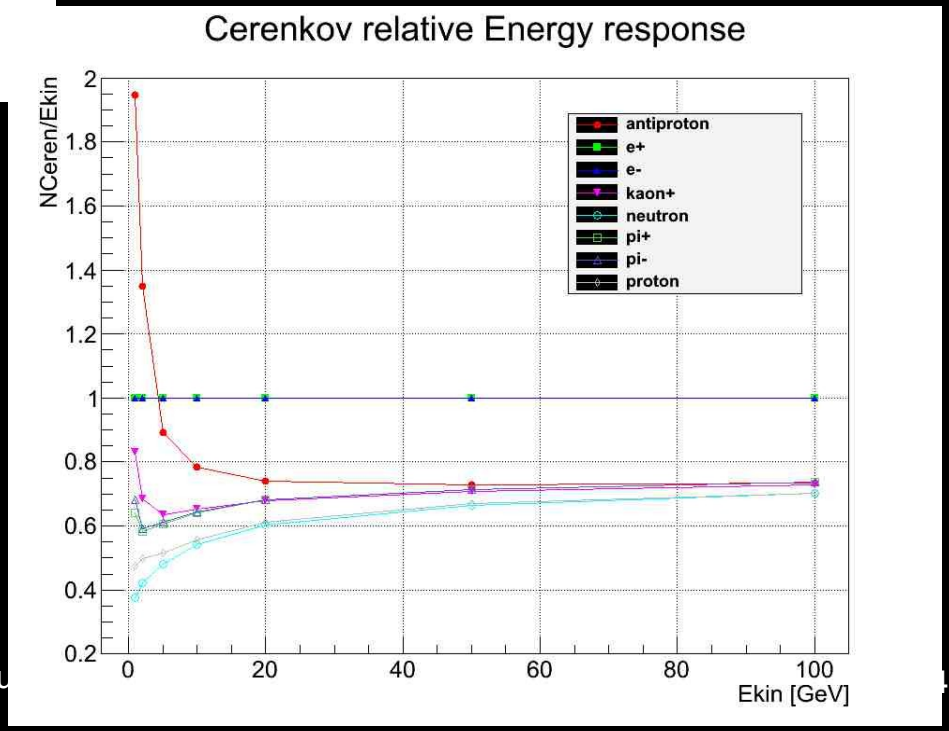
  detsim.fnal.gov:/ilc/sid/wenzel/Grid/CaTS-sheet-data-combined
- CaTS available on detsim.

Calorimeter response

Visible Energy/kinetic energy of incoming single particle



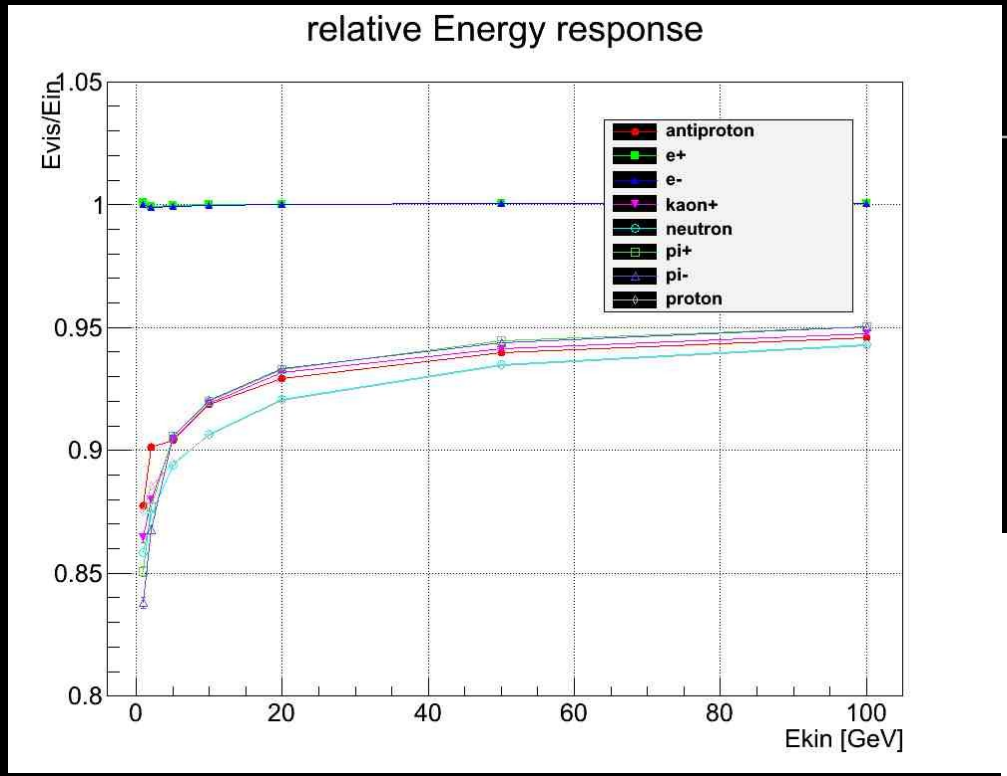
Ionization response



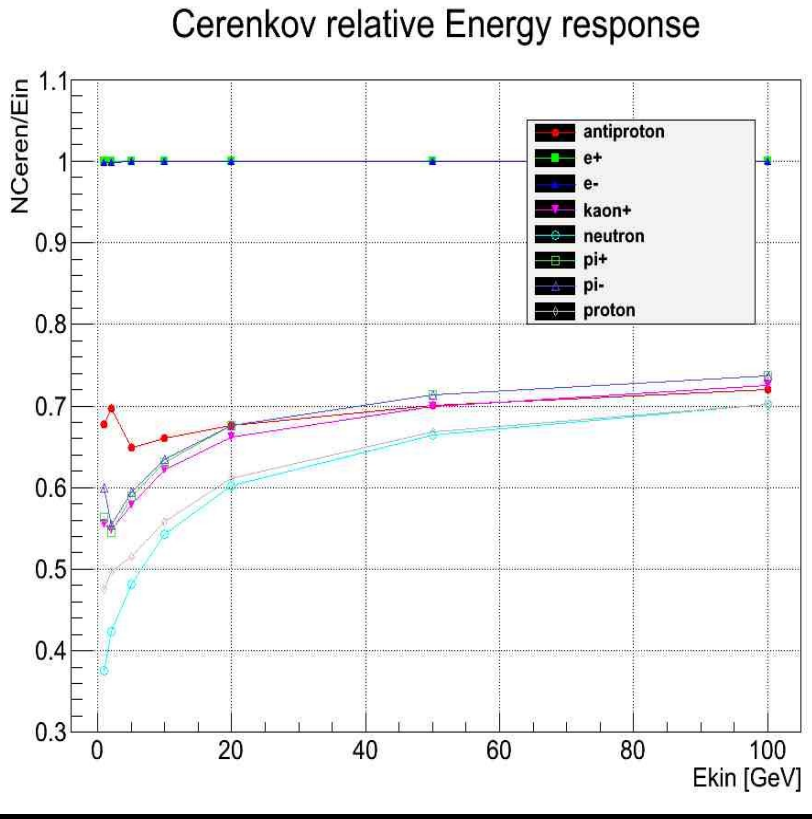
Cerenkov response
(Number of Cerenkov photons)

BUT

- In case of protons and neutrons the energy deposited in the calorimeter is the kinetic energy: $E_{vis} \sim E_{kin}$.
- Some single particles deposit more than the kinetic energy since some of the invariant mass will be converted into energy when the particle decays (π's, K's) : $E_{vis} \sim E_{kin}$ + invariant mass.
- Antiprotons annihilate so:
$E_{vis} \sim E_{kin}$ + 2 x invariant mass.
- Need to compare E_{vis} with the energy actually deposited in the calorimeter.

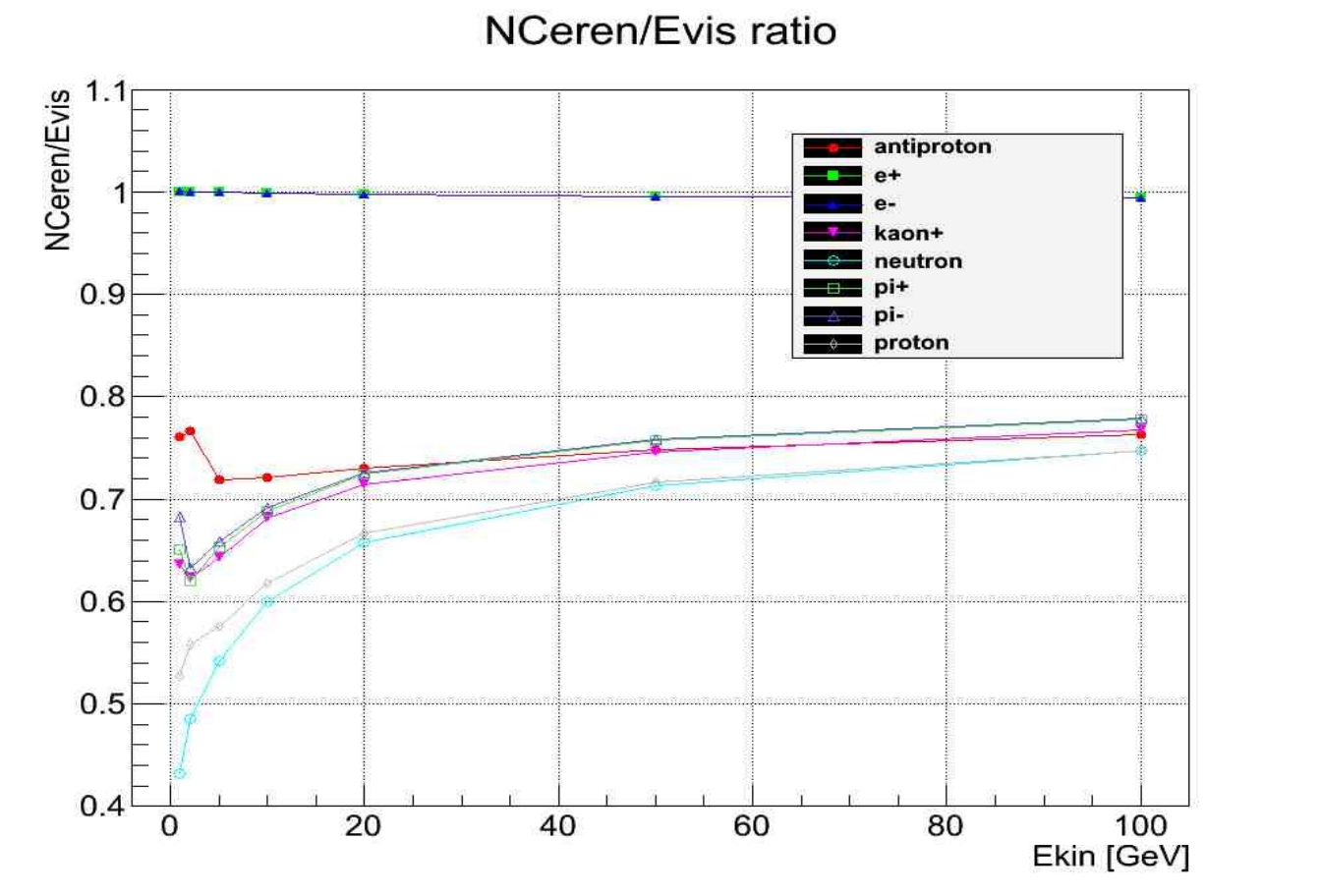


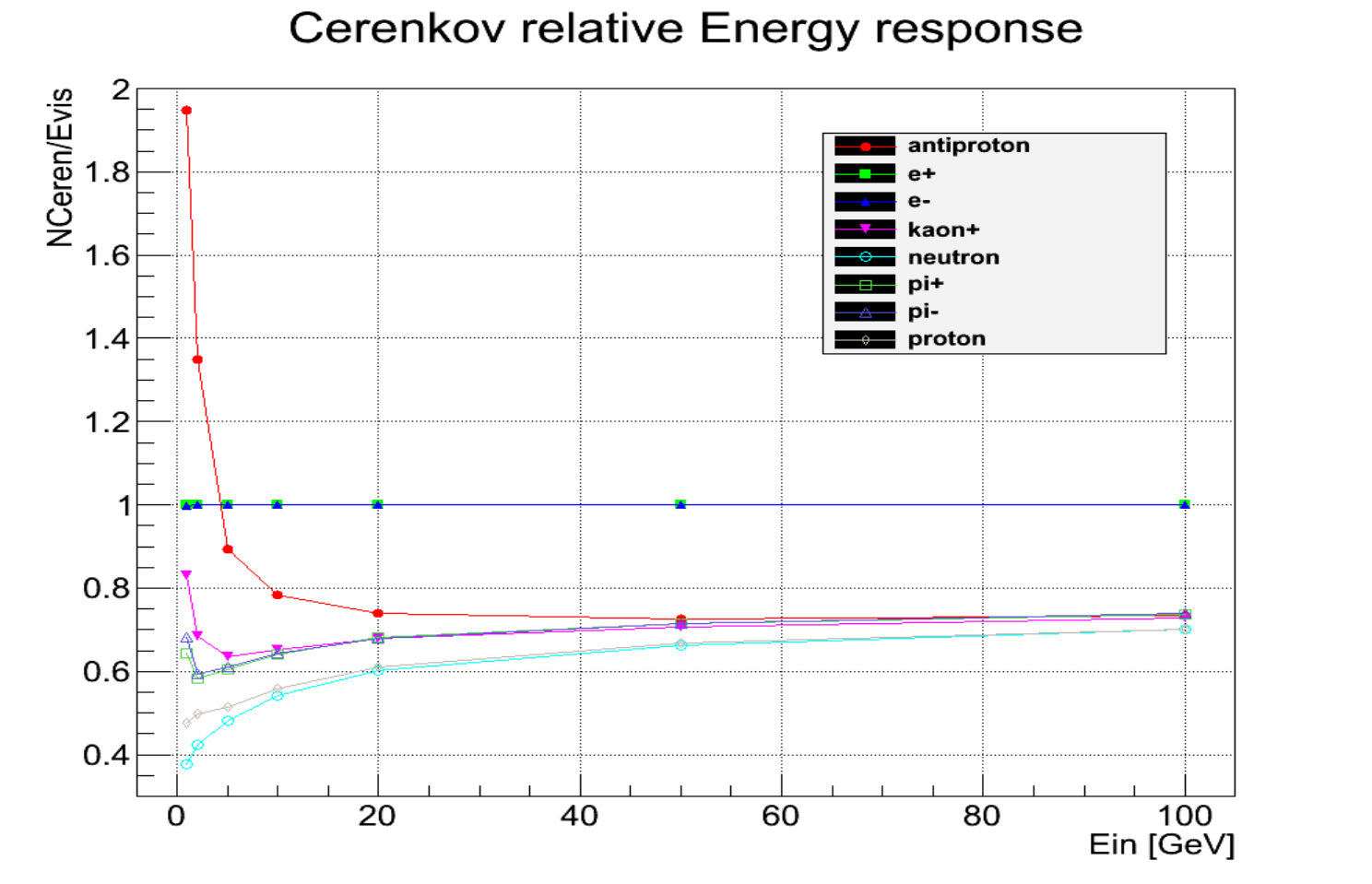
Ionization response



Cerenkov response
(Number of Cerenkov photons)

Ratio of Cerenkov/Ionization resp.




Cerenkov relative Energy response
NCeren/Evis
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0
20
40
60
80
100
Ein [GeV]
antiproton
e+
e-
kaon+
neutron
pi+
pi-
proton

Have fun!