

PARTICLE FLUX CALCULATIONS

Sergei Striganov
Fermilab

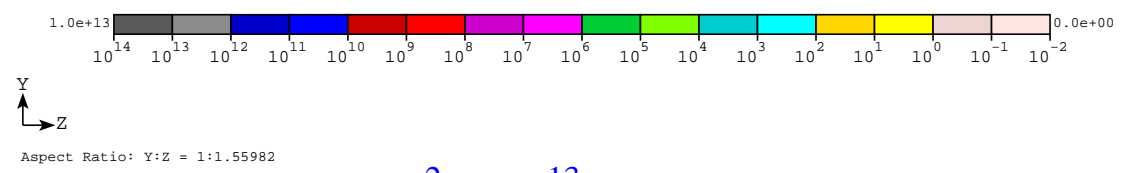
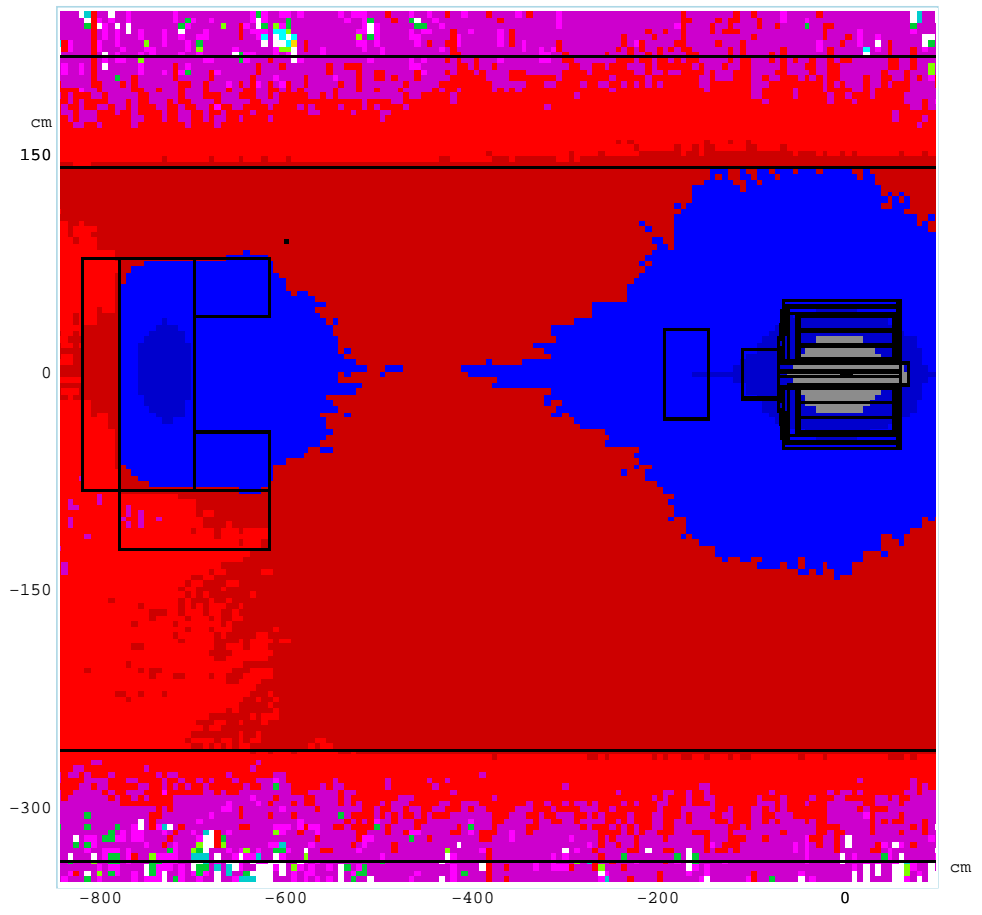
April 4, 2006

OUTLINE

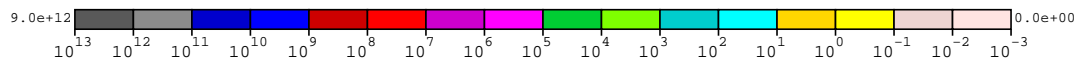
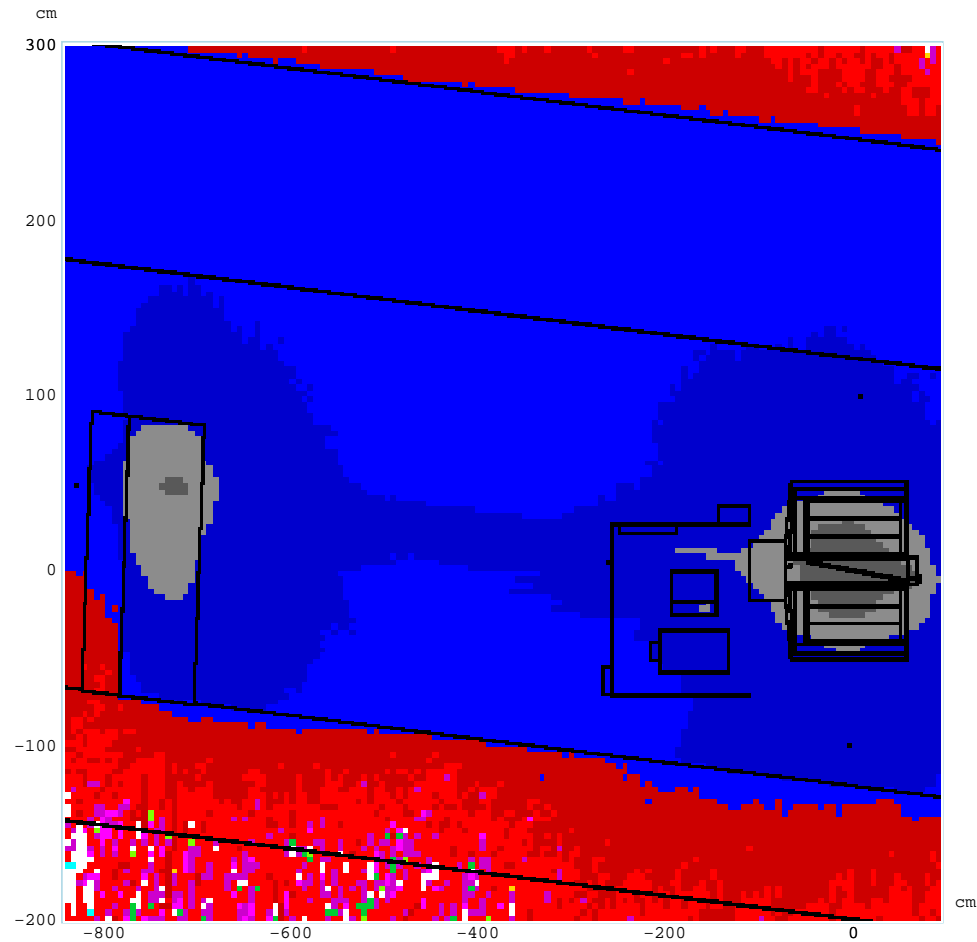
- Model update
- Particle flux calculations
- Energy spectra and time distributions

MODEL UPDATE

- Beam stopper update
- Energy and angular beam distributions
- Scintillator detectors:
 - 0 degree (830 cm from interaction point),
 - 10 degree (600 cm from interaction point and 100 cm from beam),
 - 90 degree (100 cm from beam axes)

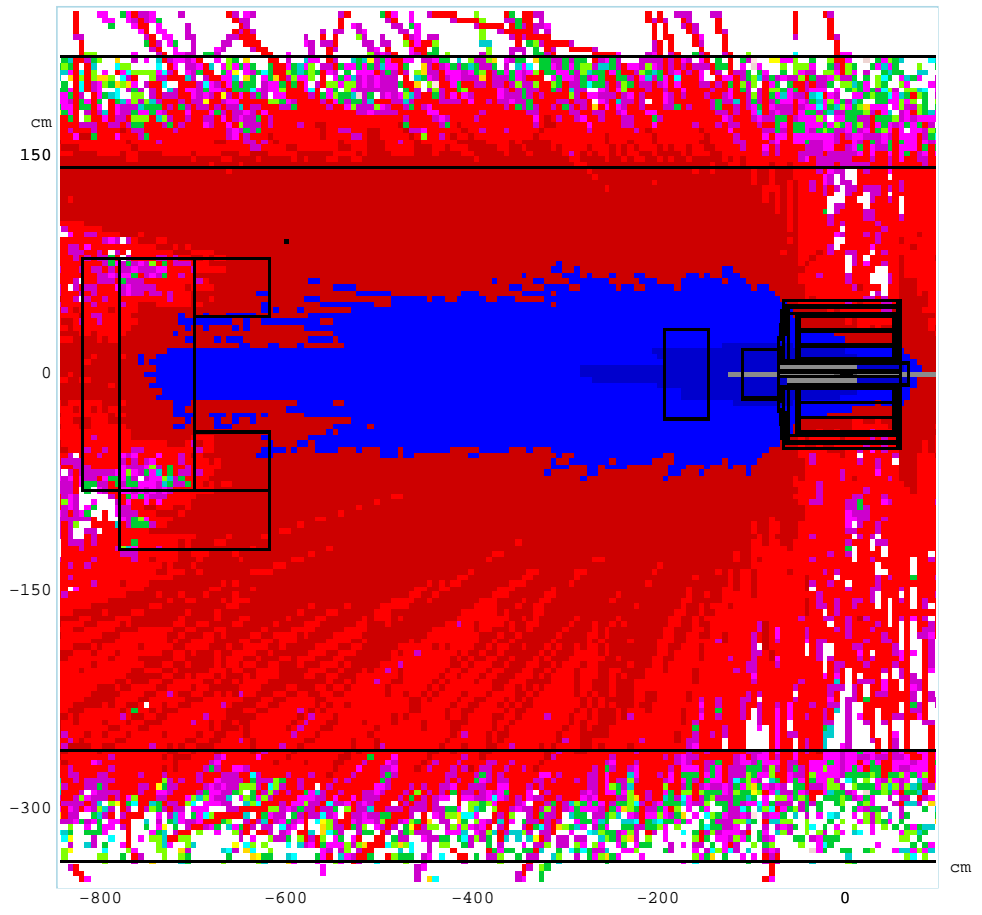


Total flux in $1/\text{cm}^2/3 \cdot 10^{13}$ protons. YZ projection.



Aspect Ratio: X:Z = 1:1.86965

Total flux in $1/\text{cm}^2/3 \cdot 10^{13}$ protons.XZ projection.

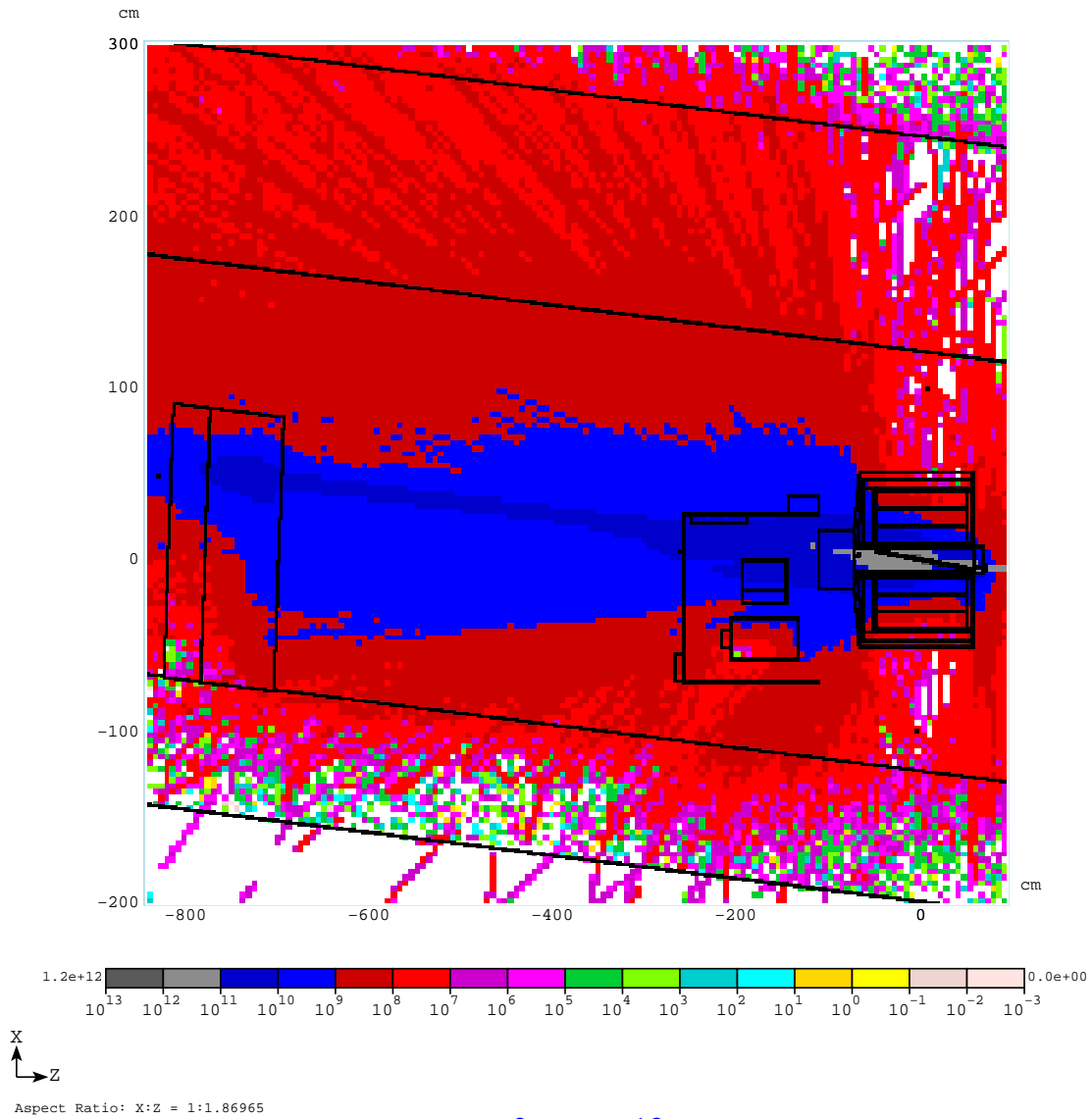


1.4e+12 10^{13} 10^{12} 10^{11} 10^{10} 10^9 10^8 10^7 10^6 10^5 10^4 10^3 10^2 10^1 10^0 10^{-1} 10^{-2} 10^{-3} 0.0e+00

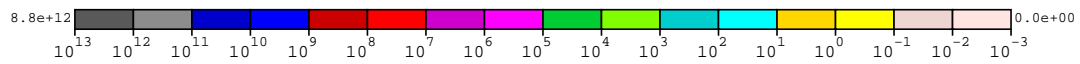
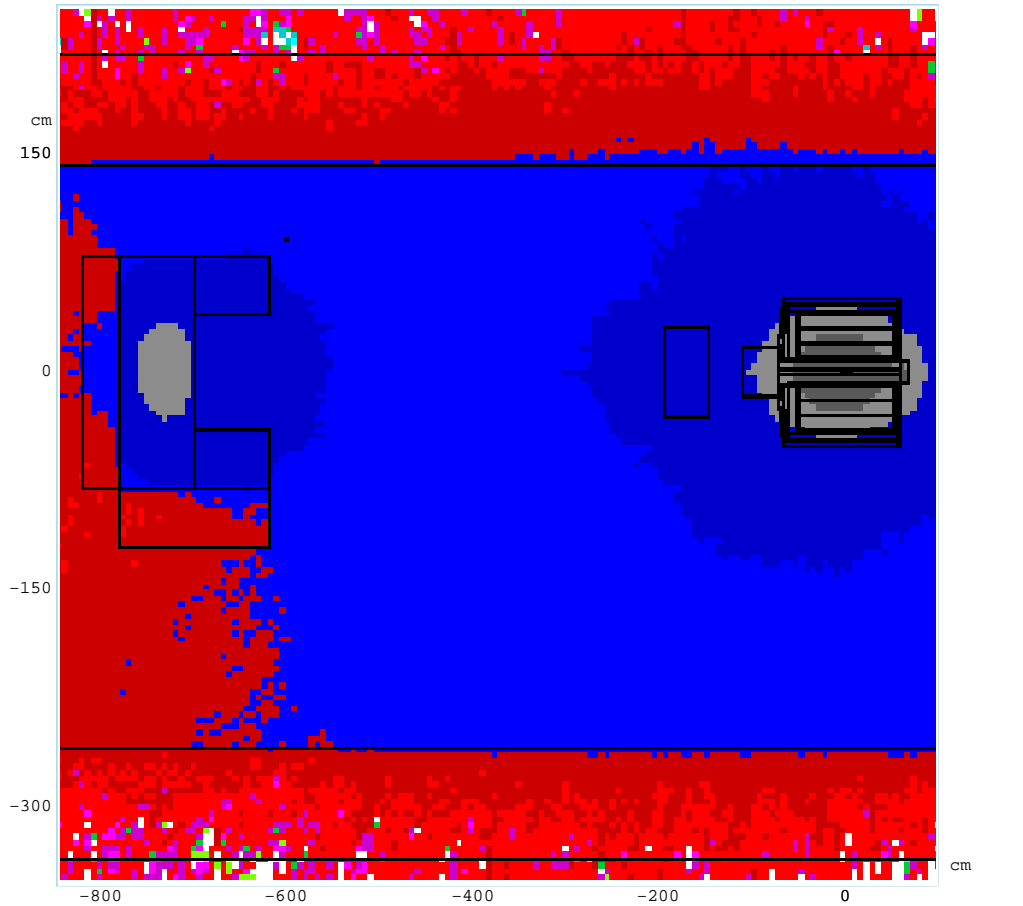
Y
Z

Aspect Ratio: Y:Z = 1:1.55982

Charged hadron flux in $1/\text{cm}^2/3 \cdot 10^{13}$ protons. YZ projection.

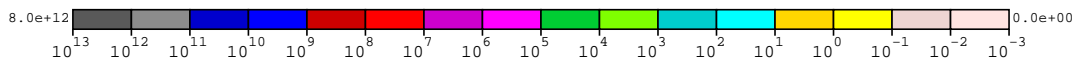
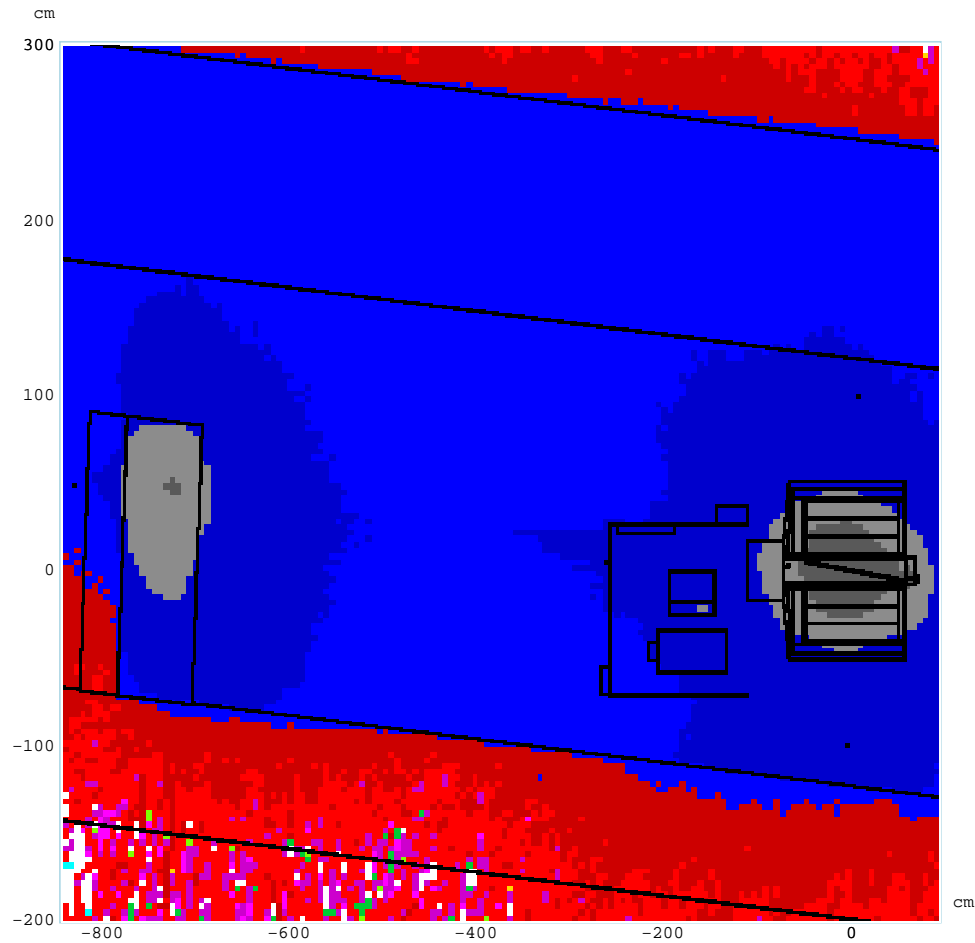


Charged hadron flux in $1/\text{cm}^2/3 \cdot 10^{13}$ protons.XZ projection.



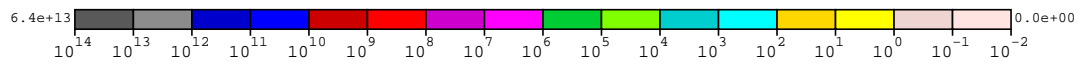
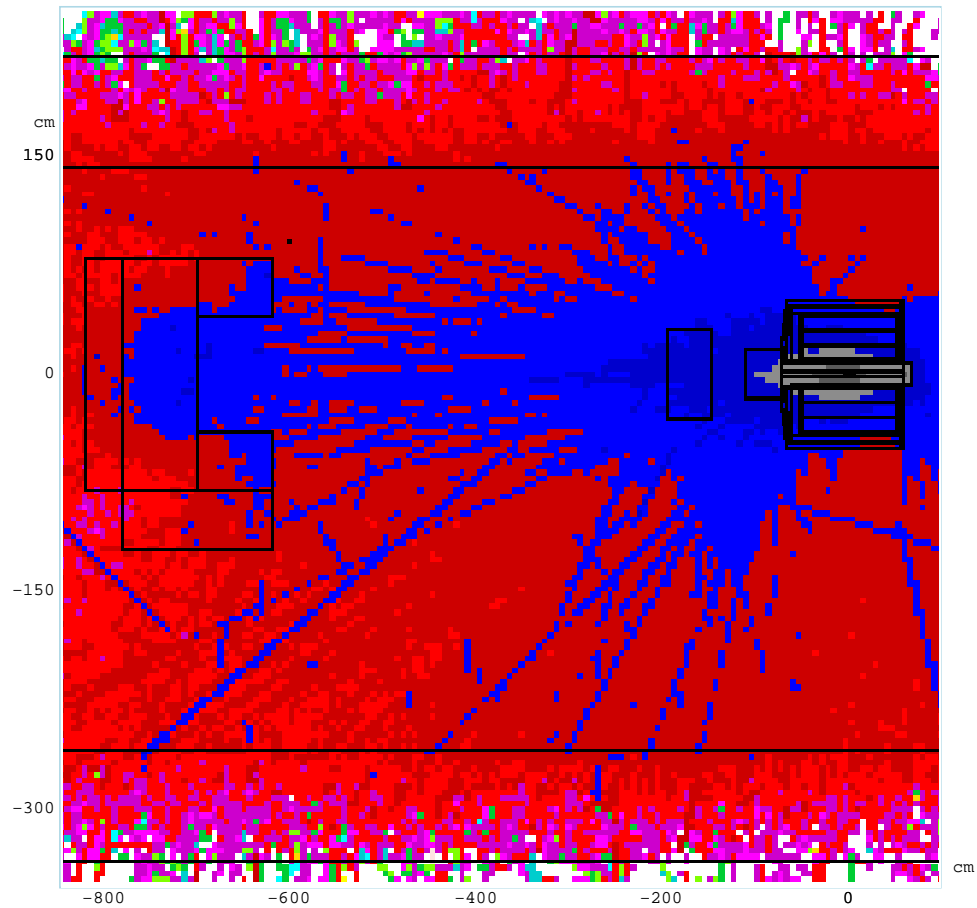
Aspect Ratio: Y:Z = 1:1.55982

Neutron flux in $1/\text{cm}^2/3 \cdot 10^{13}$ protons. YZ projection.



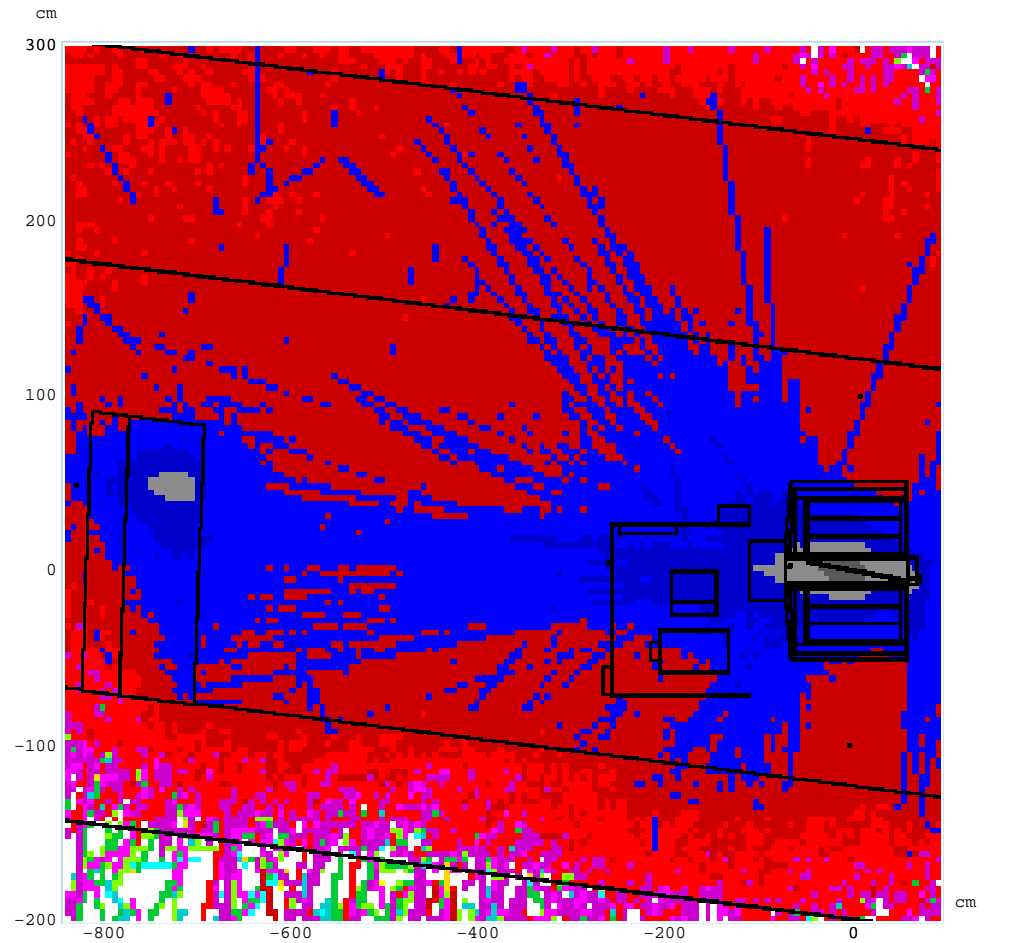
Aspect Ratio: X:Z = 1:1.86965

Neutron flux in $1/\text{cm}^2/3 \cdot 10^{13}$ protons.XZ projection.

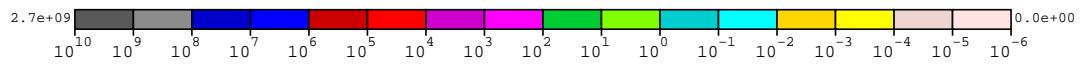
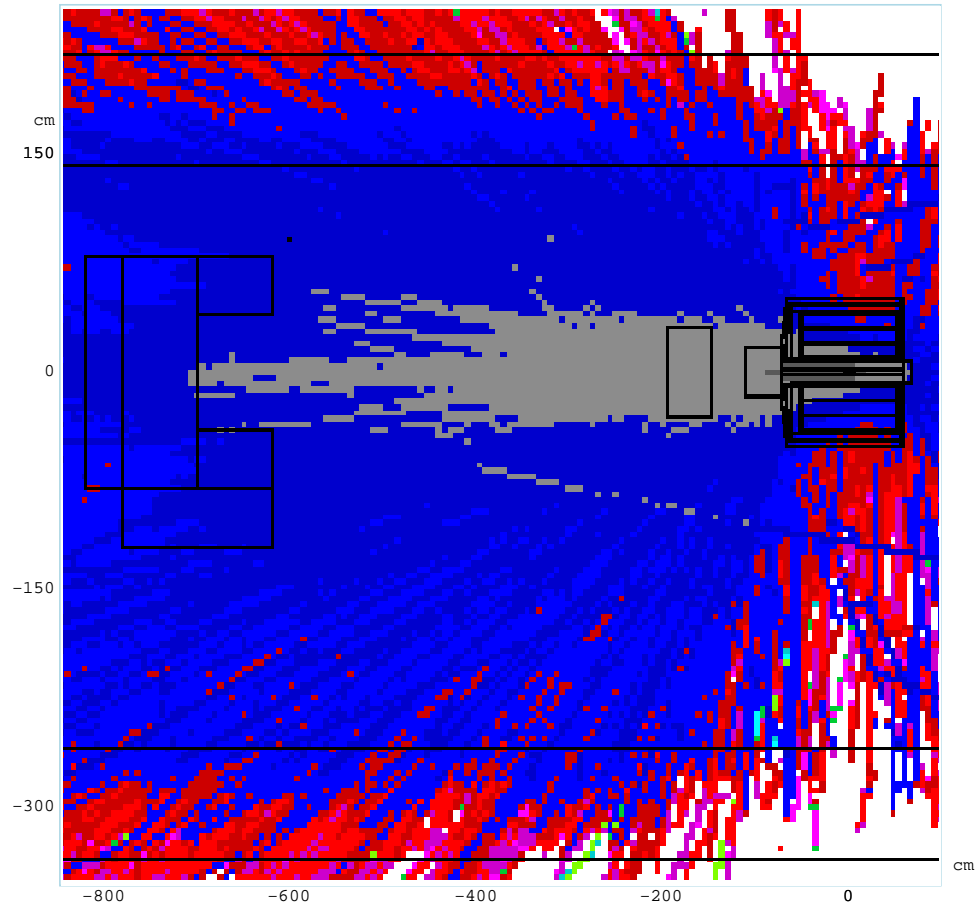


Aspect Ratio: Y:Z = 1:1.55982

Gamma flux in $1/\text{cm}^2/3 \cdot 10^{13}$ protons. YZ projection.

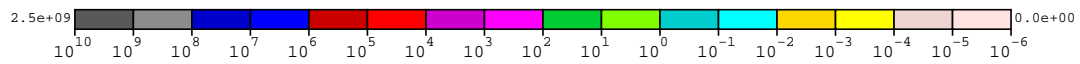
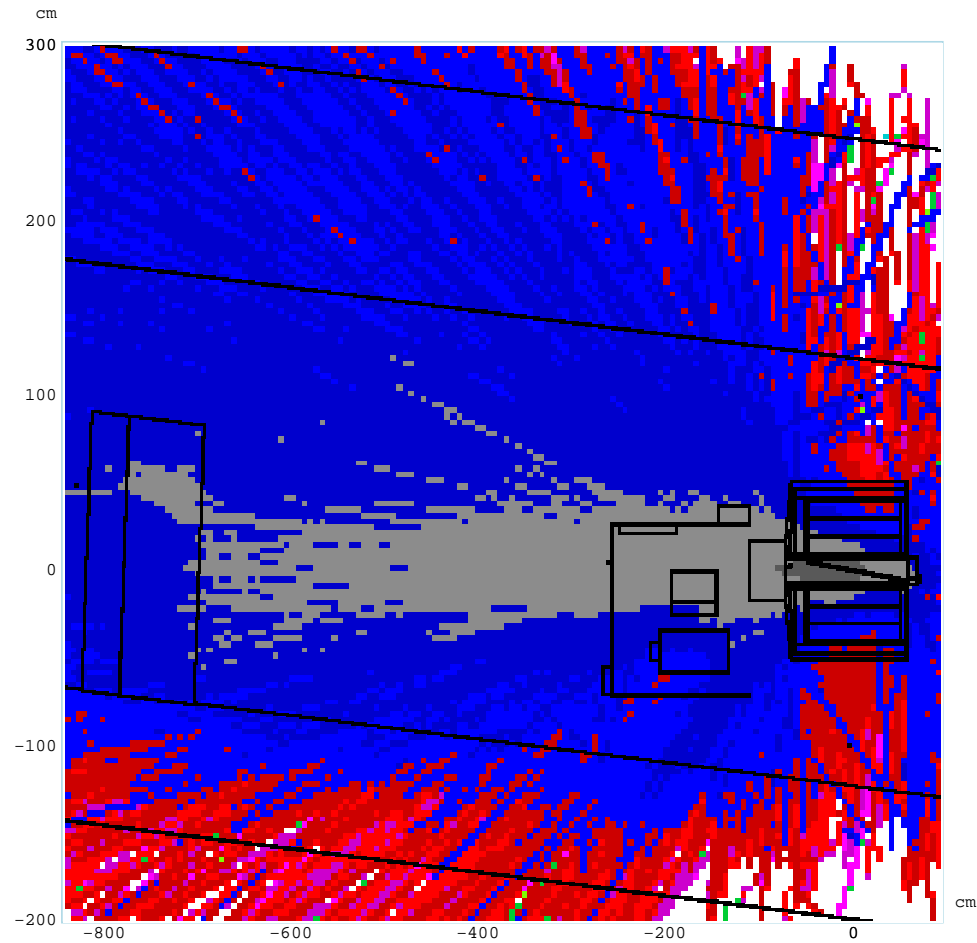


Gamma flux in $1/\text{cm}^2/3 \cdot 10^{13}$ protons.XZ projection.



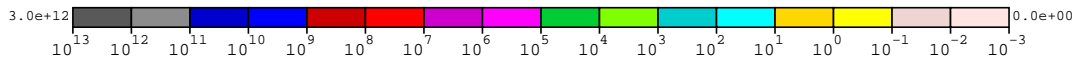
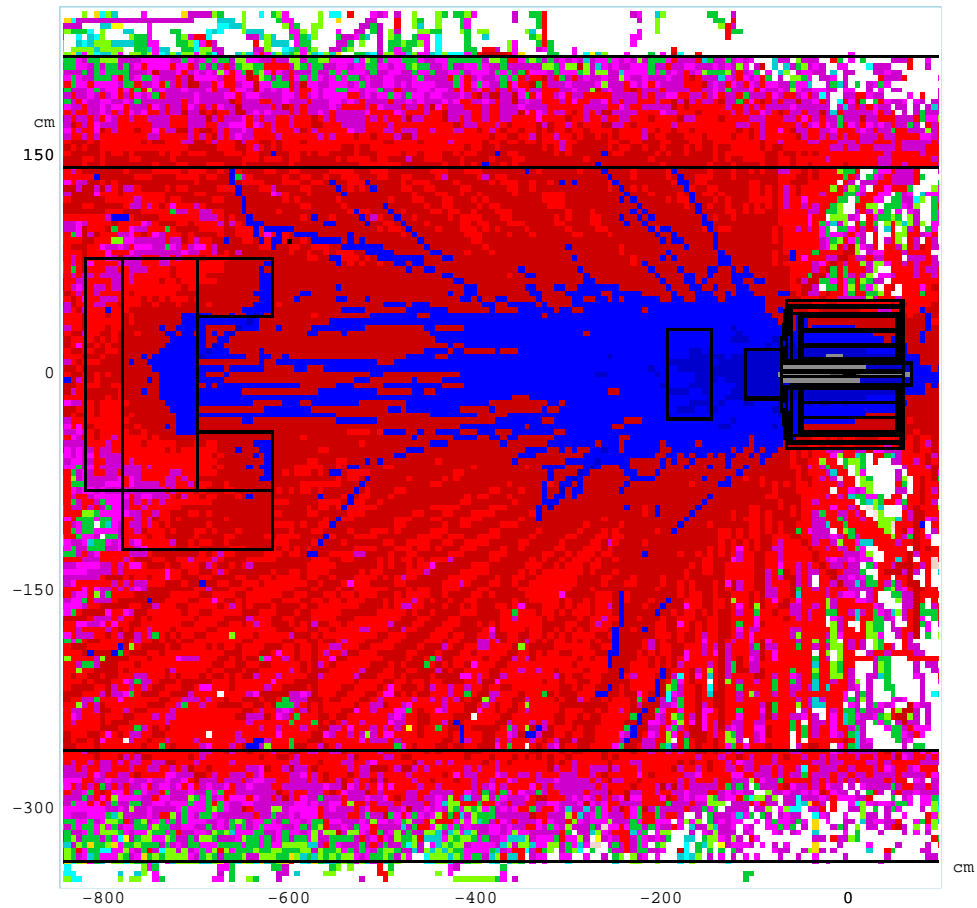
Aspect Ratio: Y:Z = 1:1.55982

Muon flux in $1/\text{cm}^2/3 \cdot 10^{13}$ protons. YZ projection.



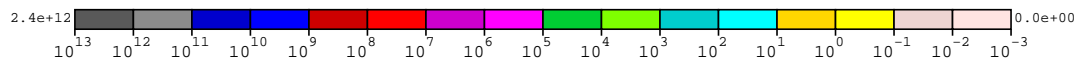
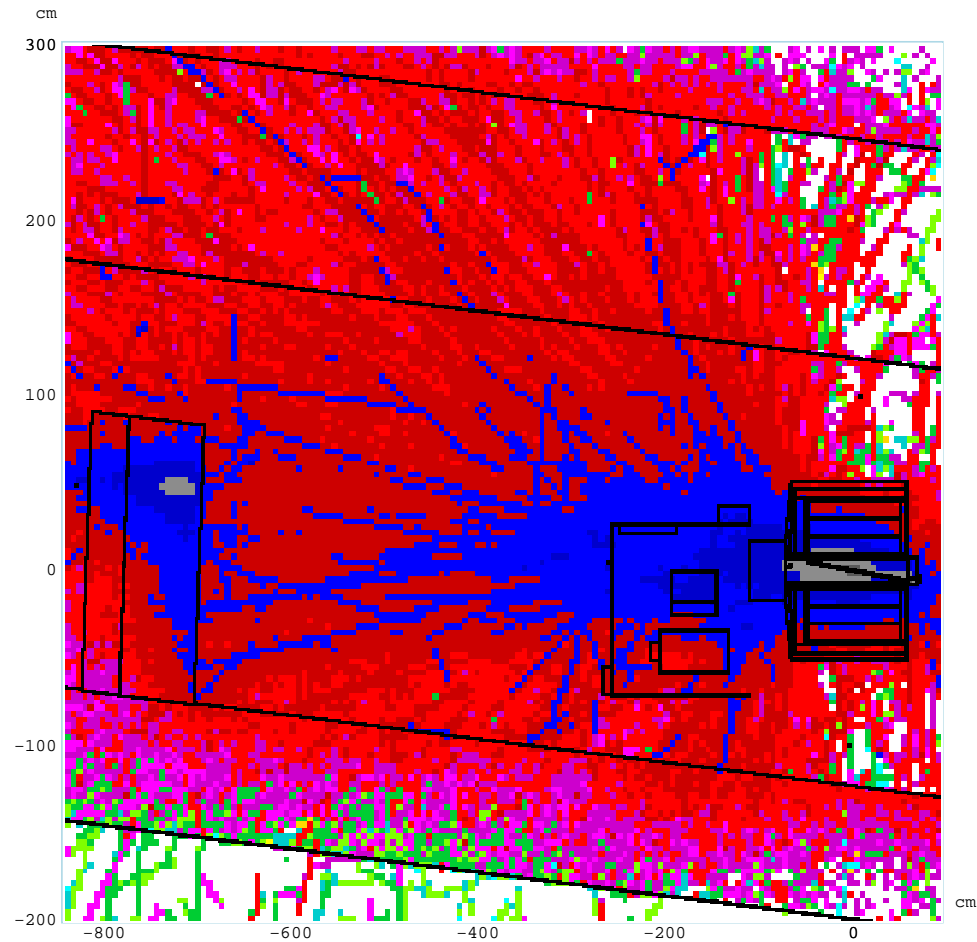
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Muon flux in $1/\text{cm}^2/3 \cdot 10^{13}$ protons.XZ projection.



Aspect Ratio: Y:Z = 1:1.55982

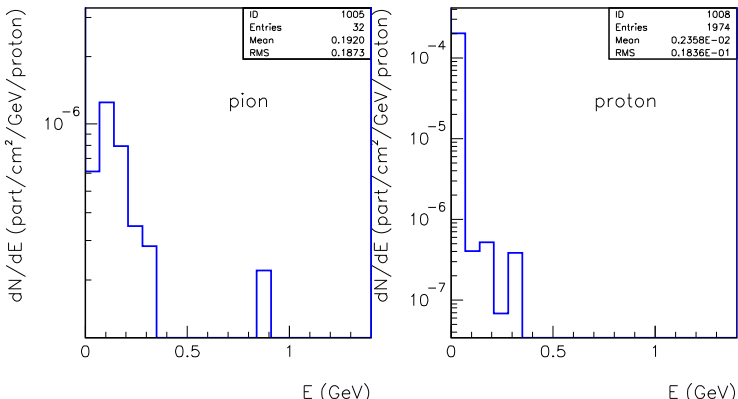
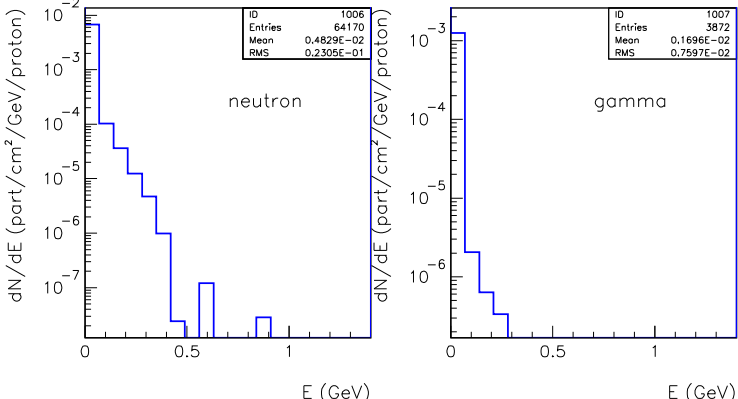
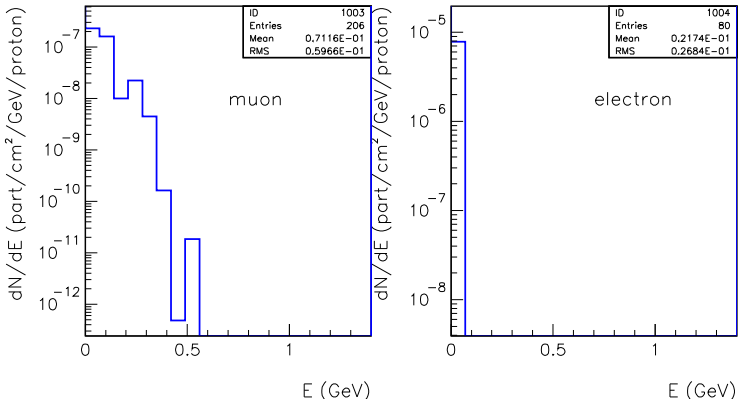
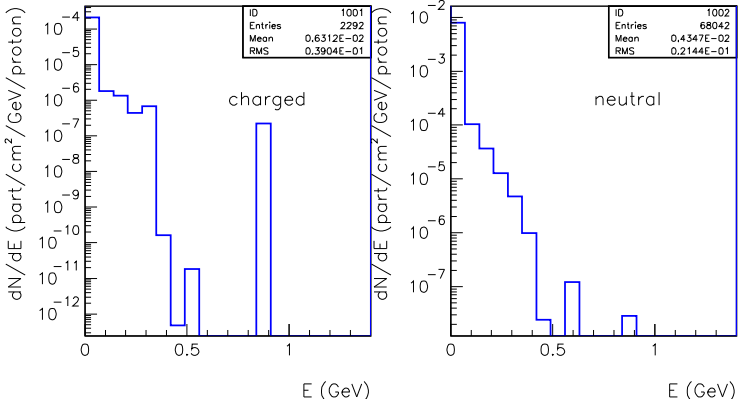
Electron flux in $1/\text{cm}^2/3 \cdot 10^{13}$ protons. YZ projection.



Aspect Ratio: X:Z = 1:1.86965

Electron flux in $1/\text{cm}^2/3 \cdot 10^{13}$ protons.XZ projection.

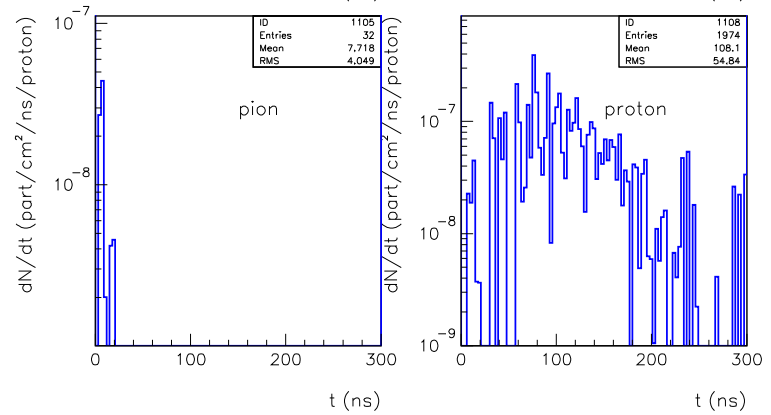
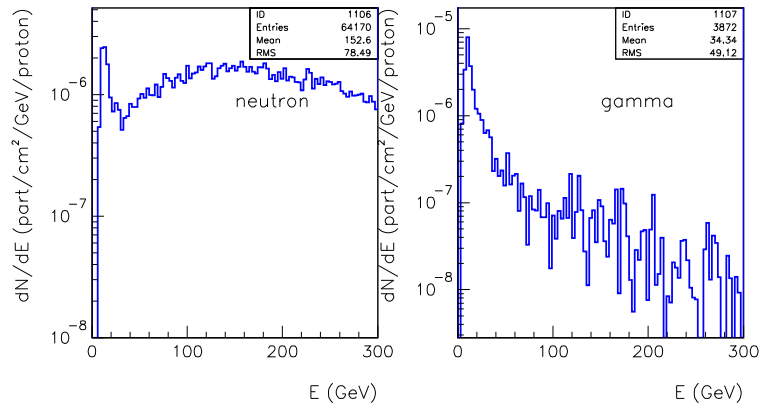
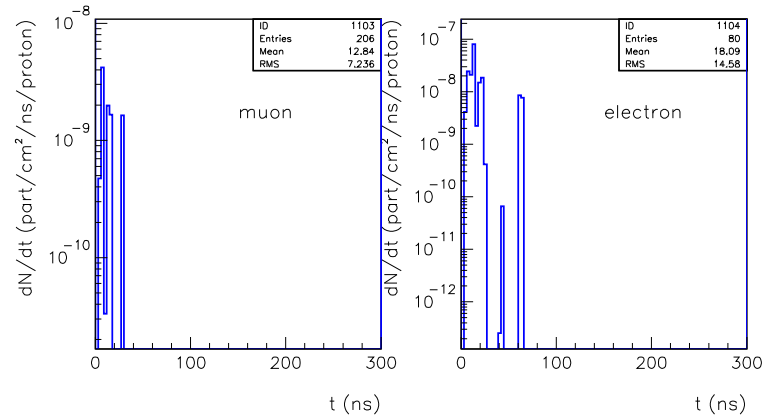
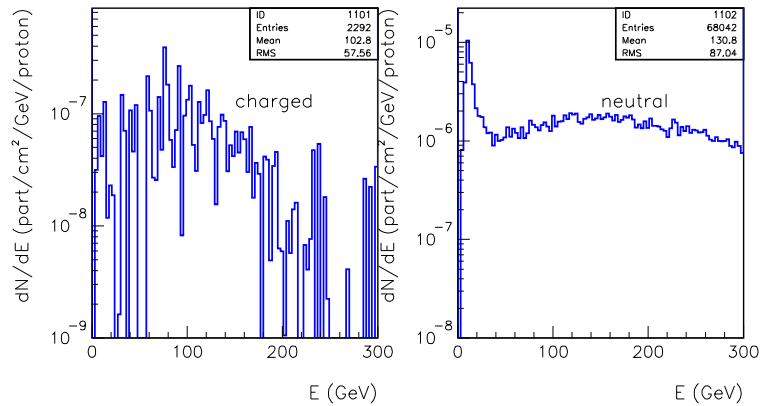
ENERGY SPECTRA AT 90 DEGREE



Energy spectra at 90 degree

Energy spectra of charged particles at 90 degree

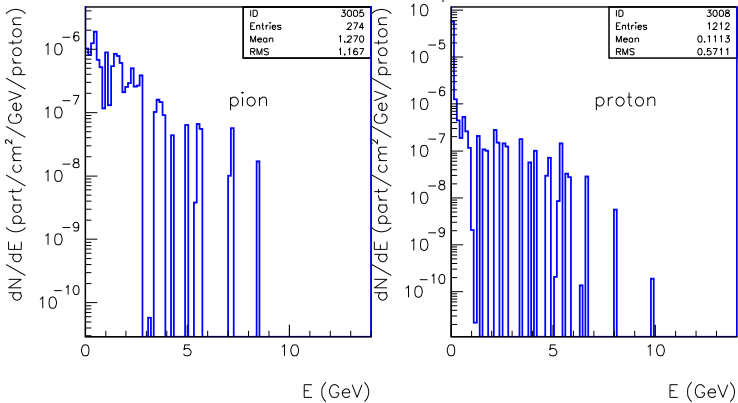
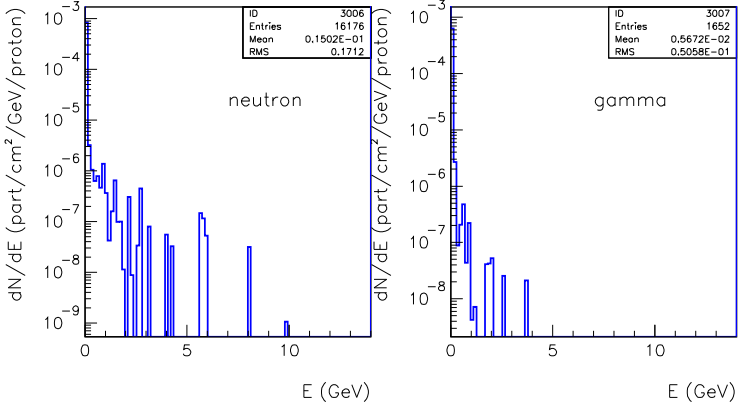
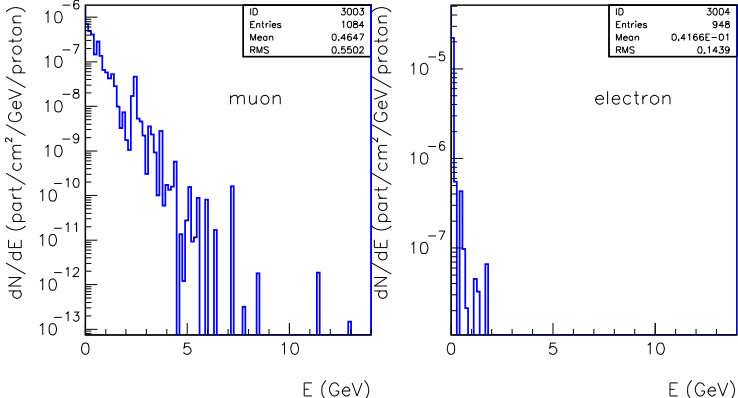
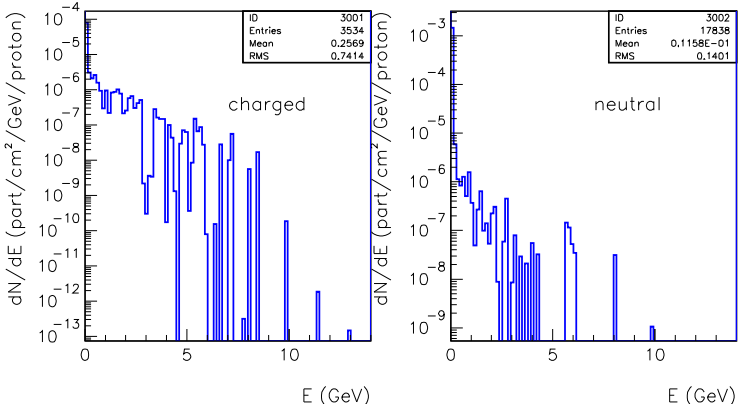
TIME DISTRIBUTIONS AT 90 DEGREE



Time distributions at 90 degree

Time distribution of charged particles at 90 degree

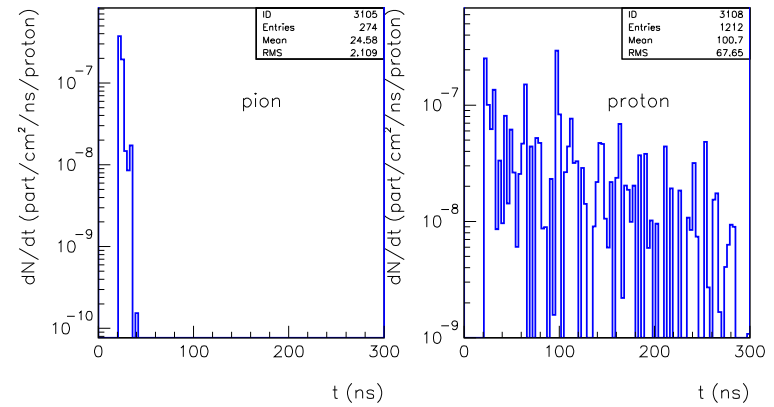
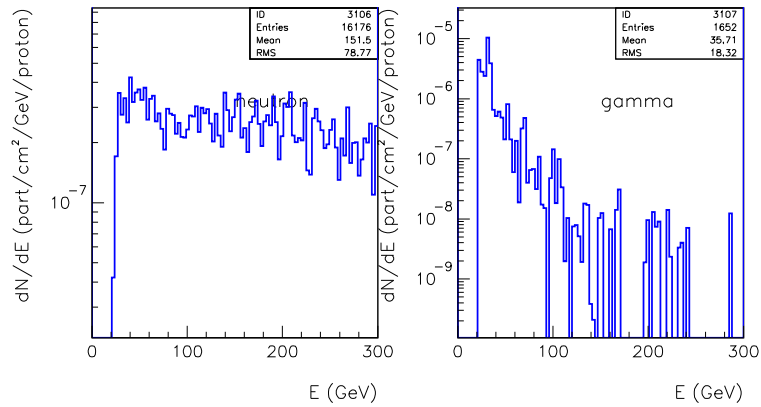
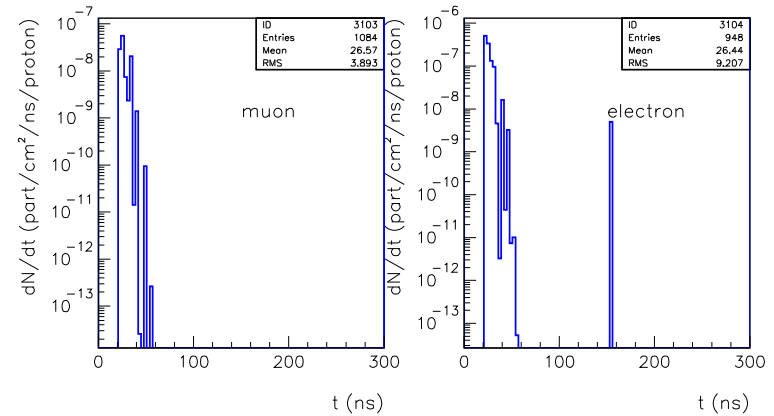
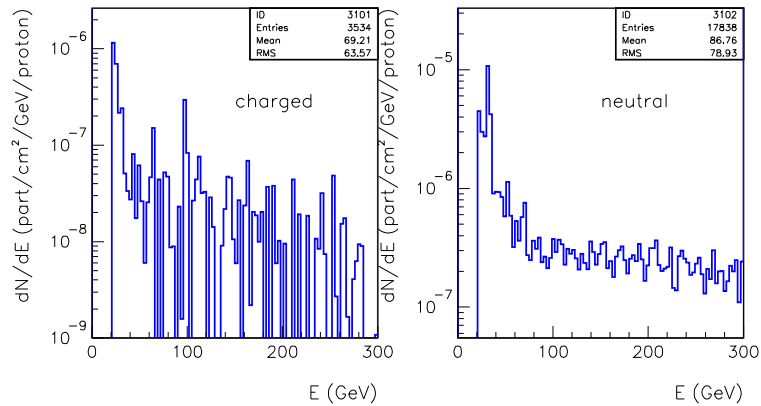
ENERGY SPECTRA AT 10 DEGREE



Energy spectra at 10 degree

Energy spectra of charged particles at 10 degree

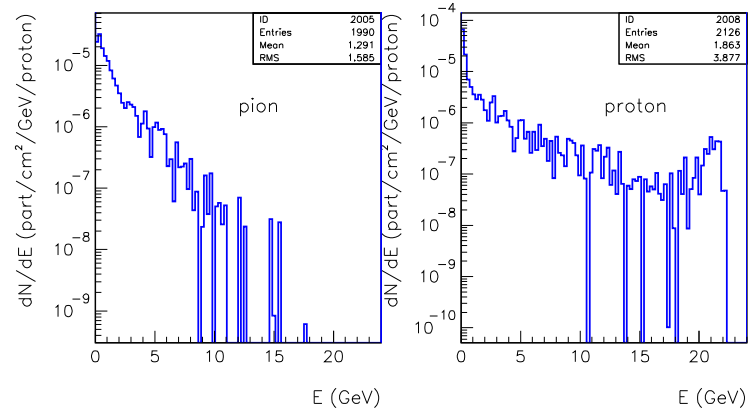
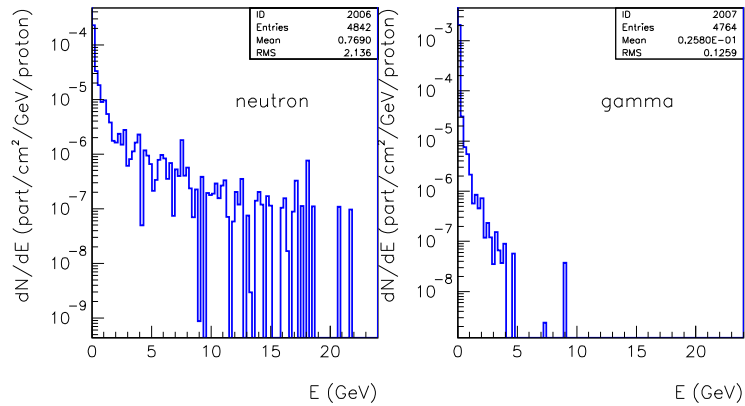
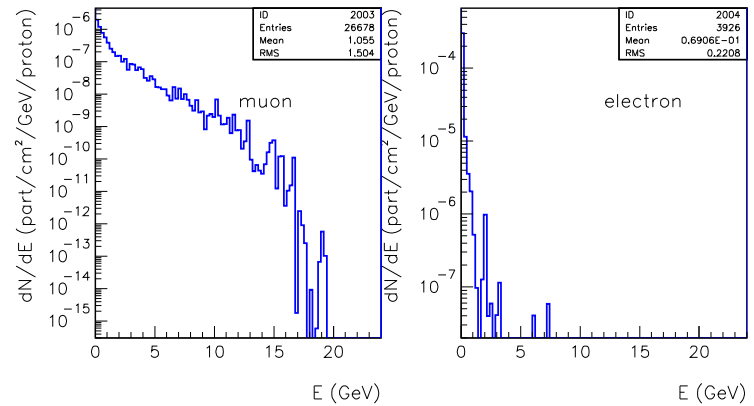
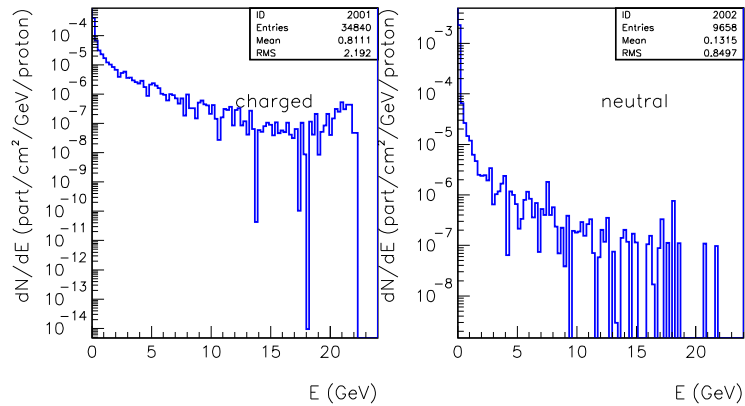
TIME DISTRIBUTIONS AT 10 DEGREE



Time distributions at 10 degree

Time distribution of charged particles at 10 degree

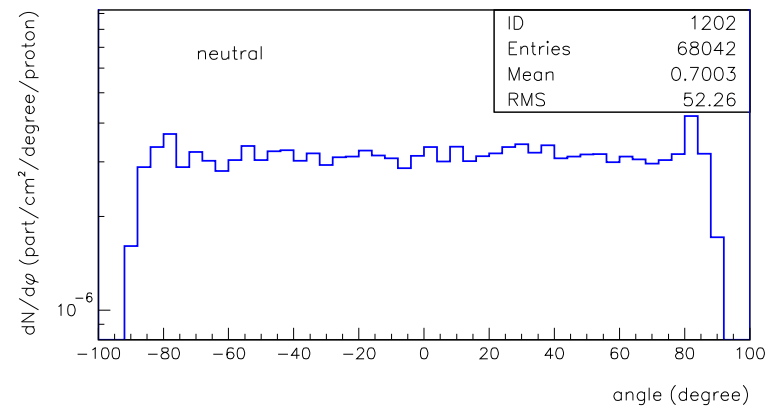
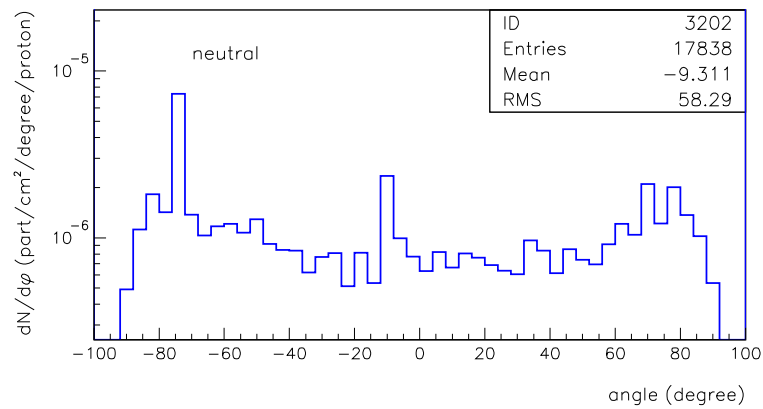
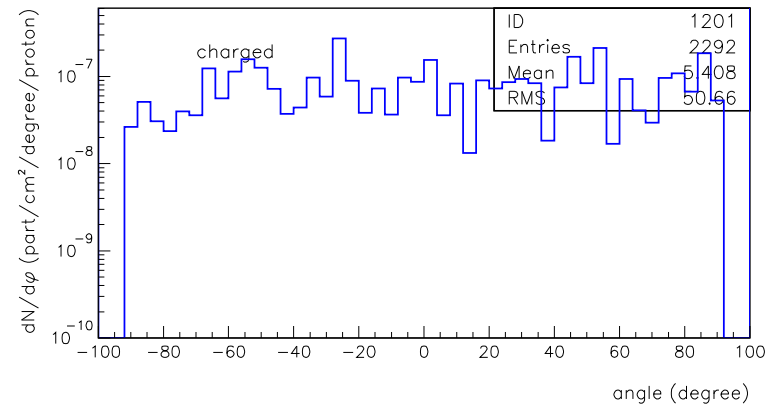
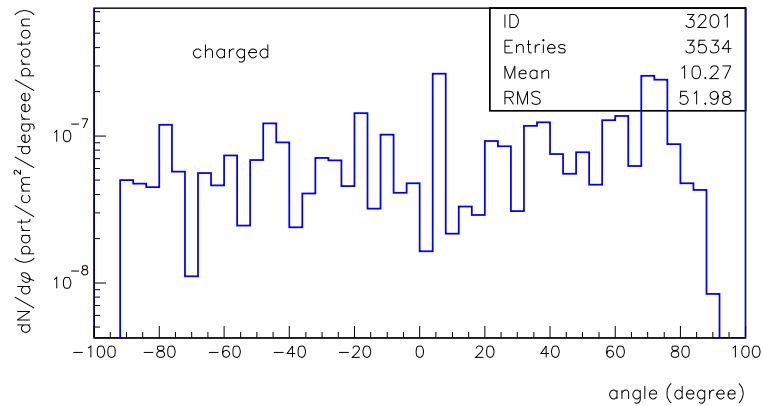
ENERGY SPECTRA AT 0 DEGREE



Energy spectra at 0 degree

Energy spectra of charged particles at 0 degree

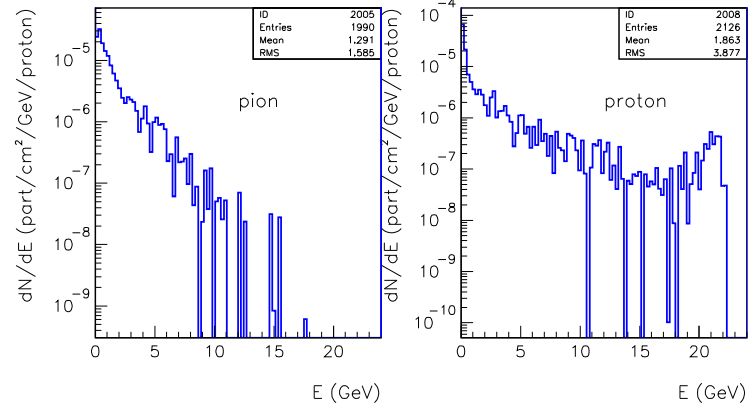
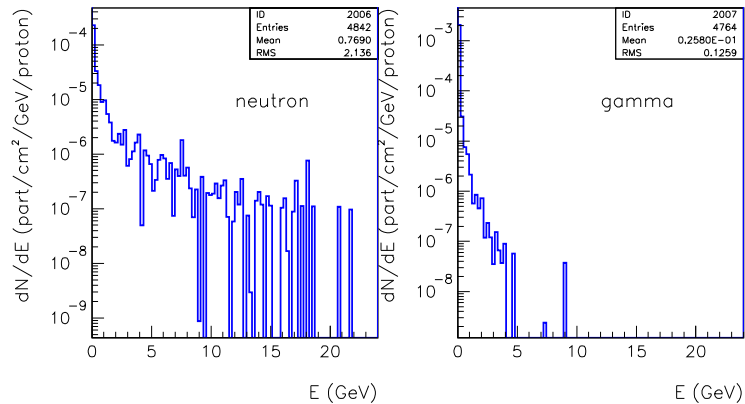
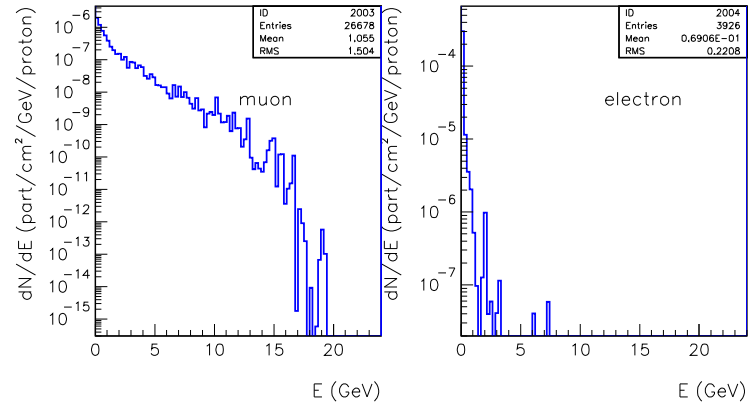
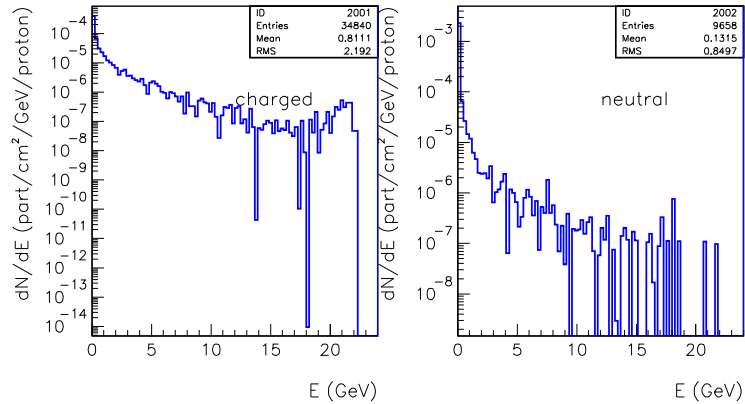
ANGULAR DISTRIBUTIONS



Angular distributions at 10 degree

Angular distributions at 90 degree

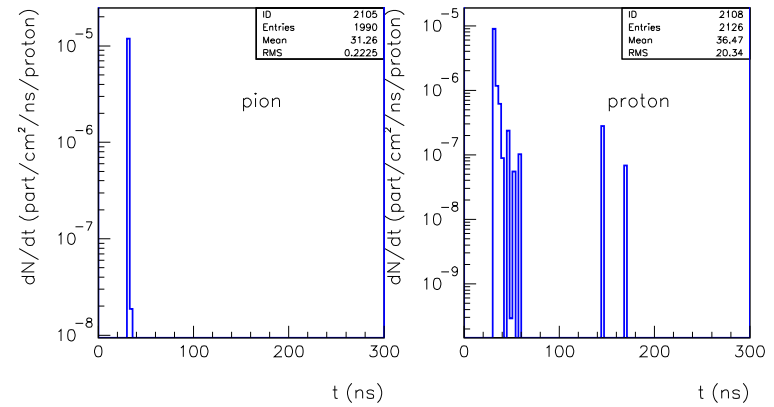
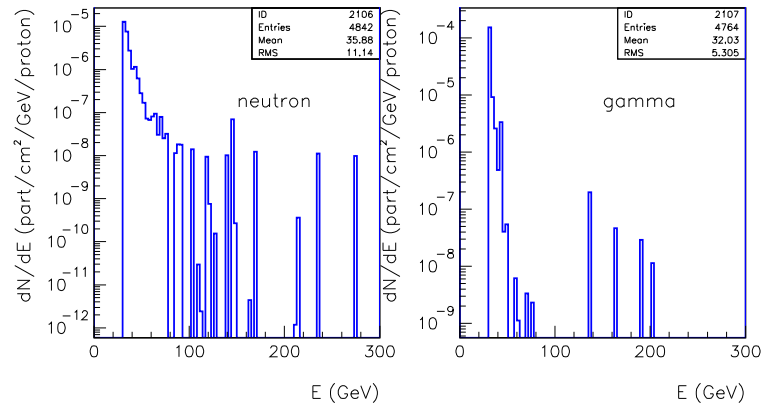
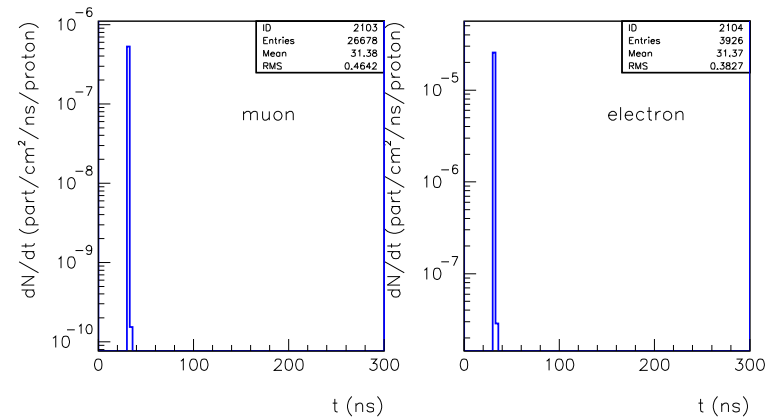
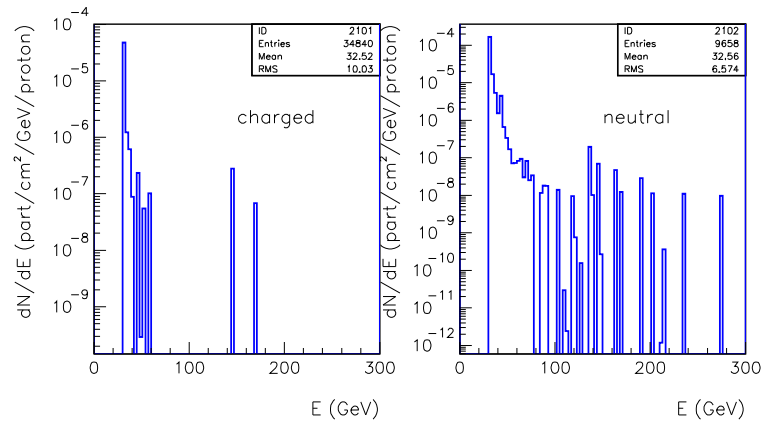
ENERGY SPECTRA AT 0 DEGREE



Energy spectra at 0 degree

Energy spectra of charged particles at 0 degree

TIME DISTRIBUTIONS AT 0 DEGREE



Time distributions at 0 degree

Time distribution of charged particles at 0 degree