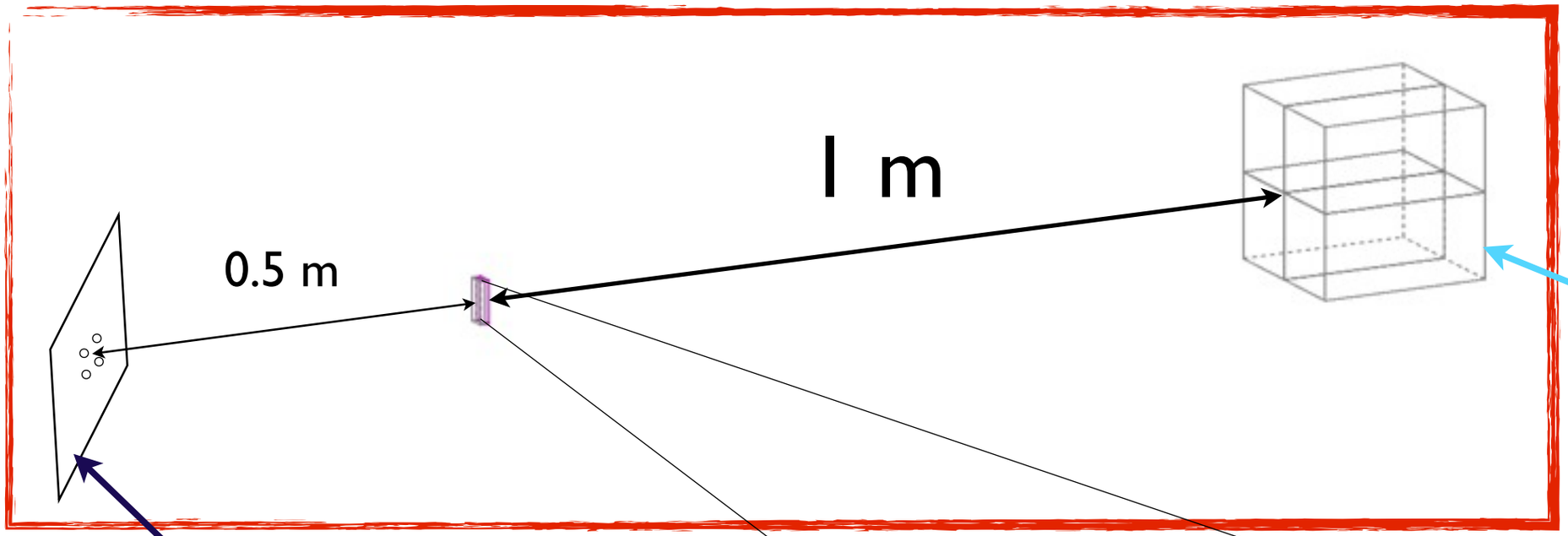
Simulation for Making Neutron Beam

2013.03.11. Tue.
Go Yeonju



Neutron Detector
Scintillator
0.1 x 0.1 x 0.2 (m)

Matrix
Acrylic
with 4 holes for diminishing beam dose
distance b/w holes : 1cm

Trigger Detector
Scintillator
20 X 50 X 6 mm

Iron
20 X 50 X 5 mm

$10^6 \longrightarrow 11291 \simeq 10^4 \longrightarrow 82 \simeq 10^2$

Simulation of Detector surrounding TPC

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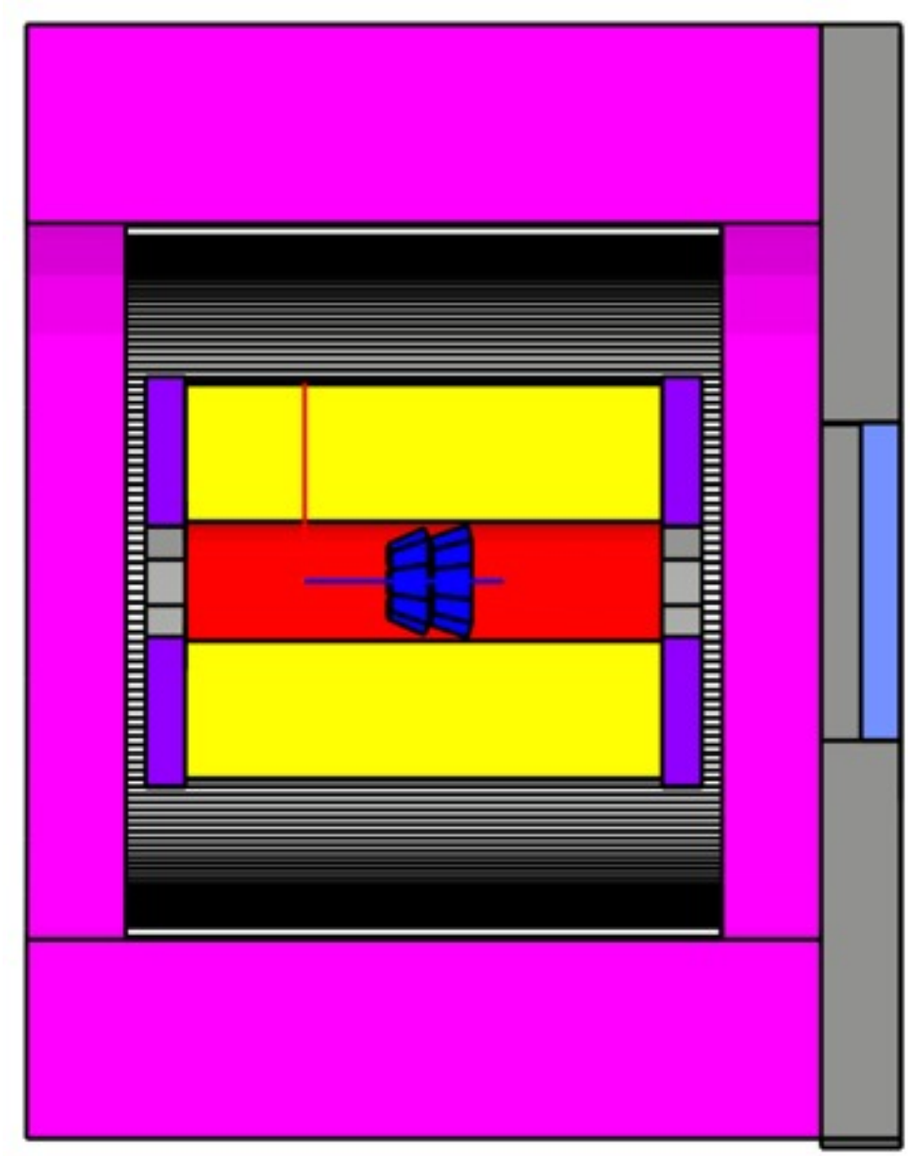
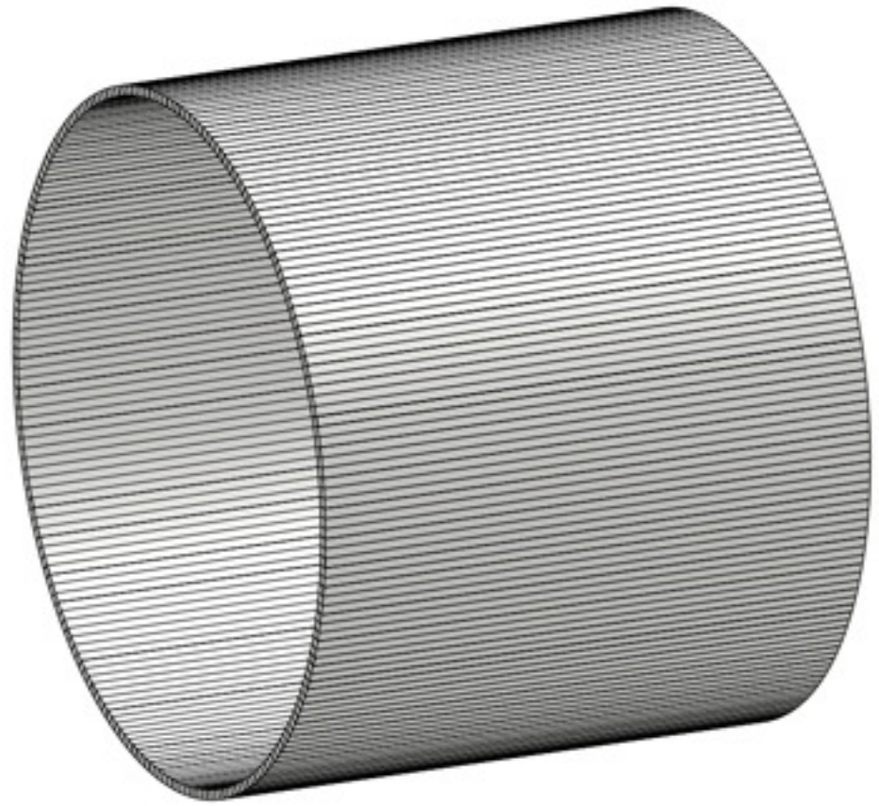
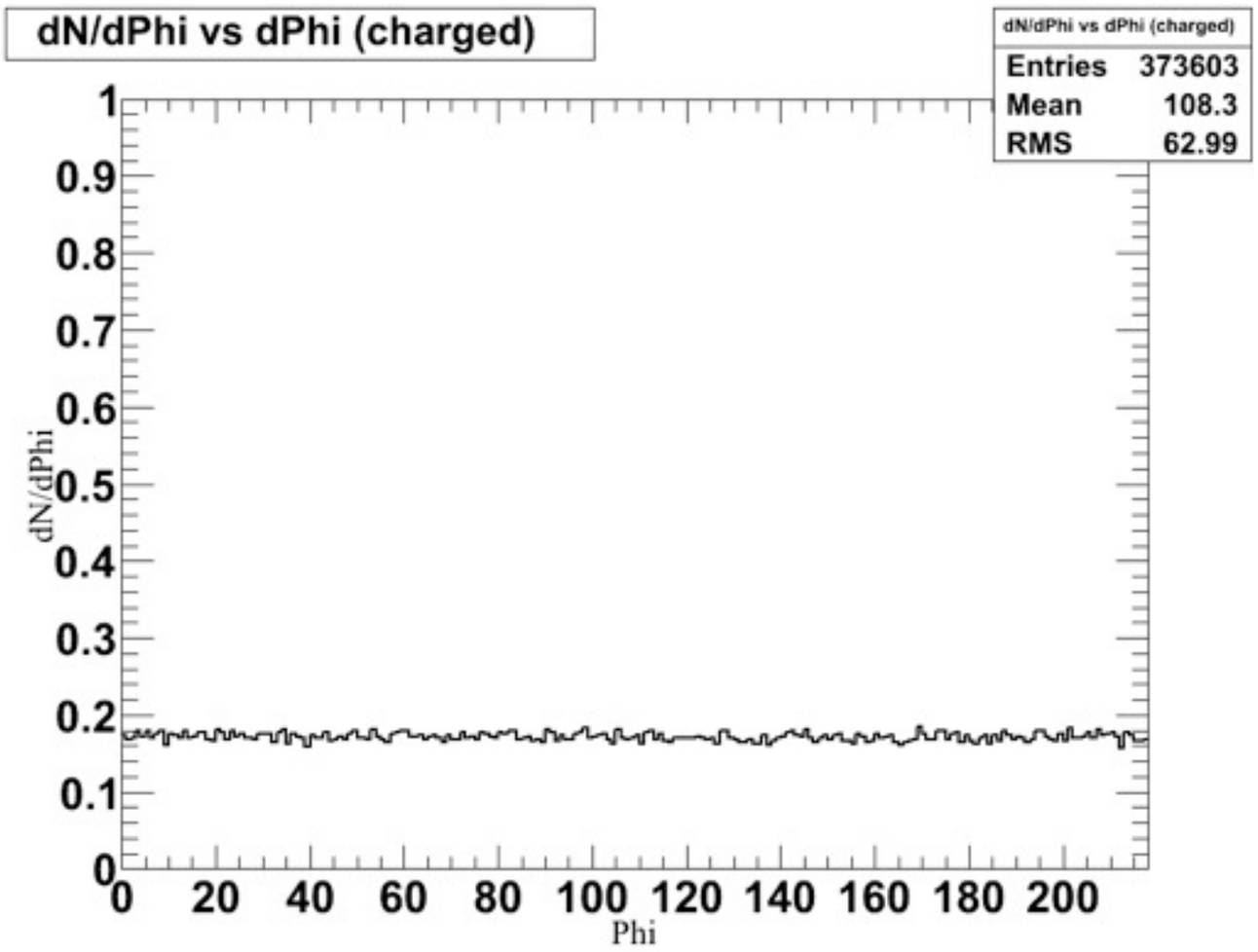
Detector Surrounding TPC





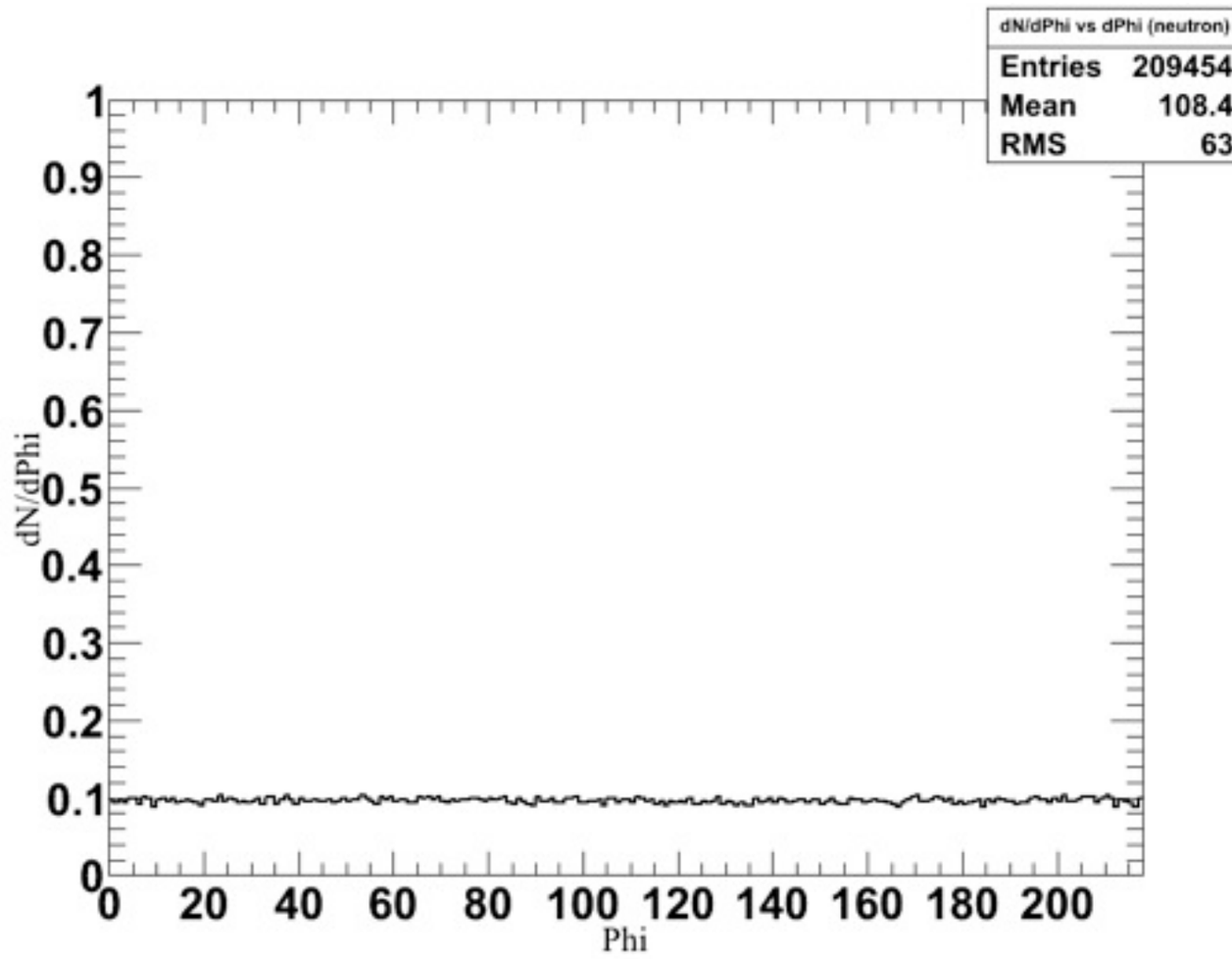
Size of one module
2.5 cm X 2.5 cm X 1.5 m

dN/dPhi

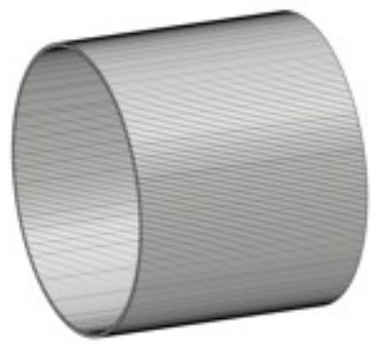


charged particles

: except for muons and electrons

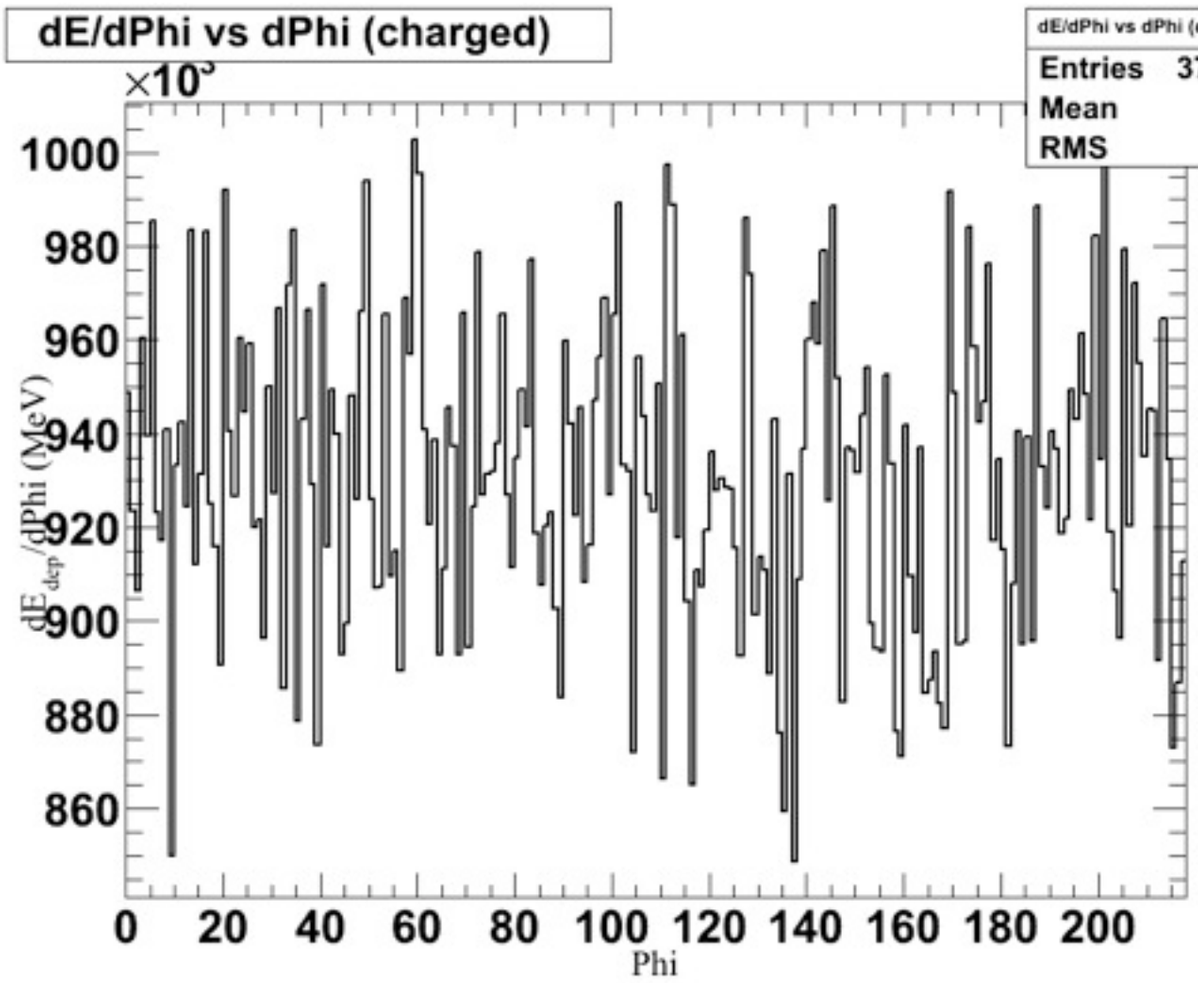


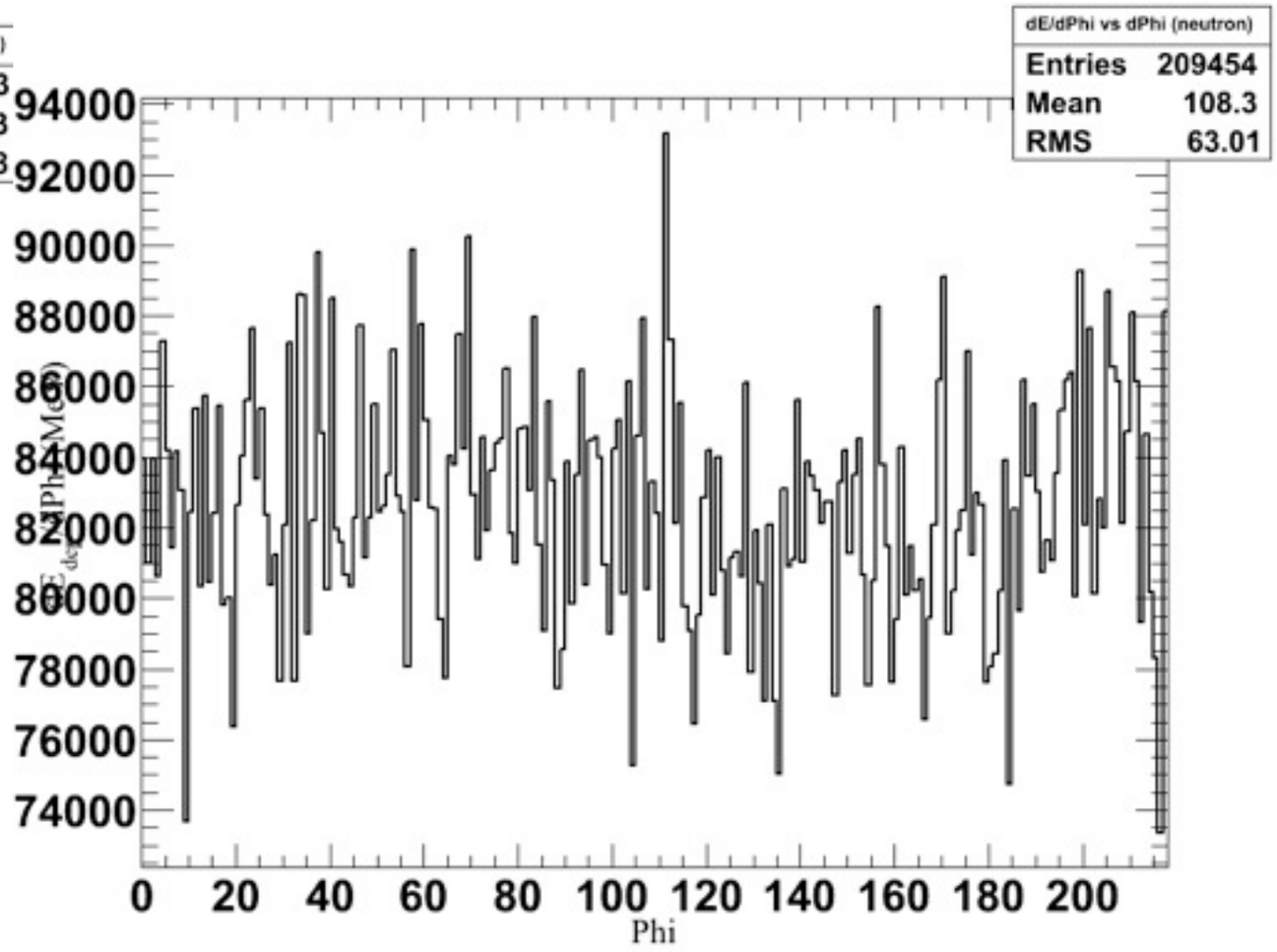
neutrons



Energy cut : 1 MeV 1 bin = 1 module

dE/dPhi

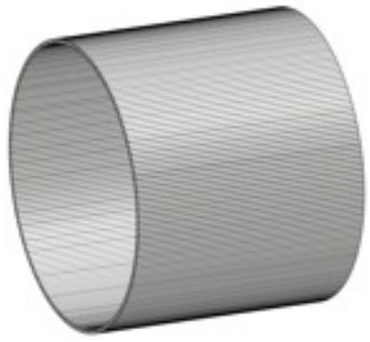




charged particles

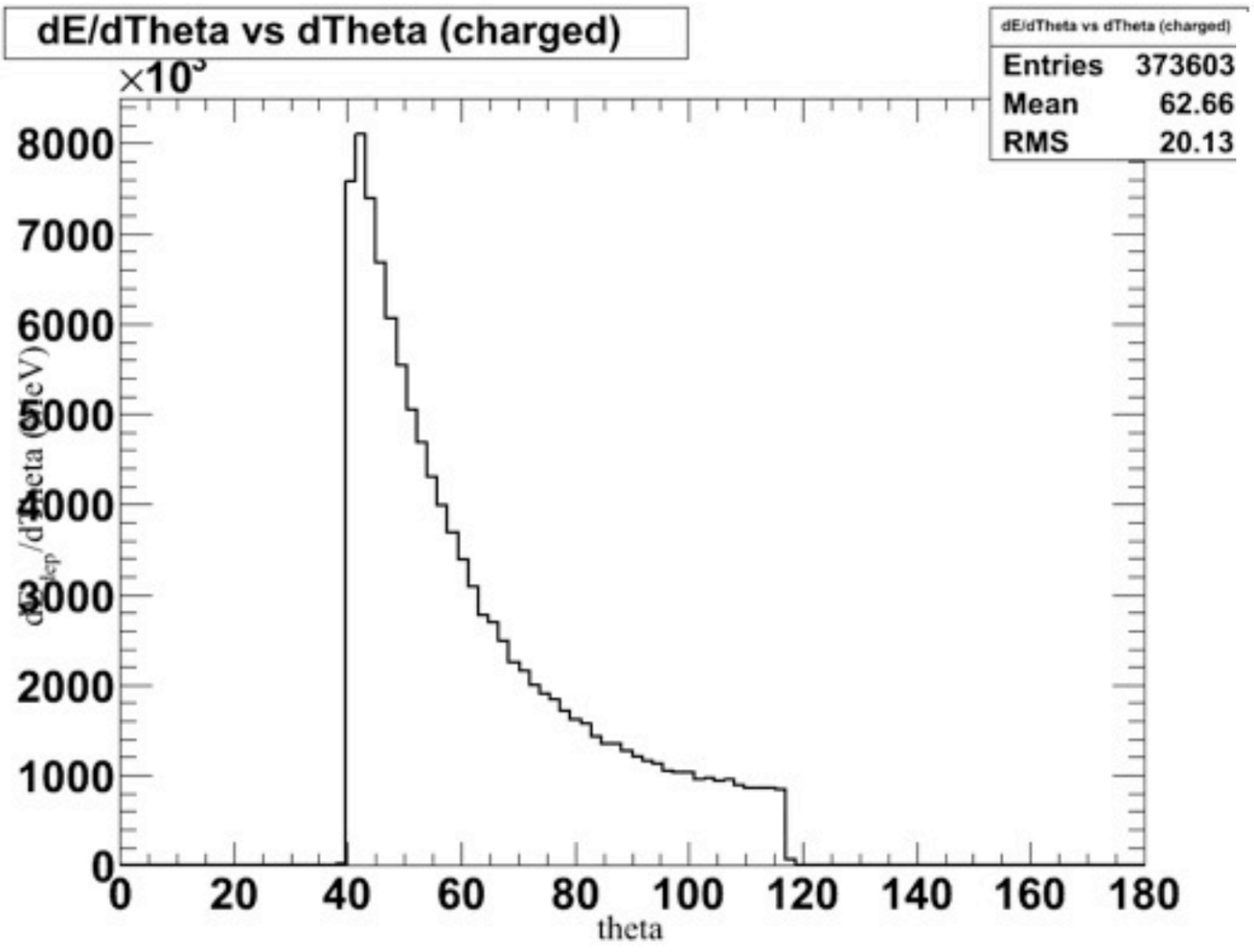
: except for muons and electrons

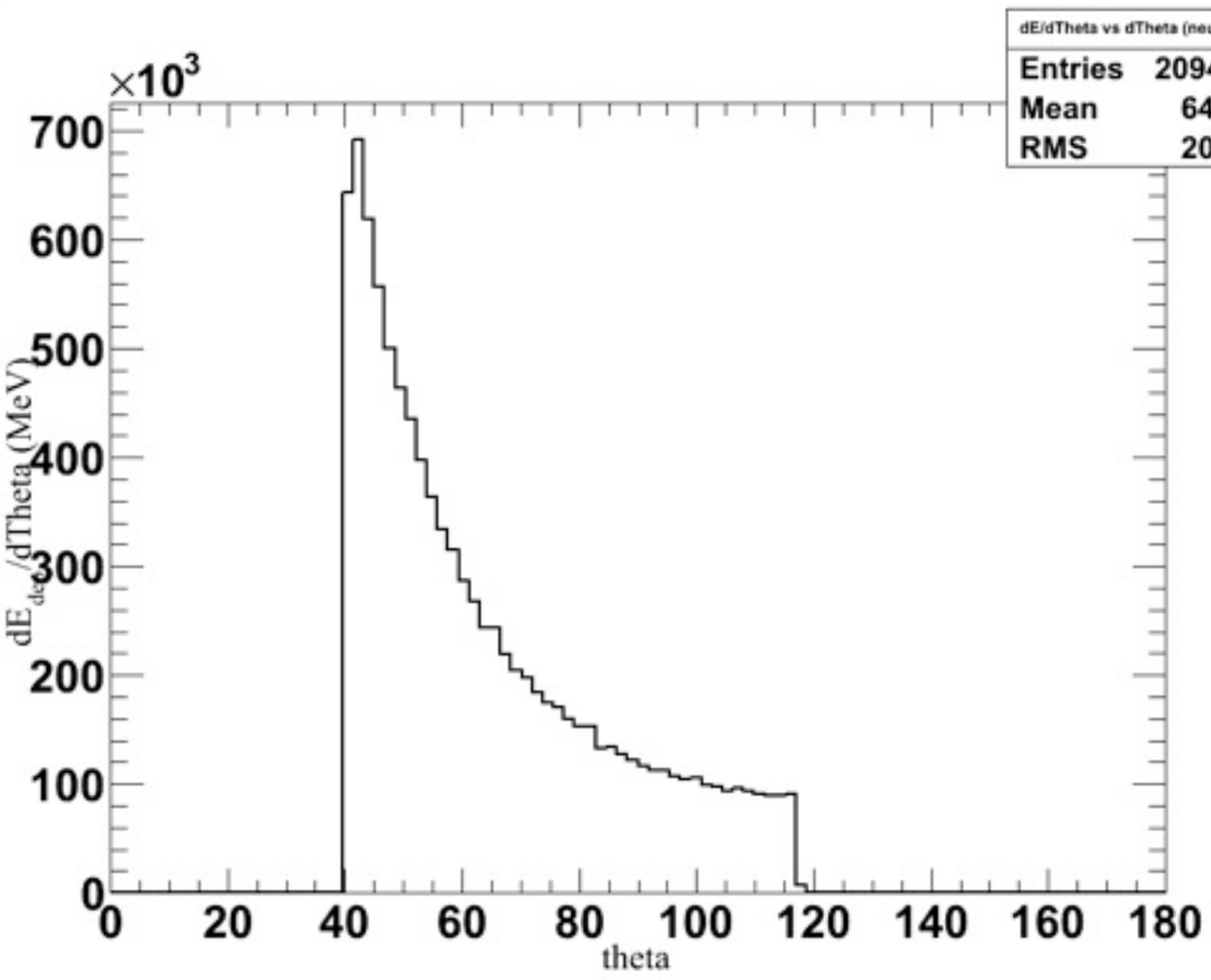
neutrons



Energy cut : 1 MeV 1 bin = 1 module

dE/dTheta

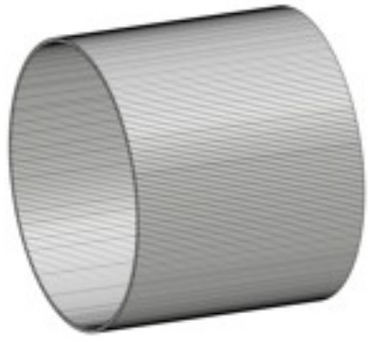




charged particles

: except for muons and electrons

neutrons



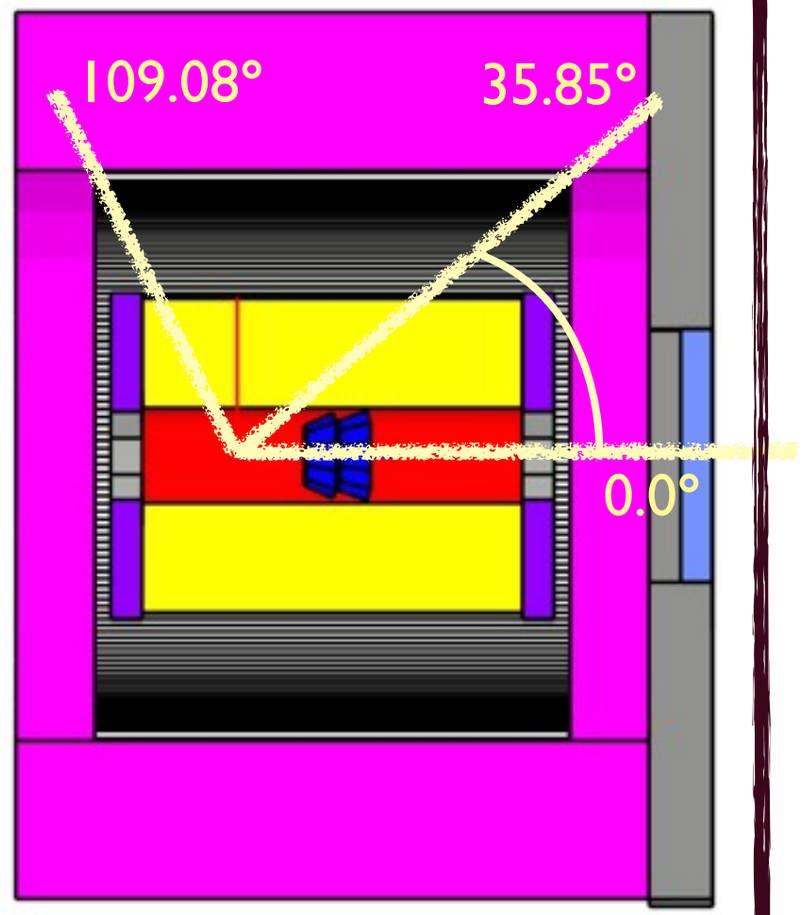
Energy cut : 1 MeV 1 bin = 1 module

Efficiency

1. The number of particles generated at the primary vertex in IQMD data.

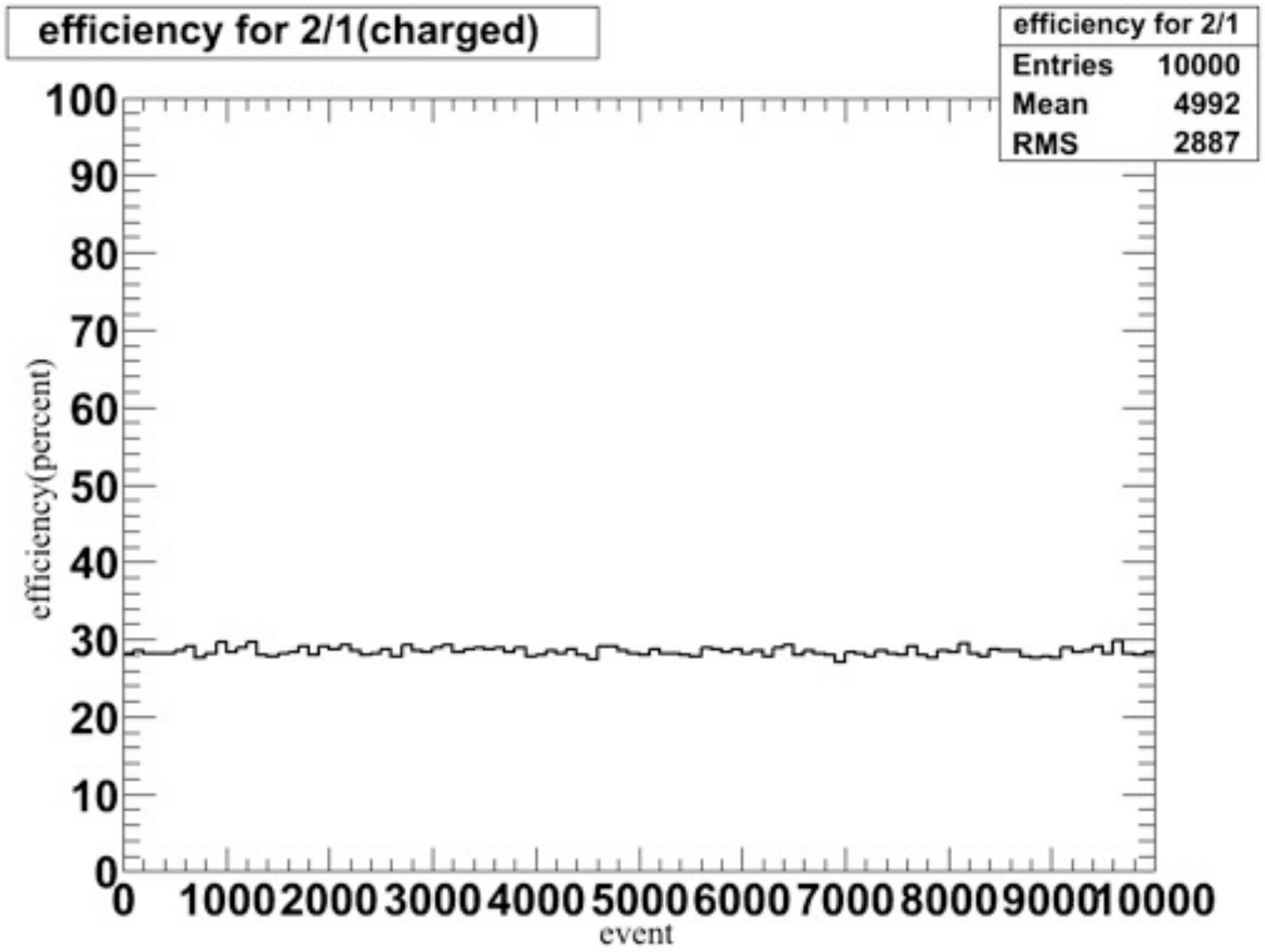
2. The number of particles which come in the detector angle.

3. The number of particles which is detected at the detector by simulation.



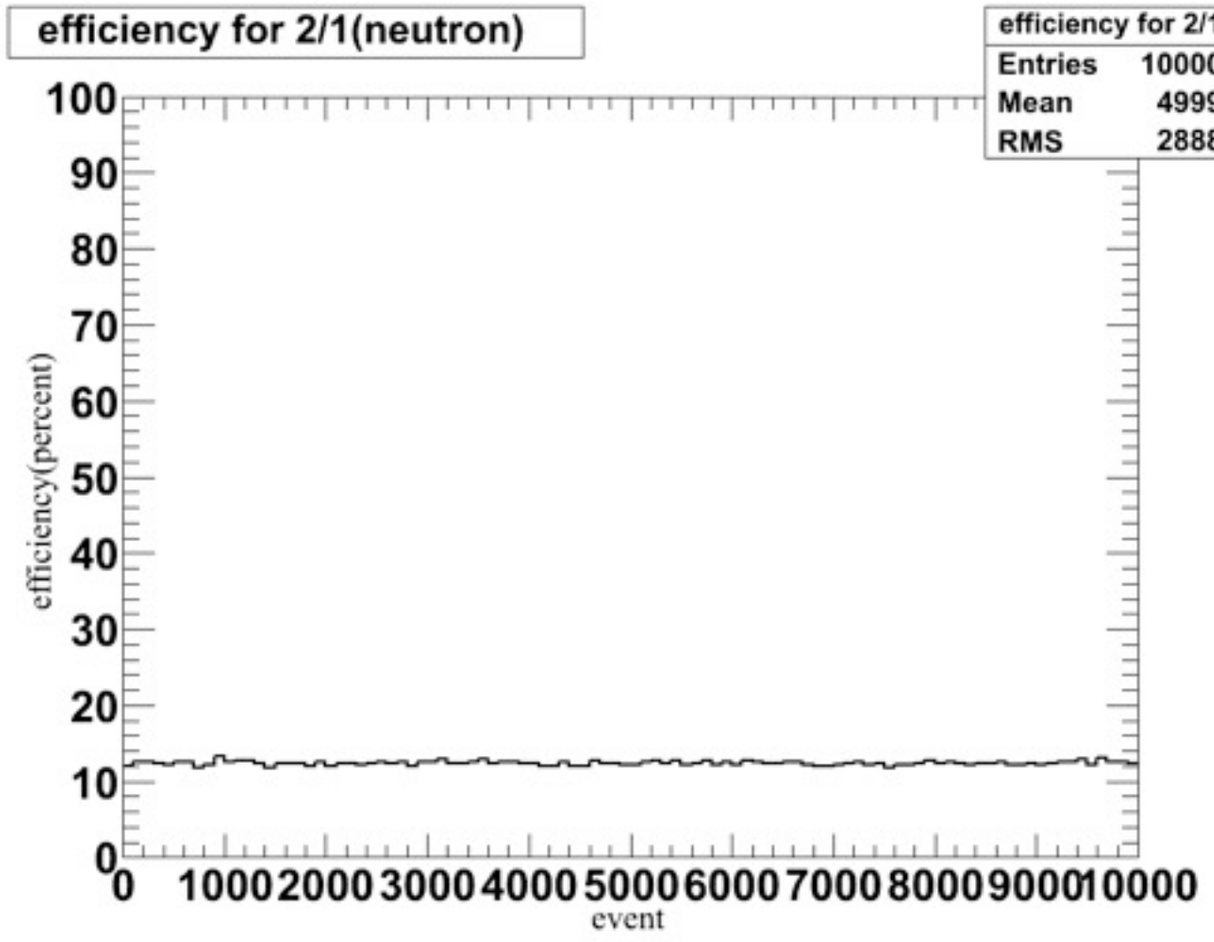
particles : neutrons or charged particles

Efficiency 3/1 per event



charged particles

: except for muons and electrons



neutrons

efficiency average

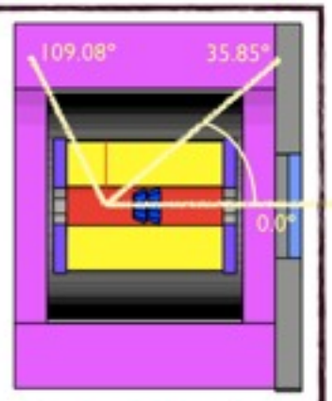
charged particles : approx. 29 %

neutrons : approx. 12 %

1. The number of particles generated at the primary vertex in IQMD data.

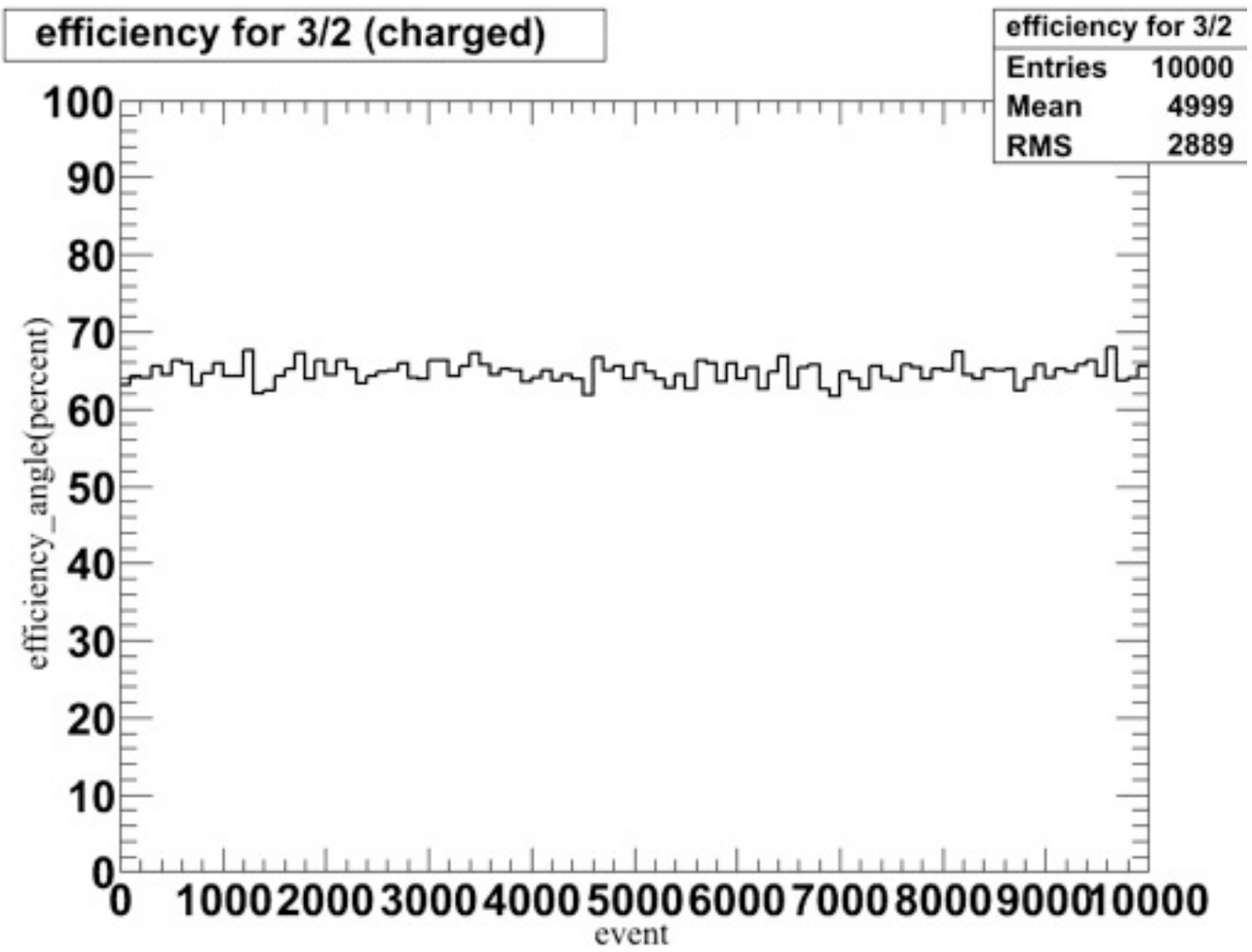
2. The number of particles which come in the detector angle.

3. The number of particles which is detected at the detector by simulation.



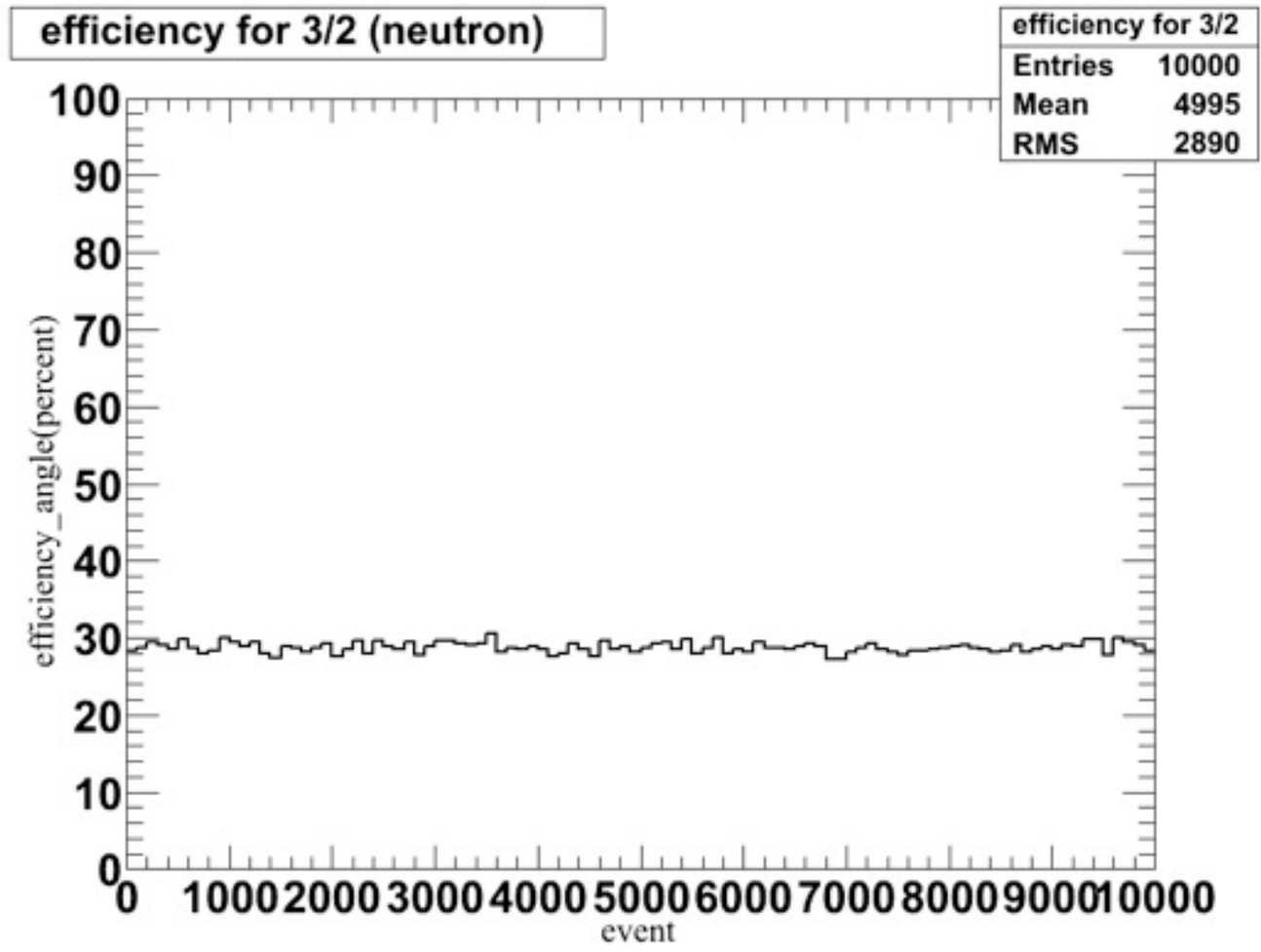
particles : neutrons or charged particles

Efficiency 3/2 per event



charged particles

: except for muons and electrons



neutrons

efficiency average

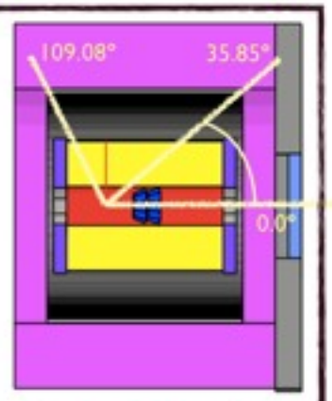
charged particles : approx. 65 %

neutrons : approx. 29 %

1. The number of particles generated at the primary vertex in IQMD data.

2. The number of particles which come in the detector angle.

3. The number of particles which is detected at the detector by simulation.

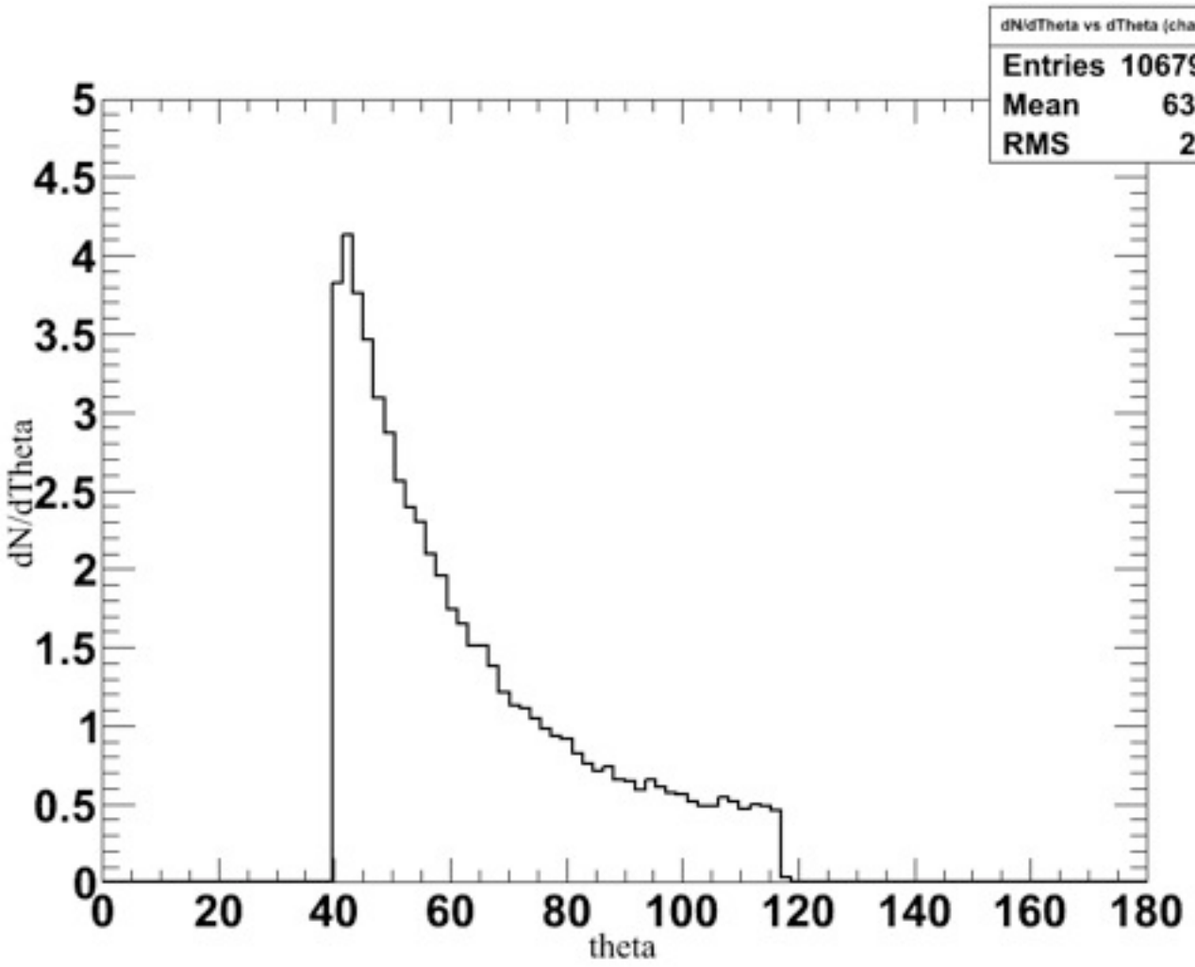


particles : neutrons or charged particles

BACK UP

13년 3월 14일 목요일

dN/dTheta



charged particles

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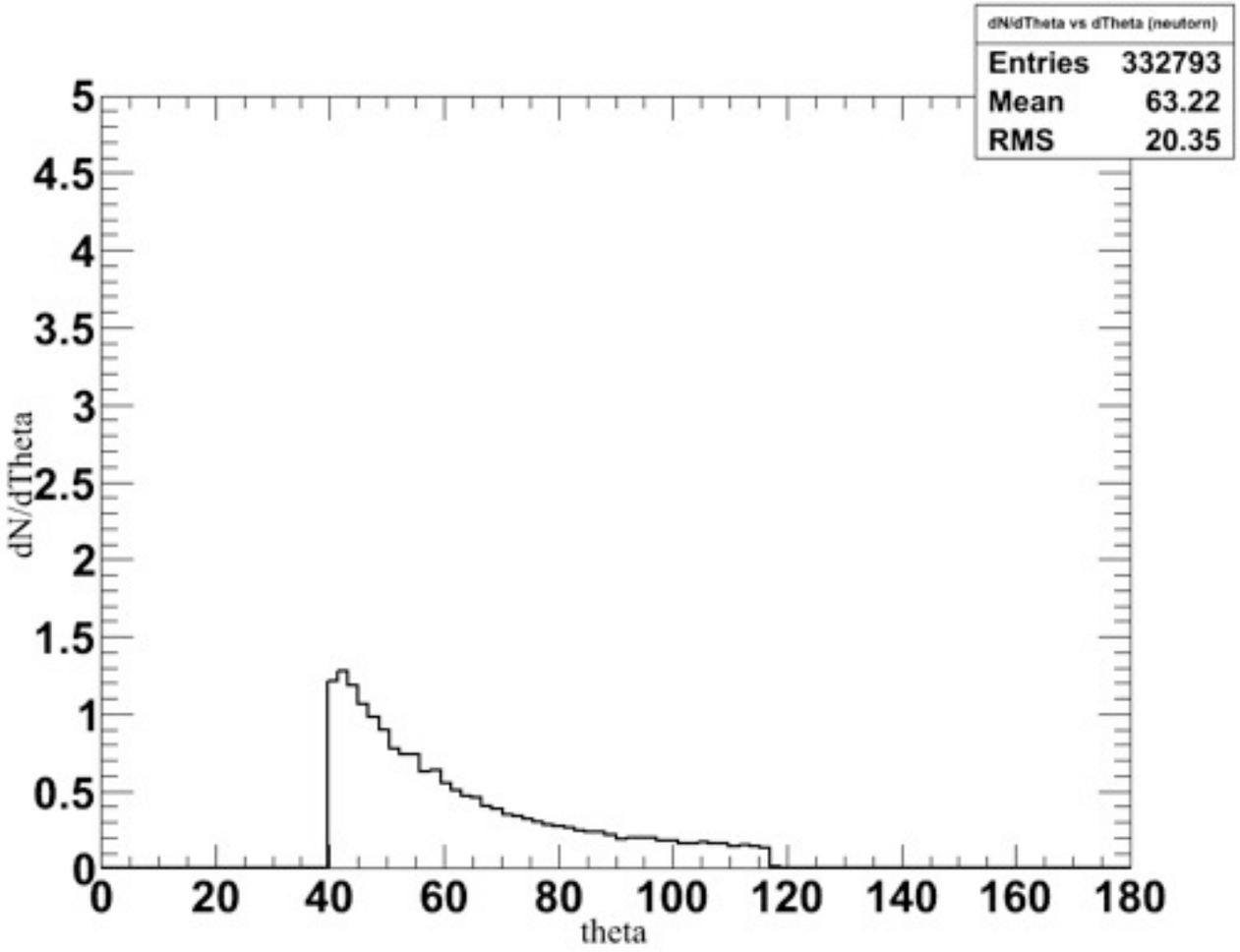
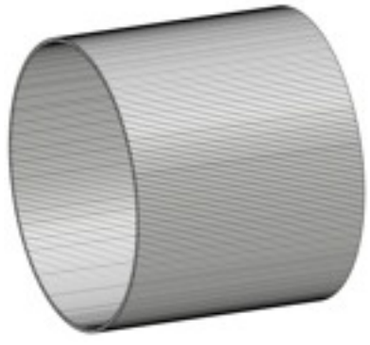
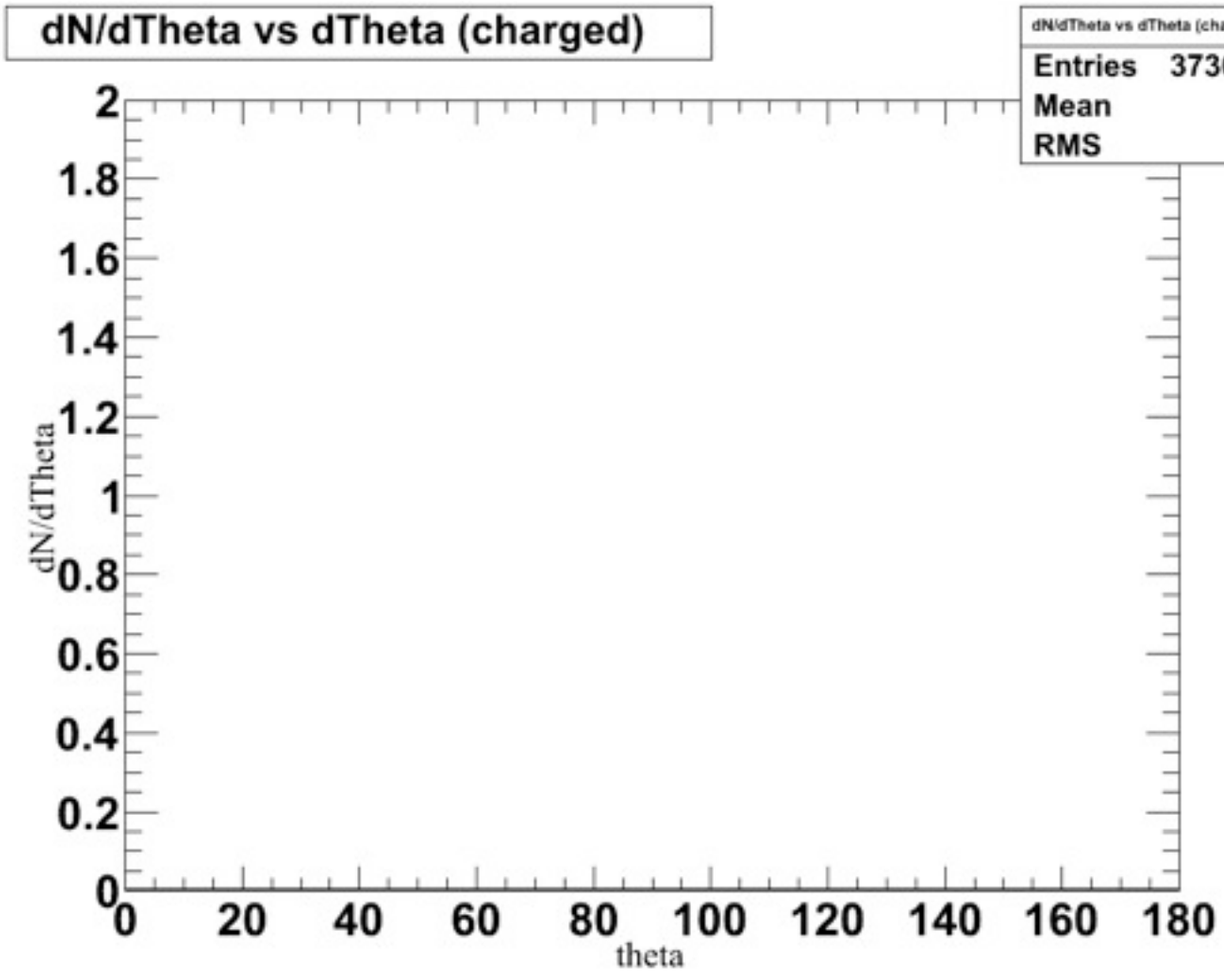


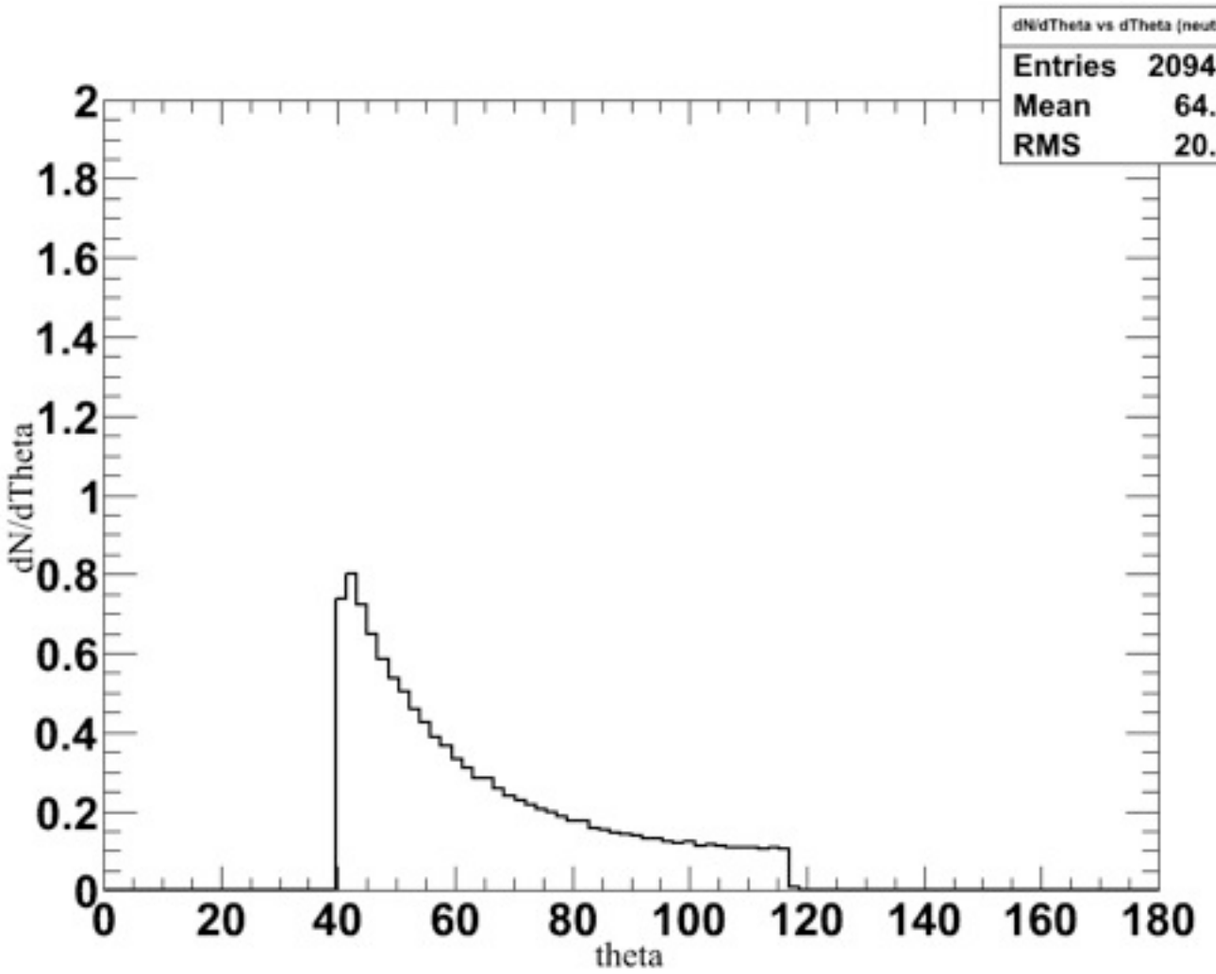
neutrons



Energy cut : 1 MeV 1 bin = 1 module

dN/dTheta

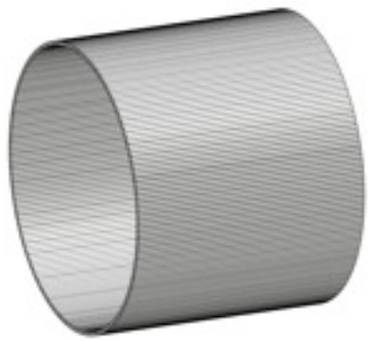




charged particles

: except for muons and electrons

neutrons



Energy cut : 1 MeV 1 bin = 1 module