Update on Dark Matter Distribution

Results from the calculation of cross section

- For both models (WIMP, SNDM) the differencial cross sections were calculated, including the form factor.

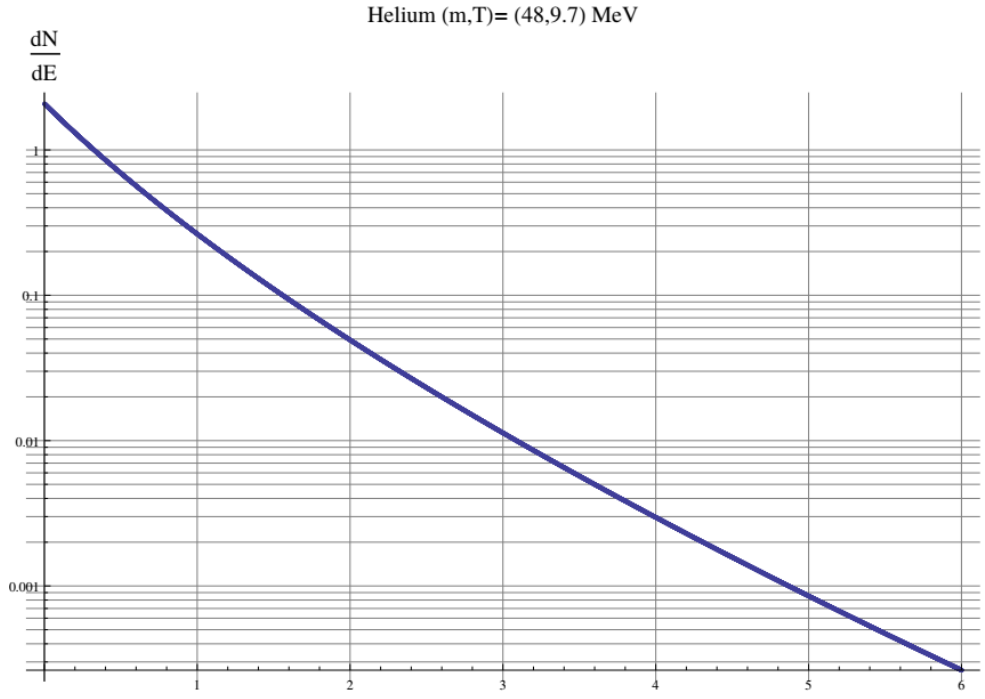
- At the moment, a mass for WIMP was arbitrarily chosen (100 GeV), as for the SNDM (48 MeV), in order to study an effective statistical technique.

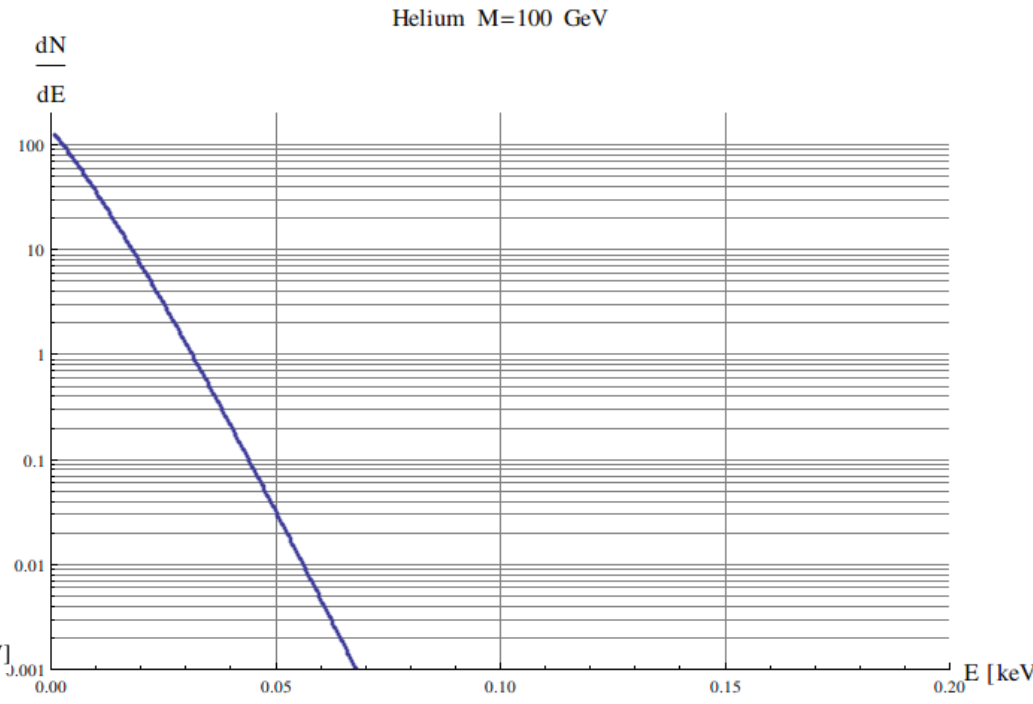
- The cross section for SNDM is calculated in the frame reference with the z-axis pointing from the Galactic Centre to the Sun.

- The cross section for WIMP is calculated in the frame reference with the z-axis pointing in the direction opposite to the motion of the Sun

Obtained Functions

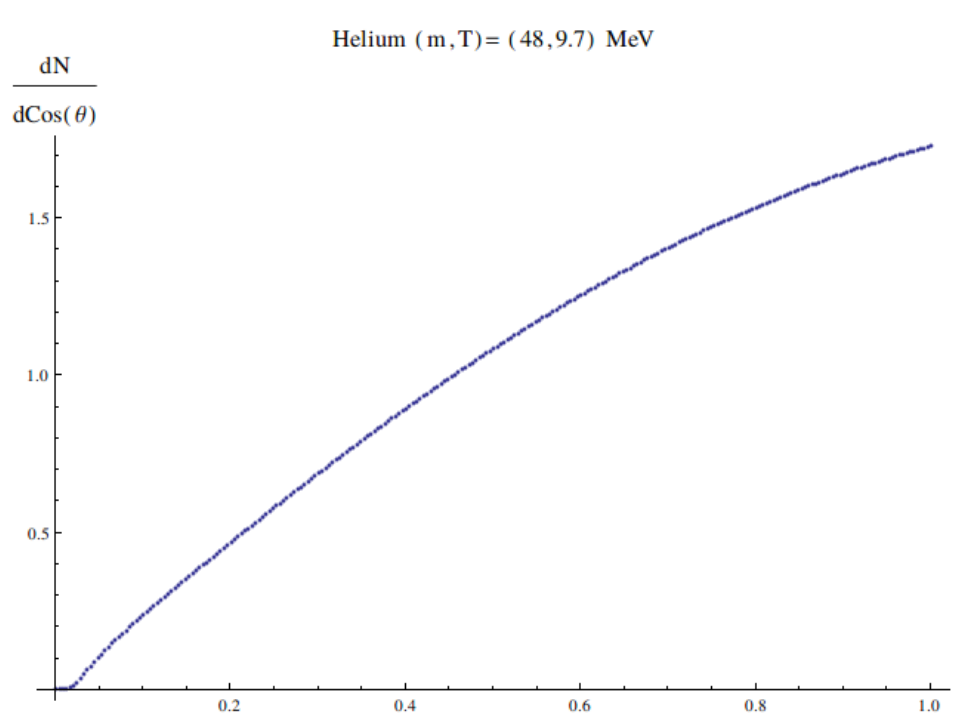
Target: He
Variable: Energy

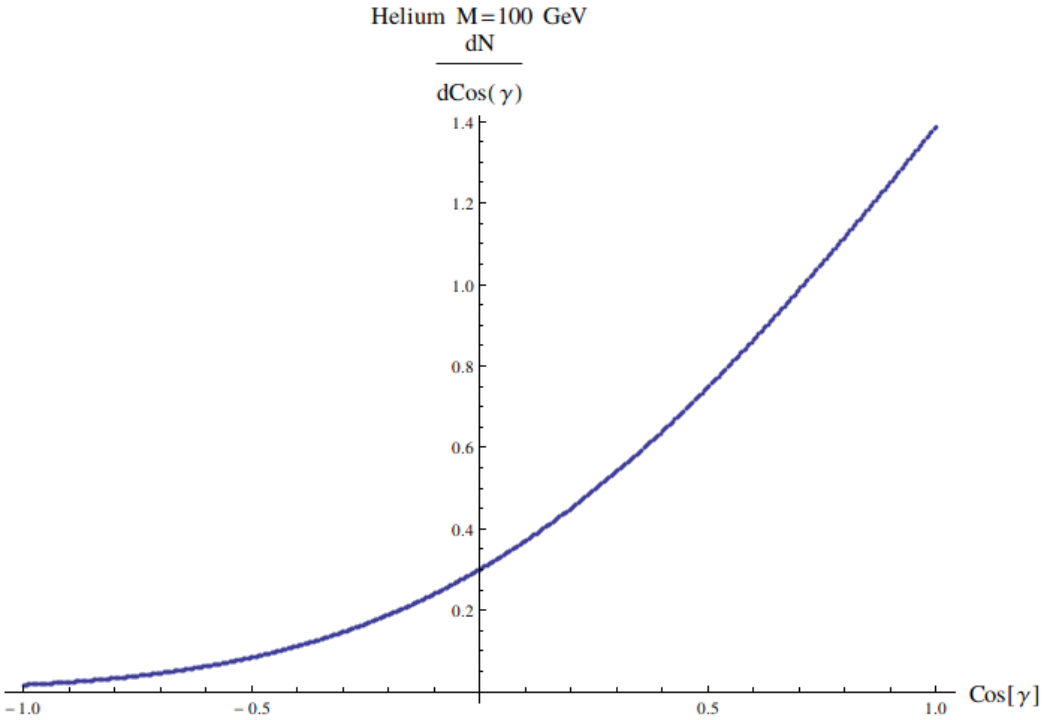




Obtained Functions

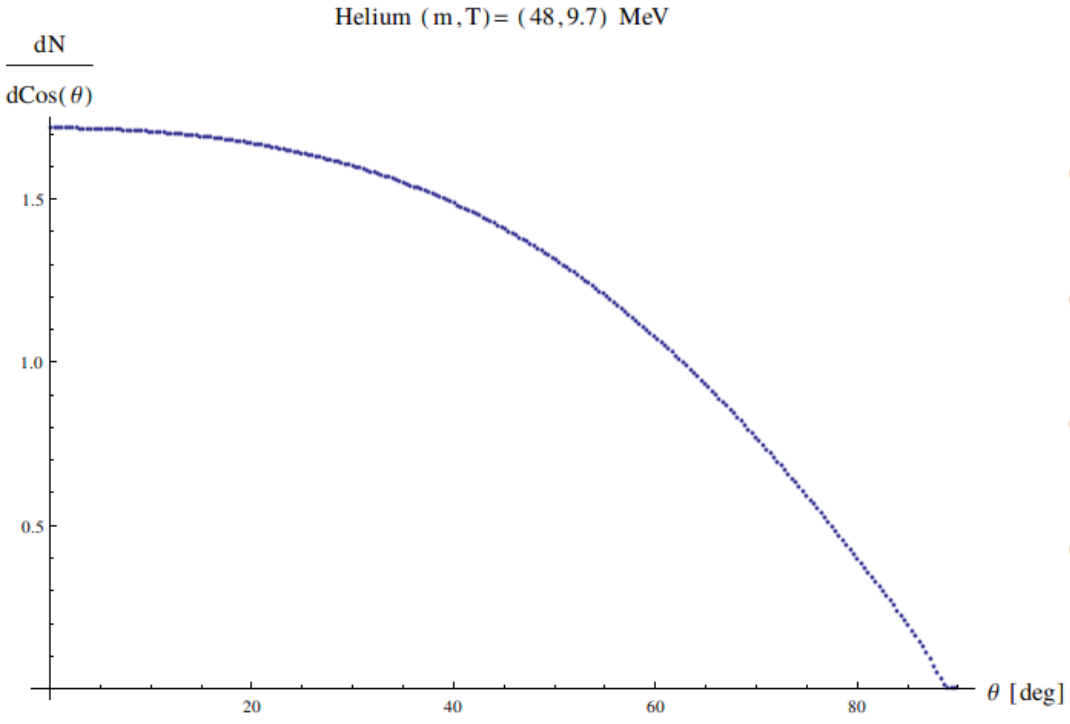
Target: He
Variable: Cosine

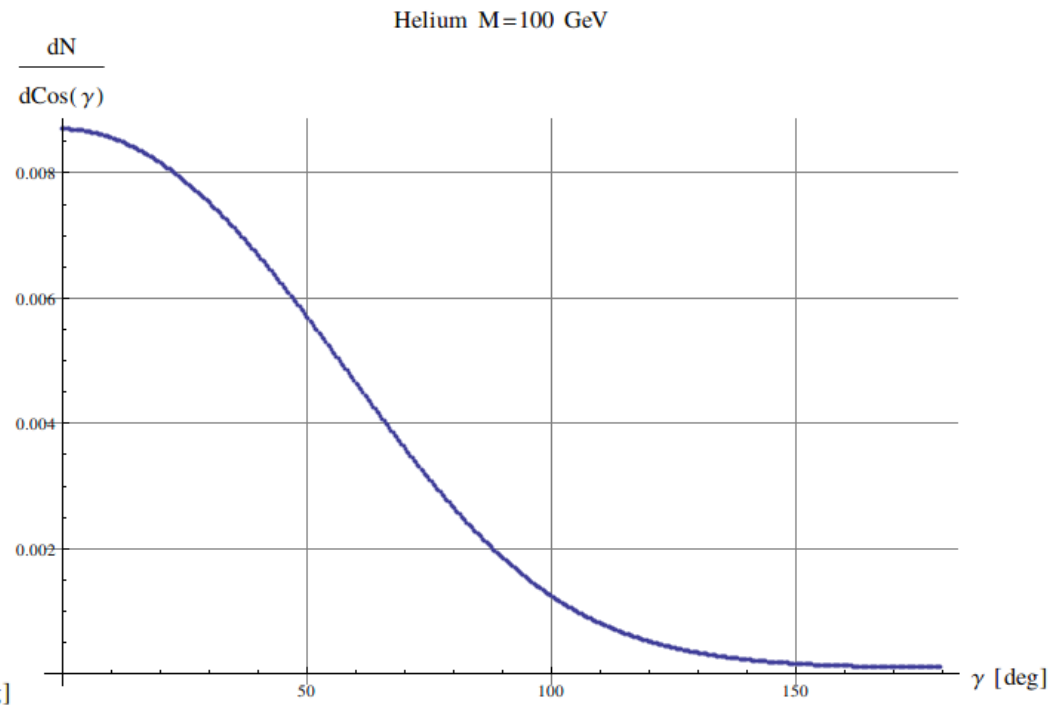




Obtained Functions

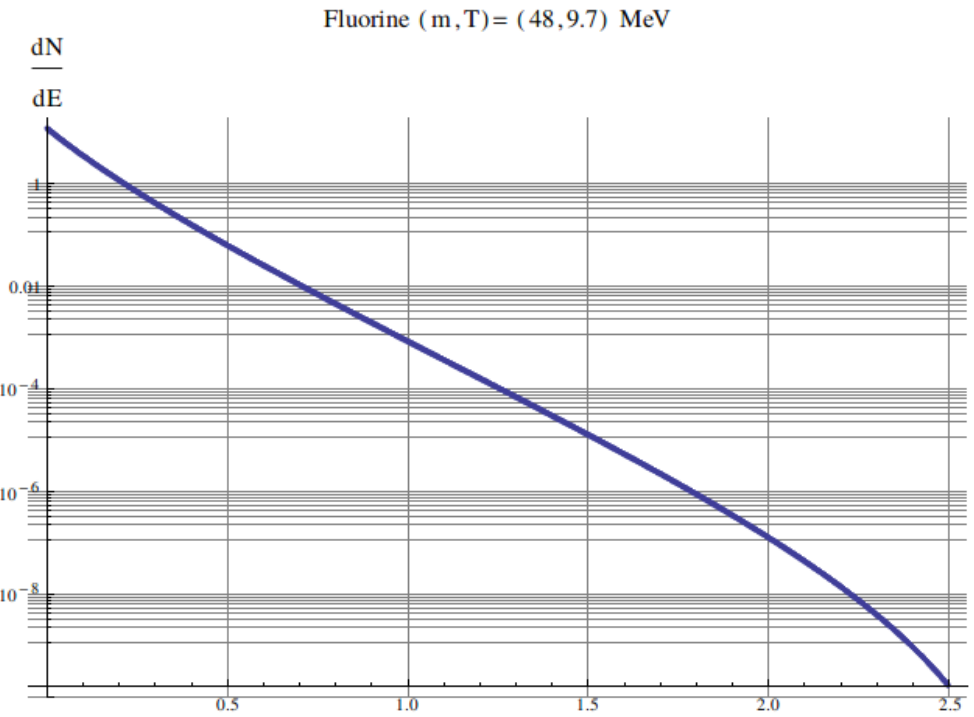
Target: He
Variable: Angle

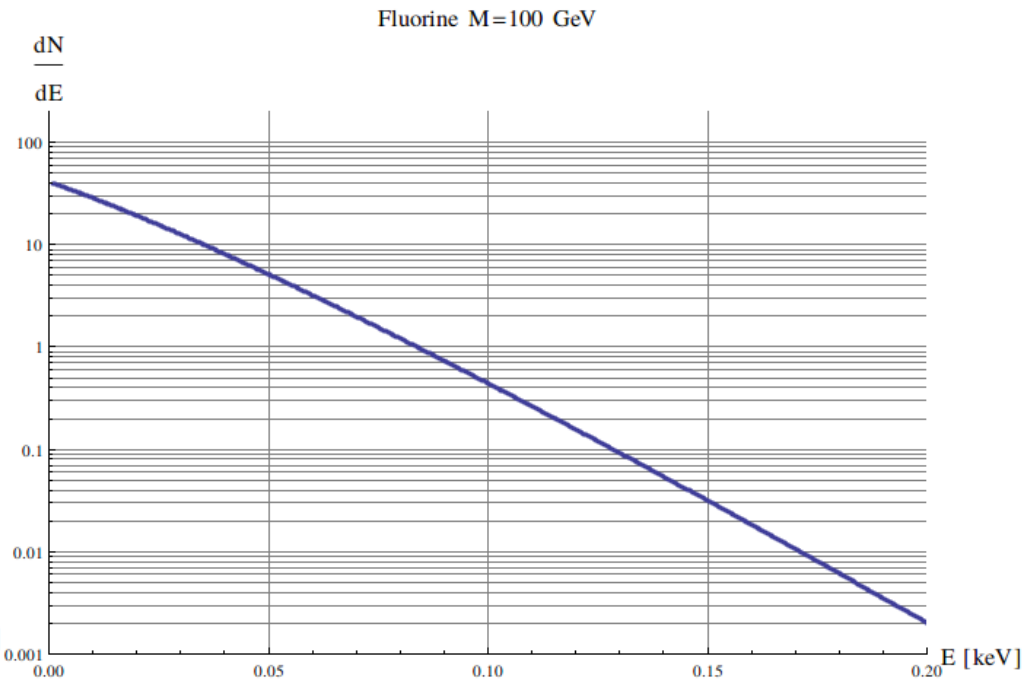




Obtained Functions

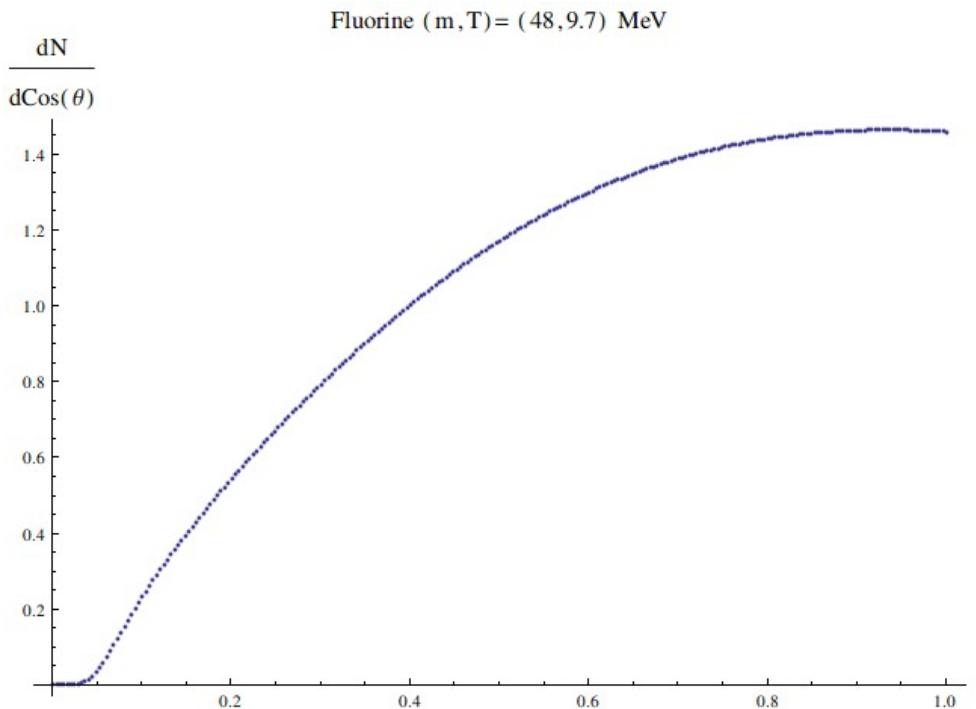
Target: F
Variable: Energy

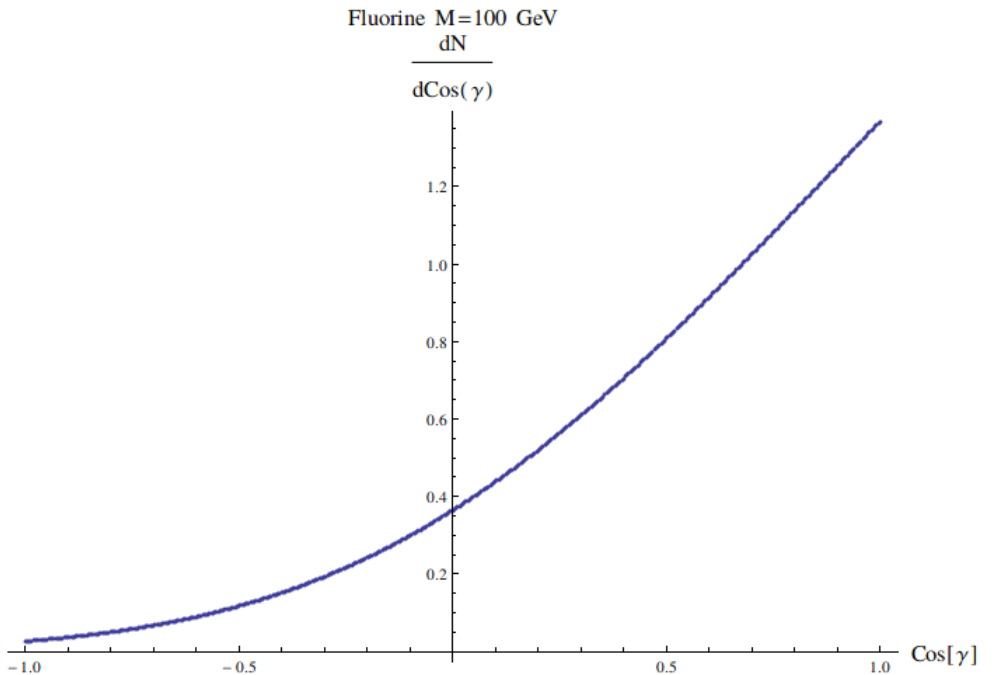




Obtained Functions

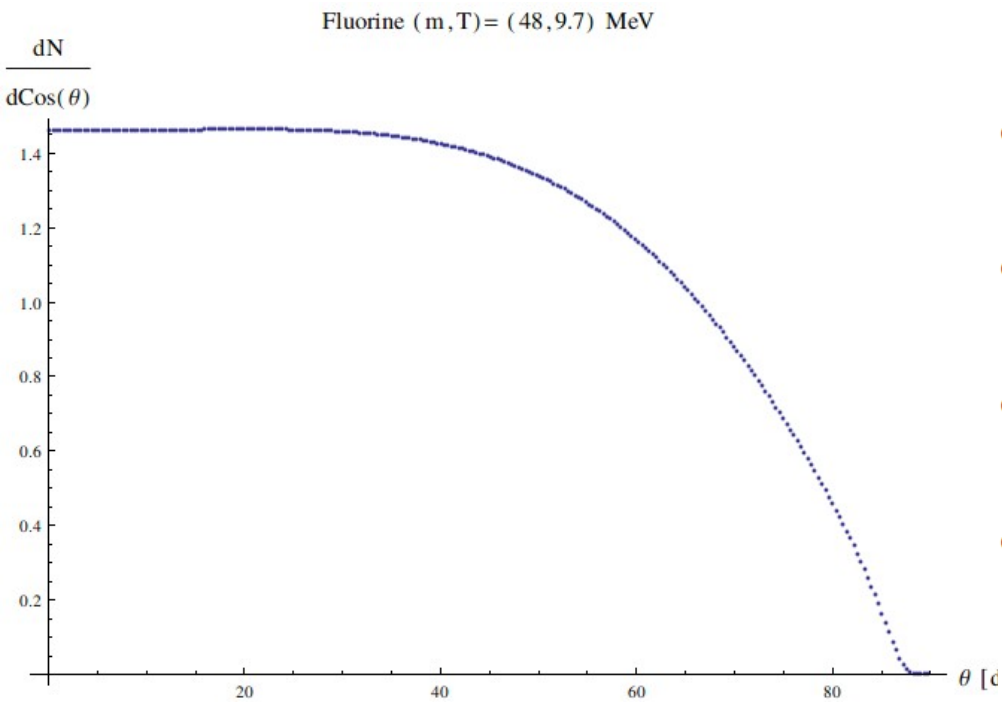
Target: F
Variable: Cosine

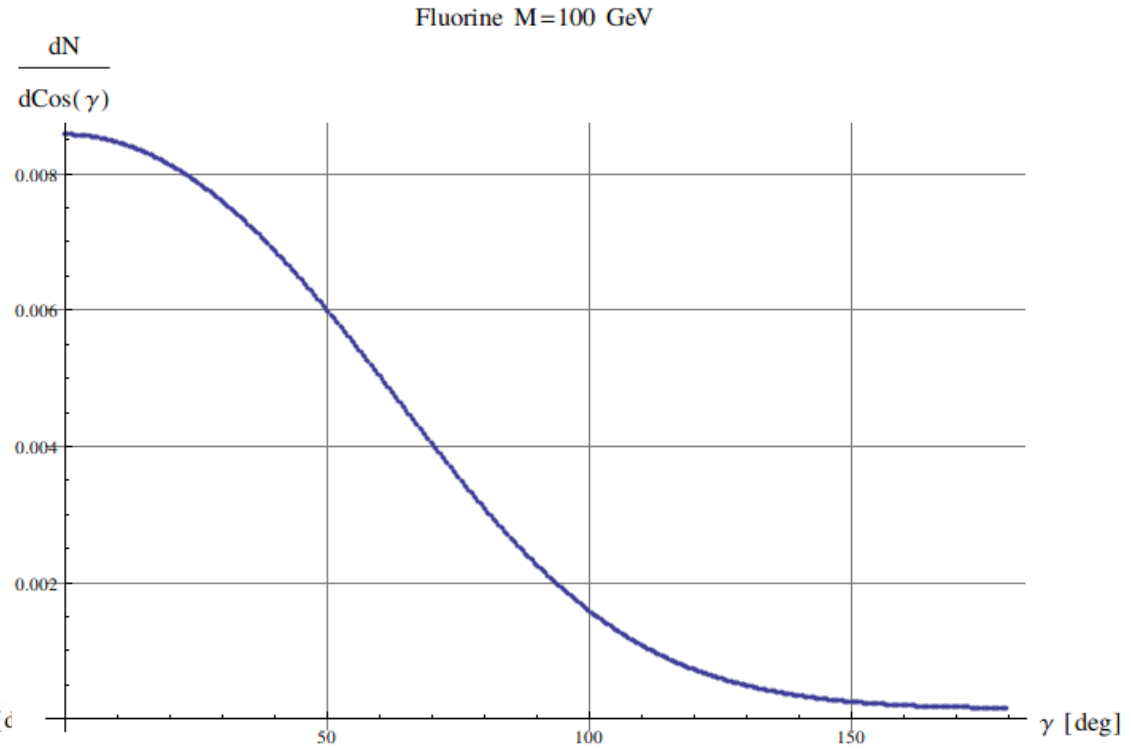




Obtained Functions

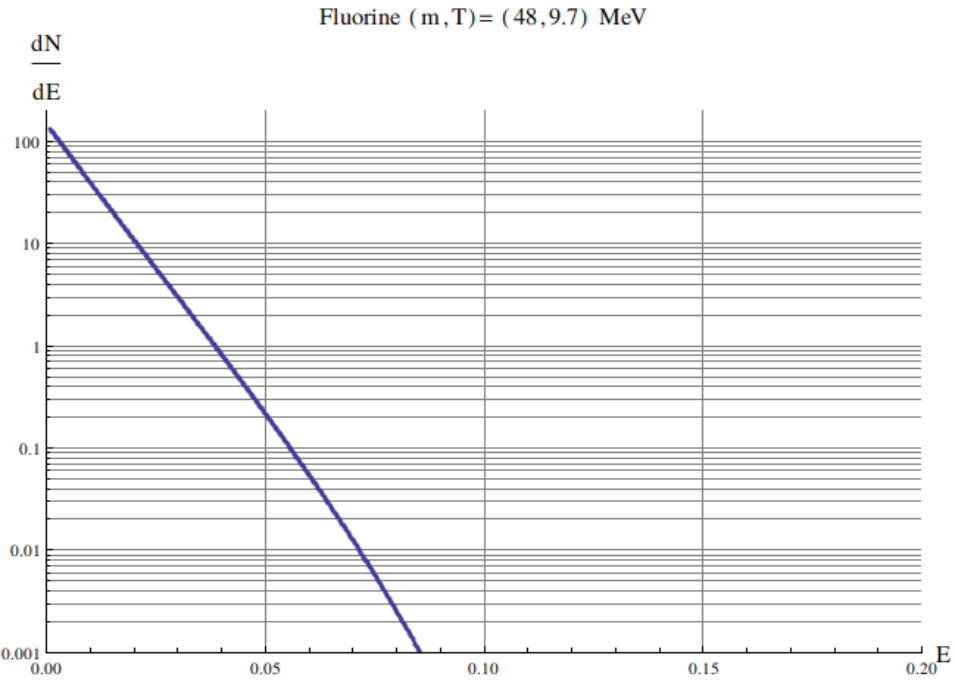
Target: F
Variable: Angle

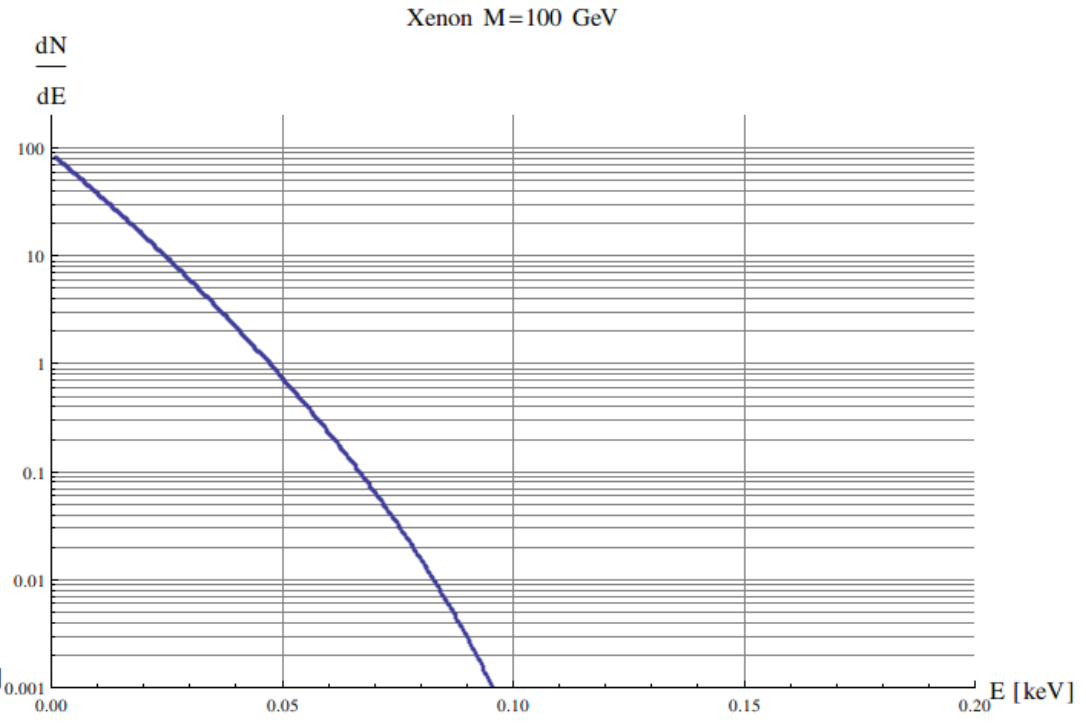




Obtained Functions

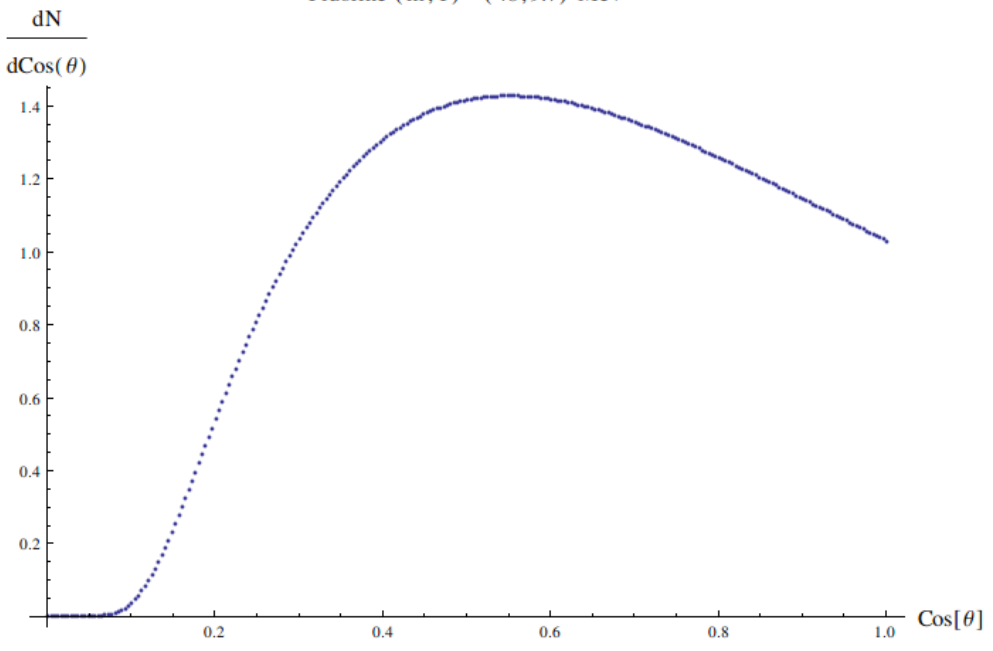
Target: Xe
Variable: Energy

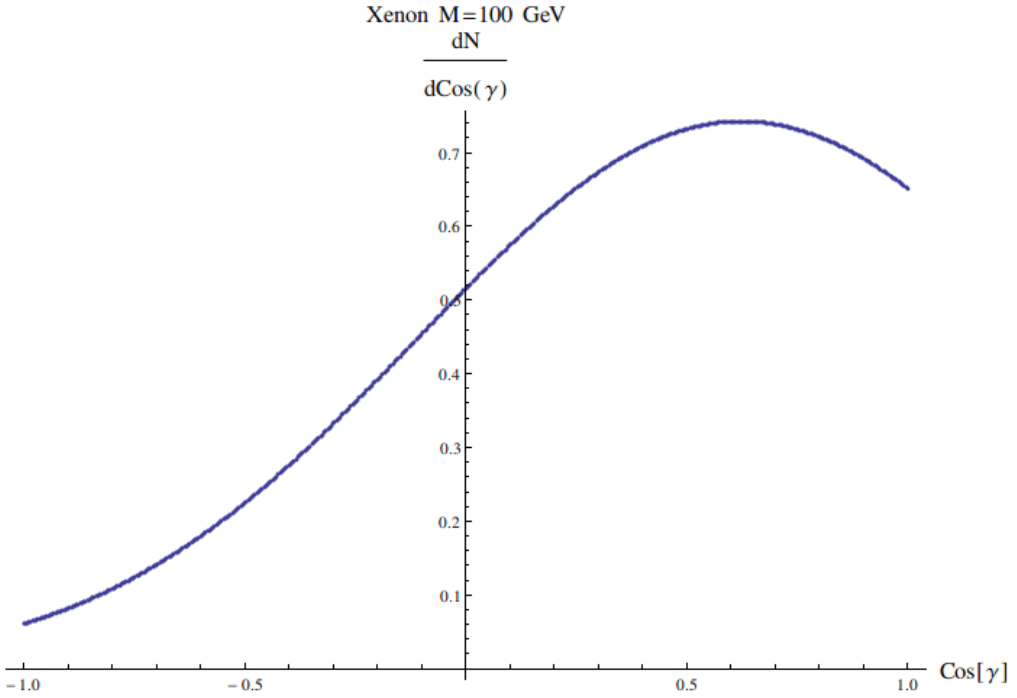




Obtained Functions

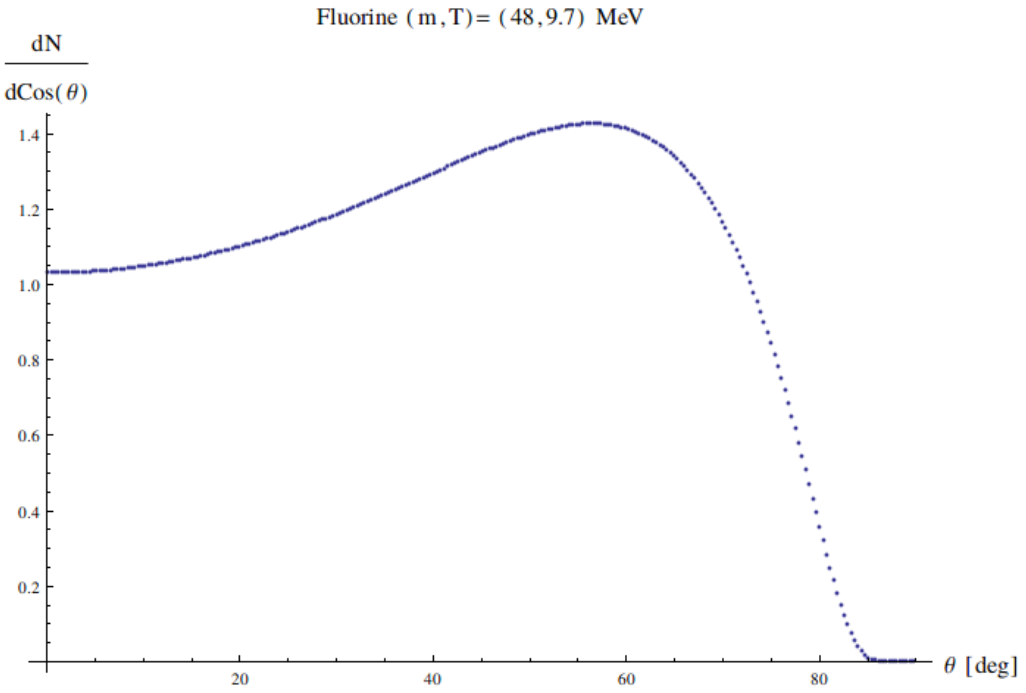
Target: Xe
Variable: Cosine

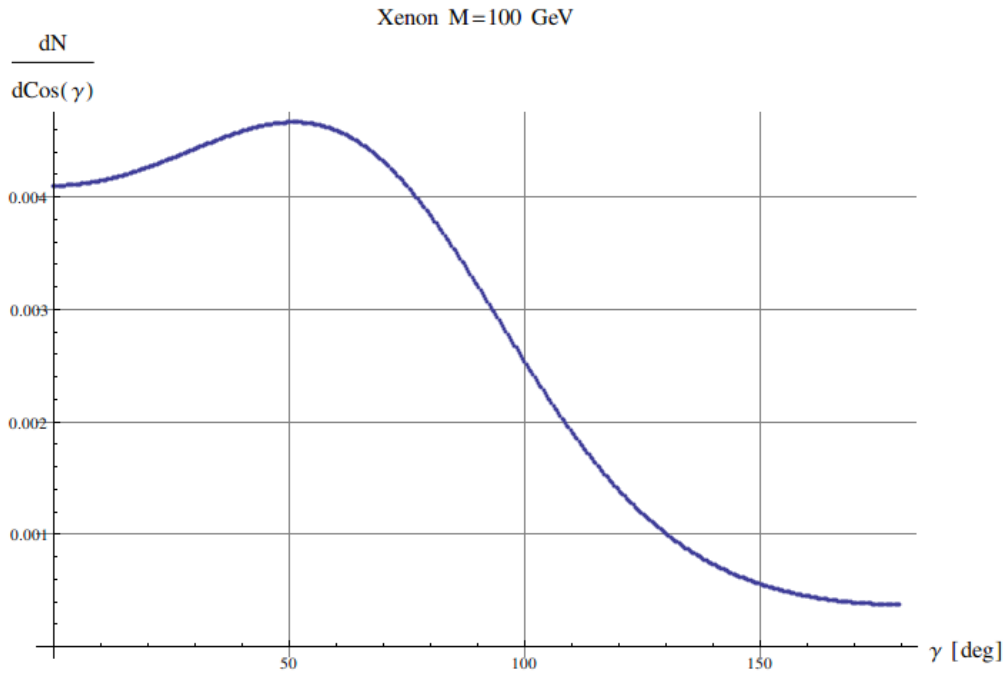




Obtained Functions

Target: Xe
Variable: Angle



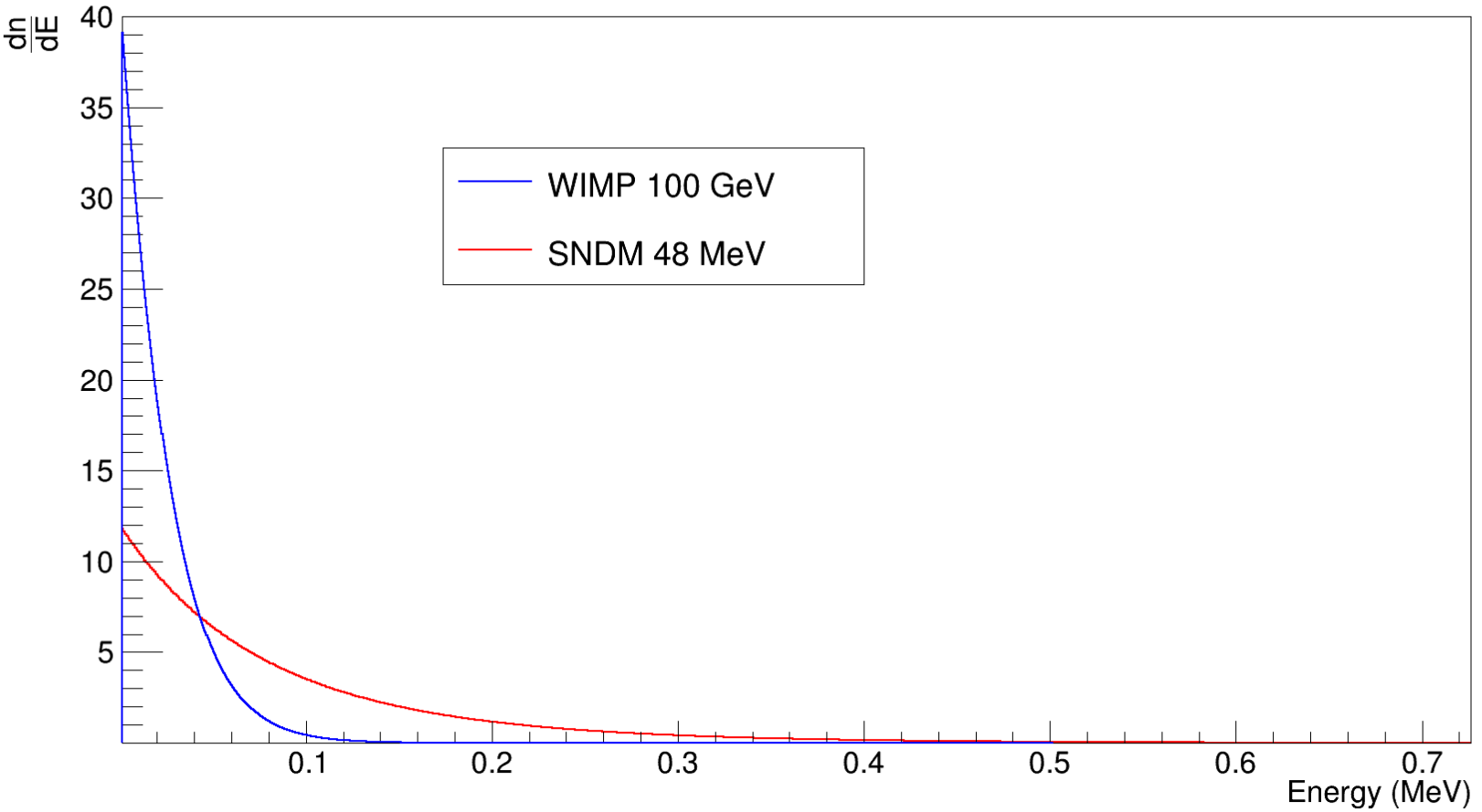


Study for plot on which perform statistical analysis

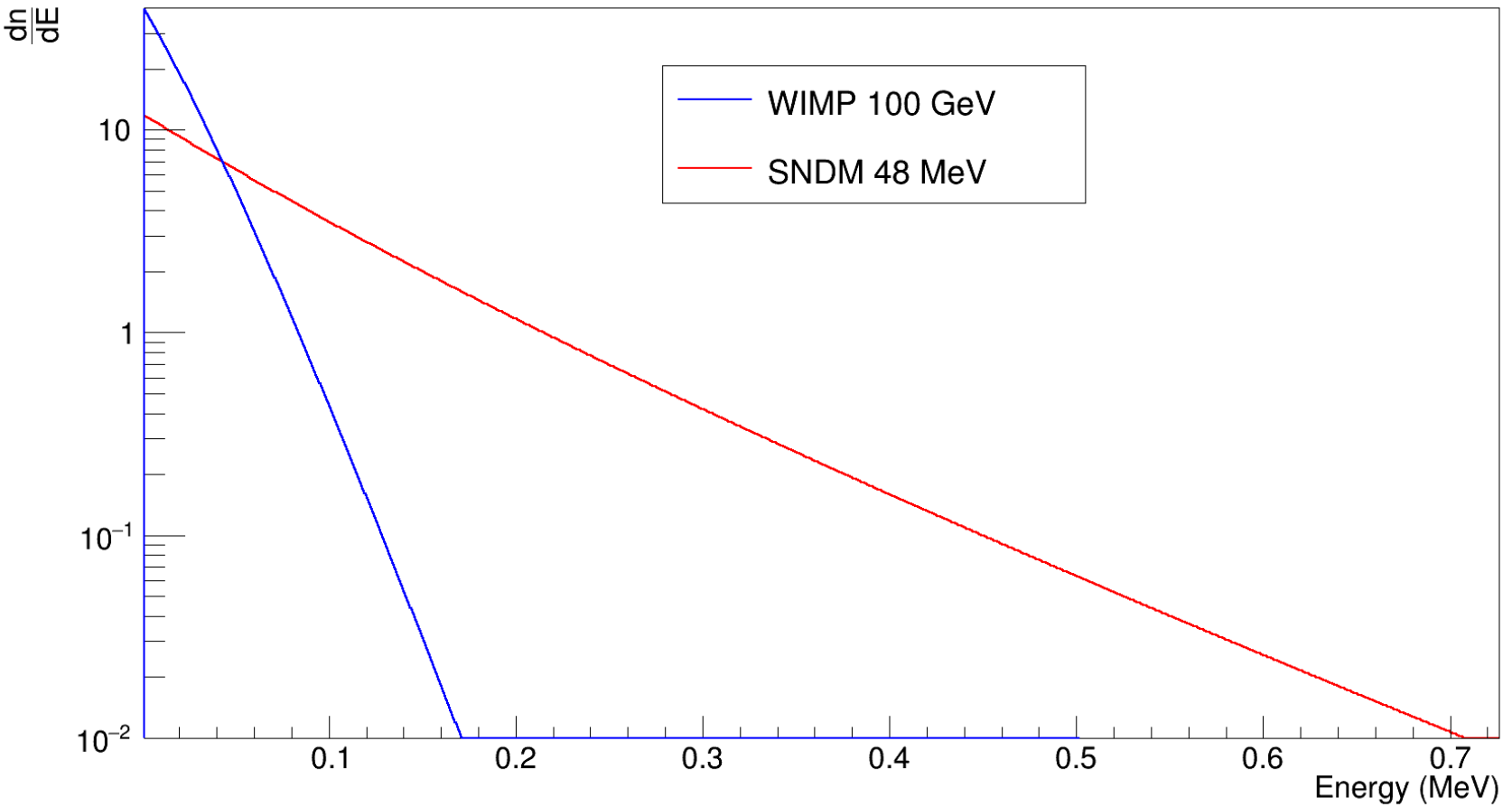
- For the moment a target of Fluorine was chosen.

- The distribution in cosine where transformed into the correct reference system

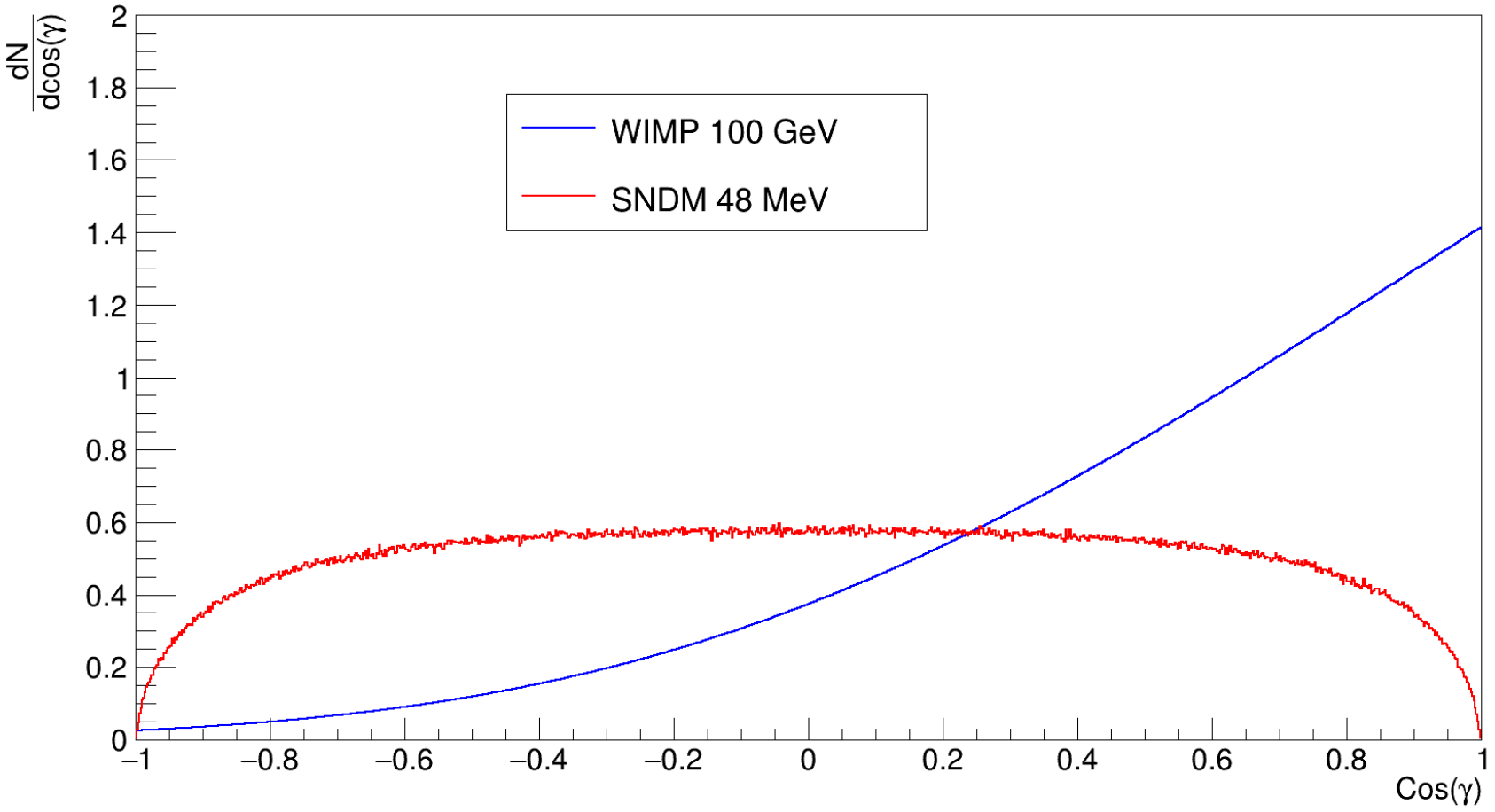
Energy Spectrum

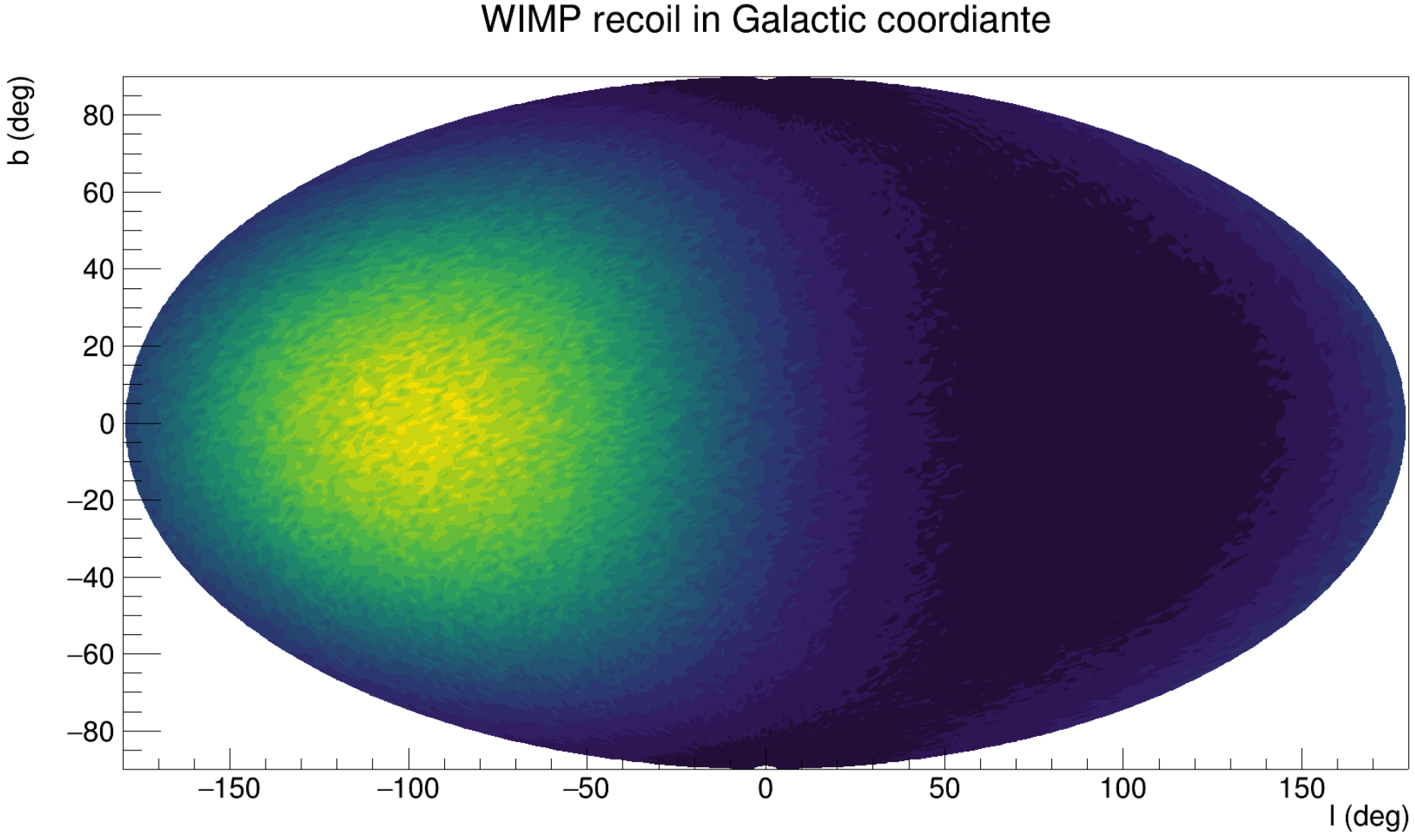


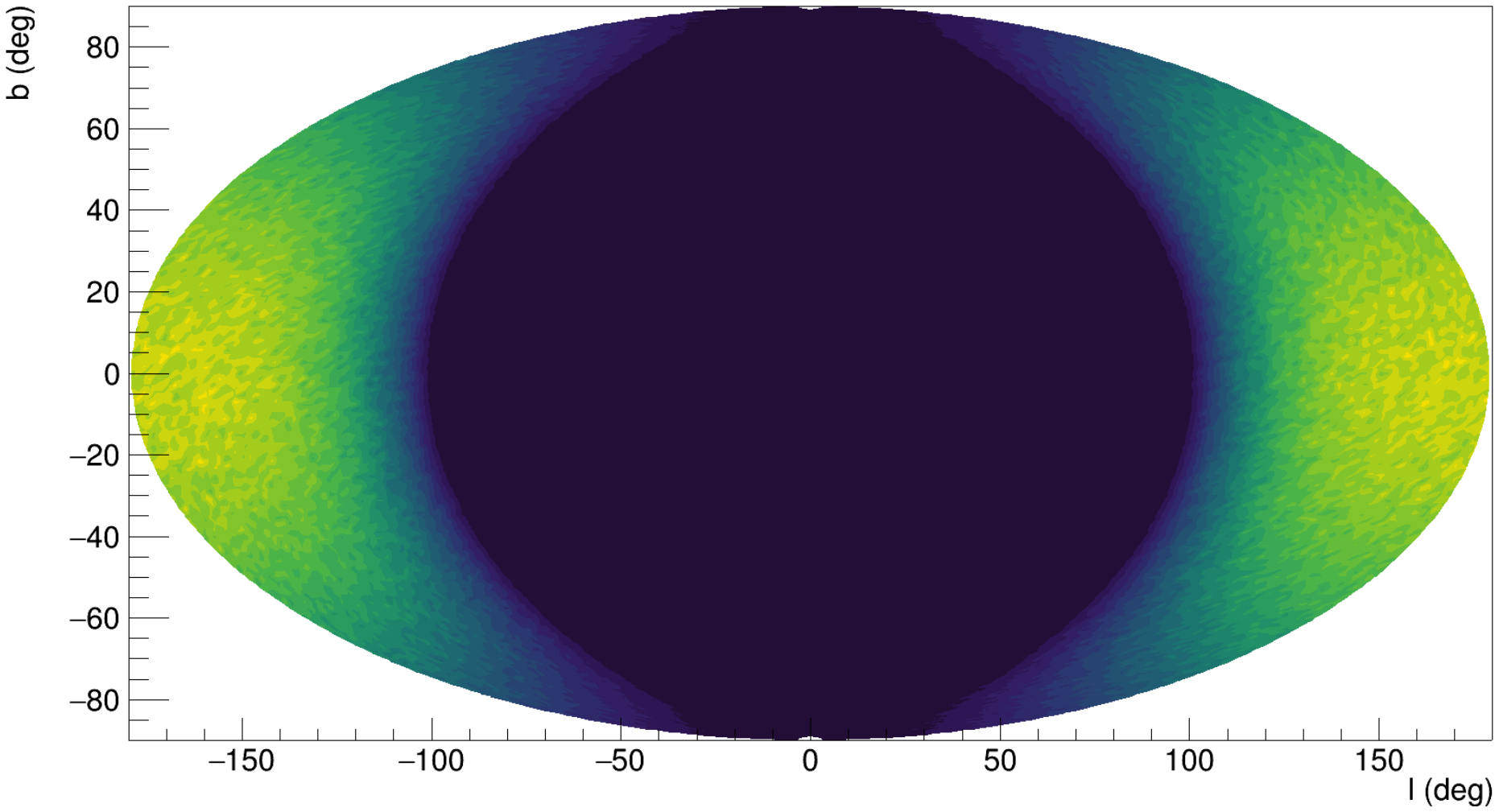
Energy Spectrum

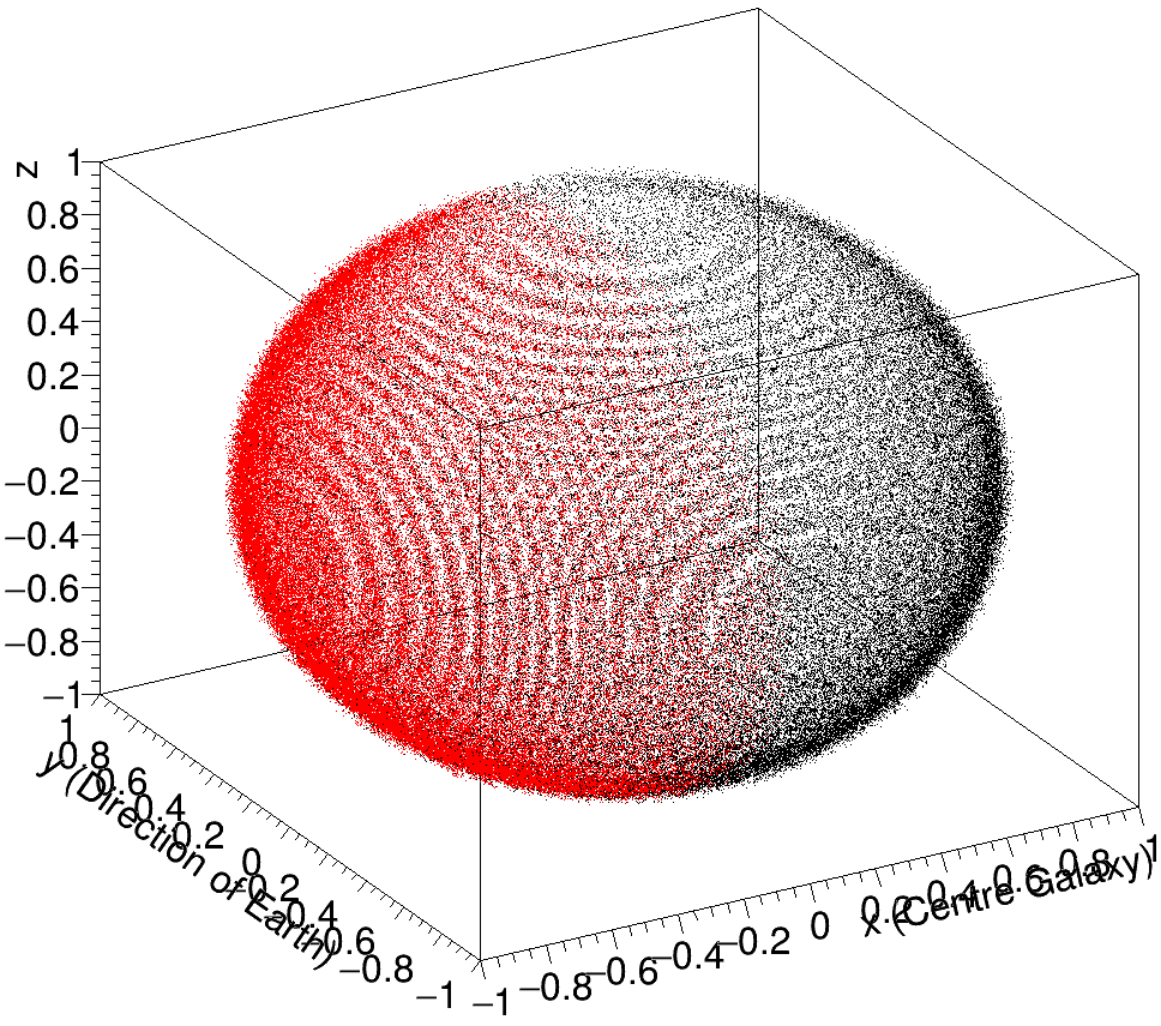


Cosine Distribution in Lab frame




WIMP recoil in Galactic coordiante
b (deg)
80
60
40
20
0
−20
−40
−60
−80
−150
−100
−50
0
50
100
150
l (deg)


SNDM recoil in Galactic coordiante
b (deg)
80
60
40
20
0
−20
−40
−60
−80
−150
−100
−50
0
50
100
150
l (deg)


zeta
z
1
0.8
0.6
0.4
0.2
0
−0.2
−0.4
−0.6
−0.8
−1
y (Direction of Earth)
x (Centre Galaxy)