Analysis of Electron Runs at different Momenta & Angles

Claudia Monte

Bari Group

Selected Electron RUNS (data from SVAC & MERIT n-tuples)

Position
- X = 201 *mm;*
- Y = 40 *mm;*
- Z = - 47 *mm*

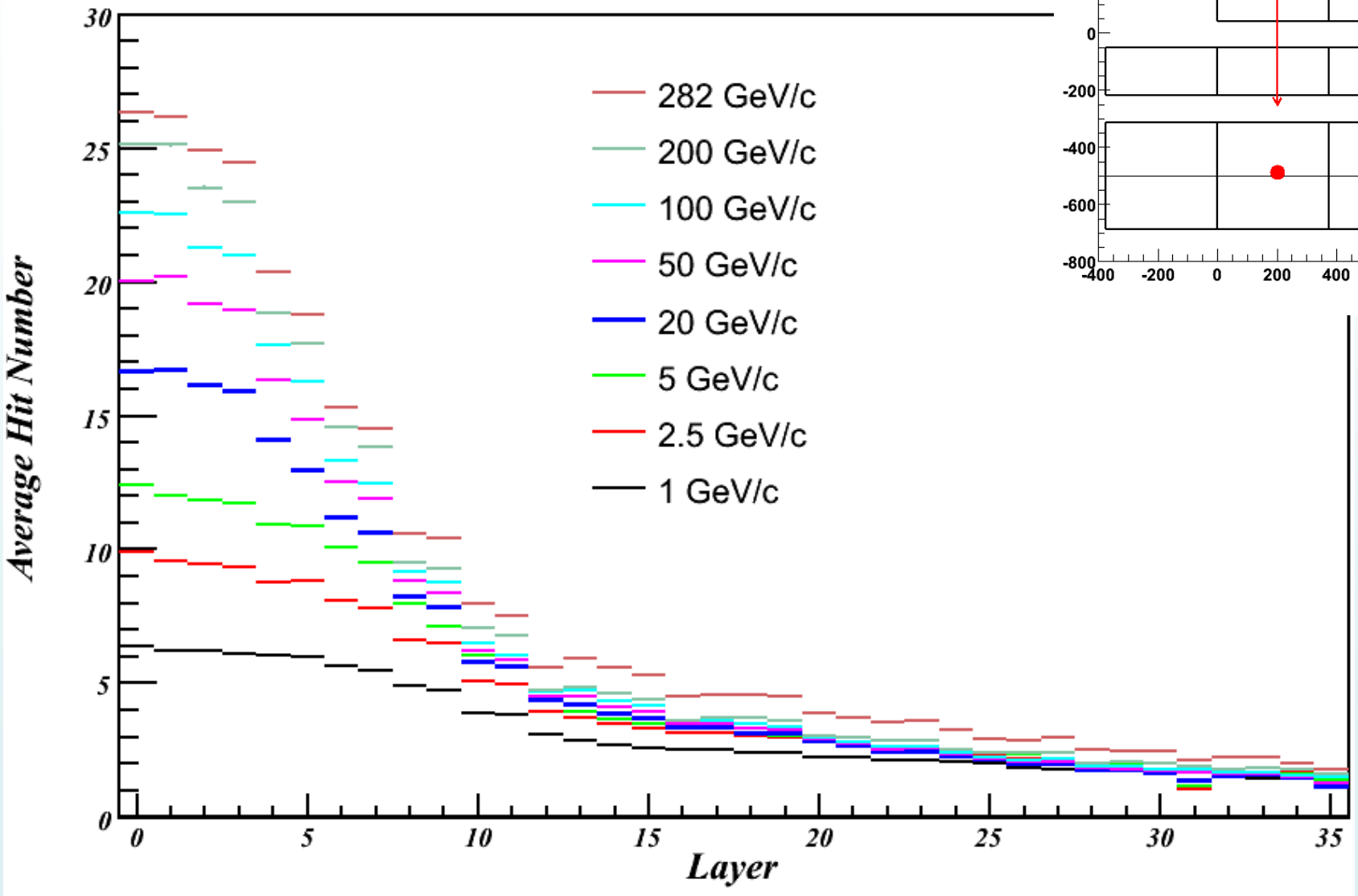
Cuts:
- "GltTower" > -1;
- "CalEneSum" > 0;
- "TkrNumTracks" ≥ 1;
- "Tkr1LastLayer" = 0;

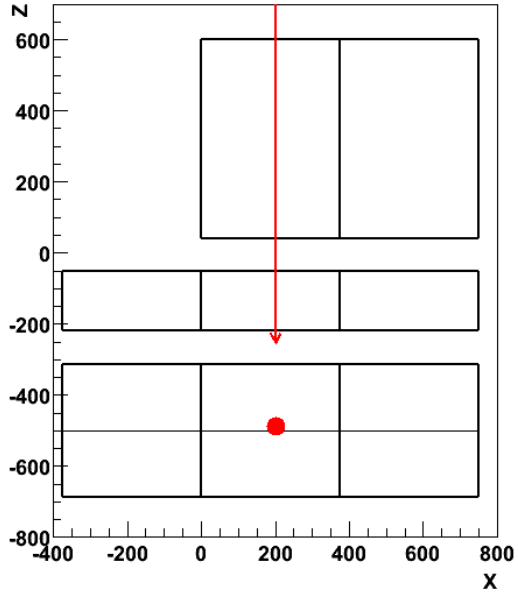
BT DATA (MC)

Momentum / Angle →	0 deg	10 deg	20 deg	30 deg	45 deg	60 deg
1 GeV/c	1259 (71)			1220		
2.5 GeV/c	1202 (123)			1222		
5 GeV/c	1460 (122)	1476	1485	1493	1504	1505
10 GeV/c	2338	2343	2348	2353 (179)	2357	2359
20 GeV/c	2082 (176)	2087	2092	2096	2100	2103
50 GeV/c	2039 (172)	2044	2050	2054 (173)	2058	2064
100 GeV/c	1981 (162)	1988	1993	1999 (169)	2003	2006
200 GeV/c	2035 (164)	1892	1898	1902 (168)	1906	1909
282 GeV/c	1922 (166)	1932	1938	1942 (167)	1946	1949

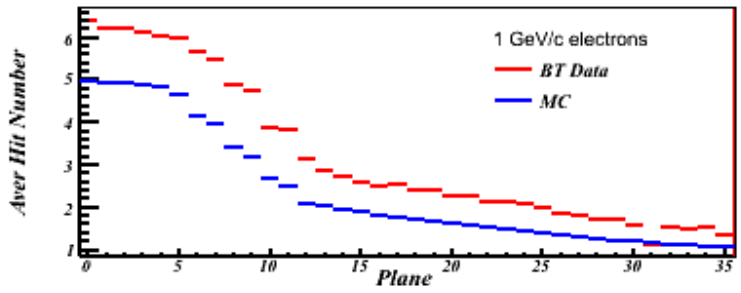
Hit Multiplicity layer by layer for

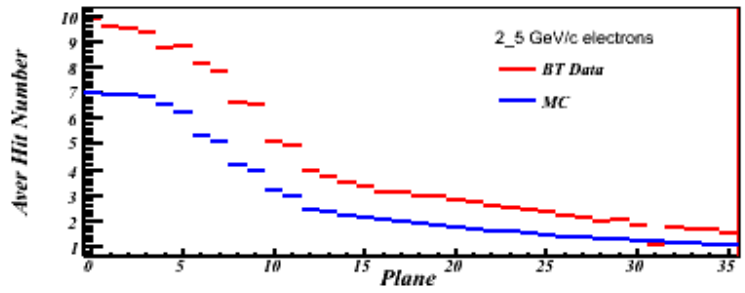
0 degree electrons runs at different momenta

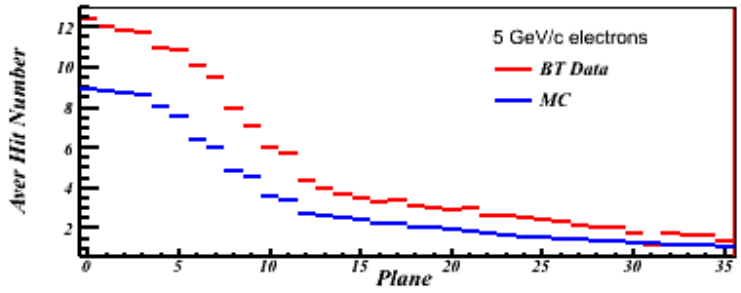


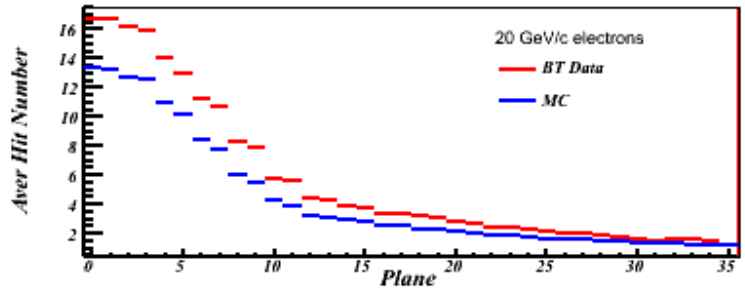


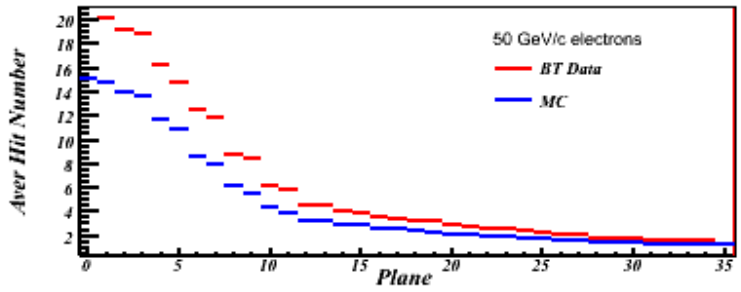
Hit multiplicity: BT Data – MC comparison (0 degree electrons)

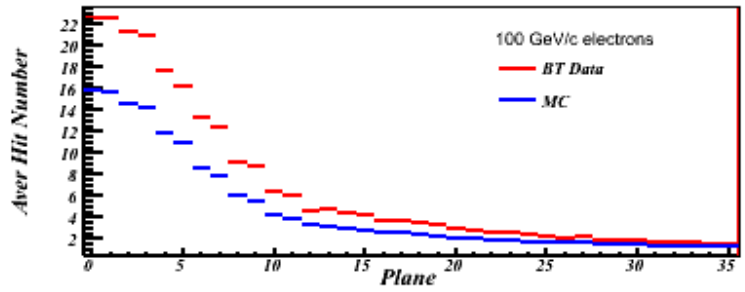


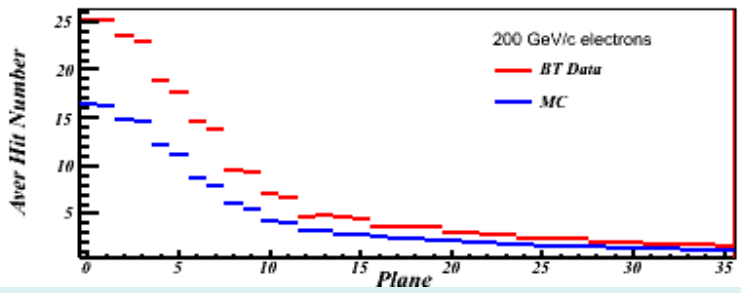


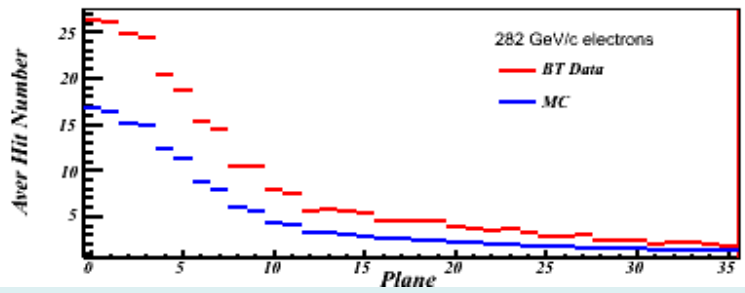




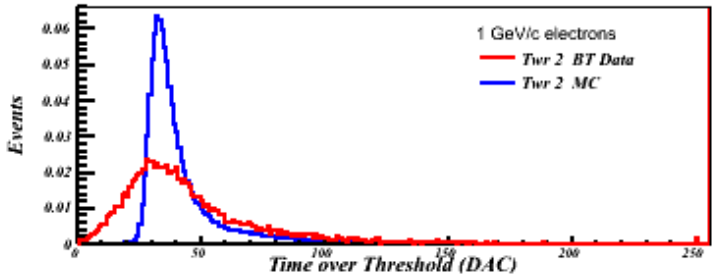


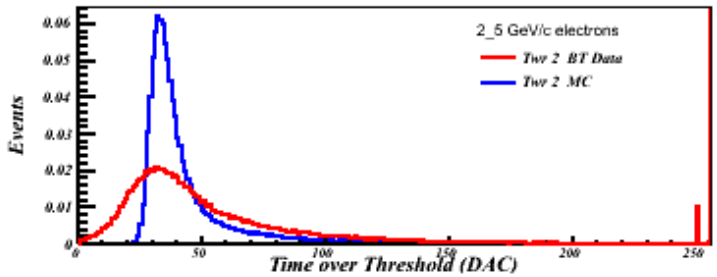


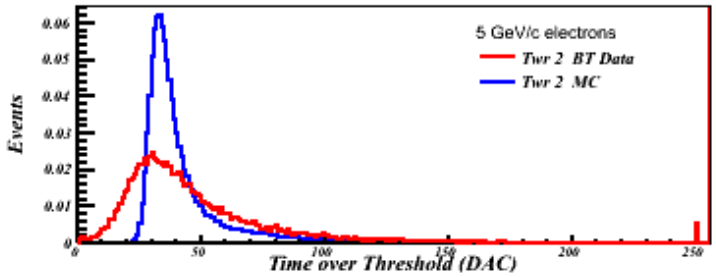


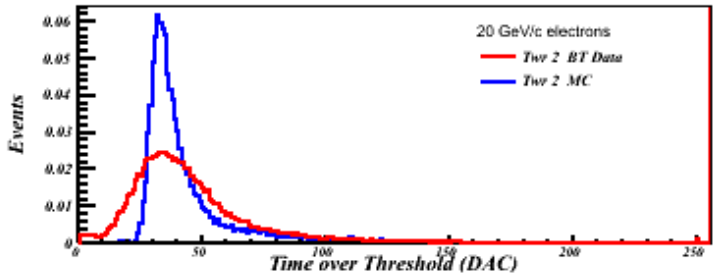


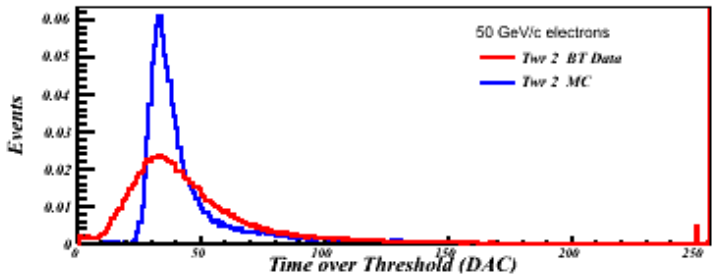
ToT Distributions for the first hit layer:
BT Data – MC comparison (0 degree electrons)

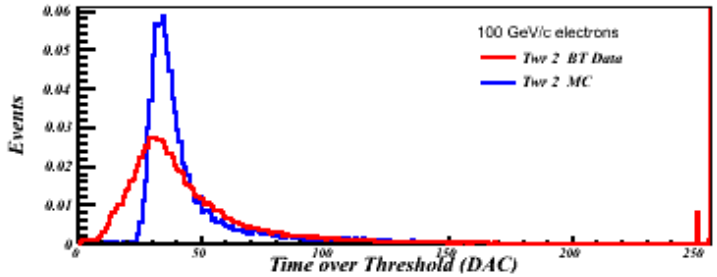


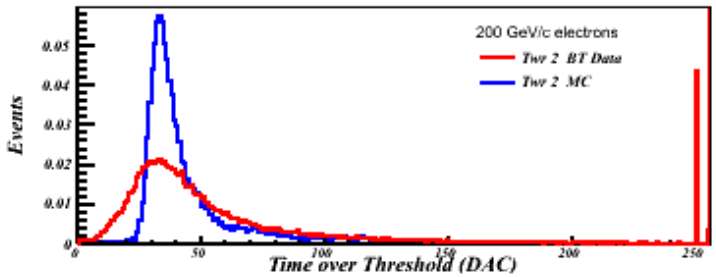


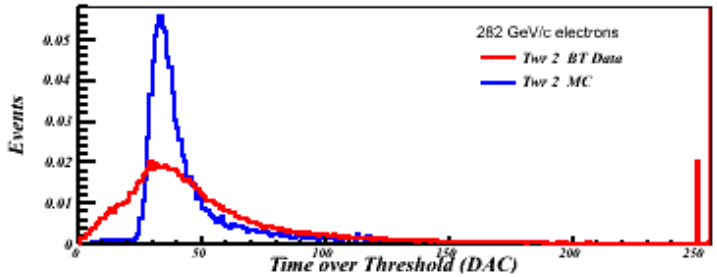




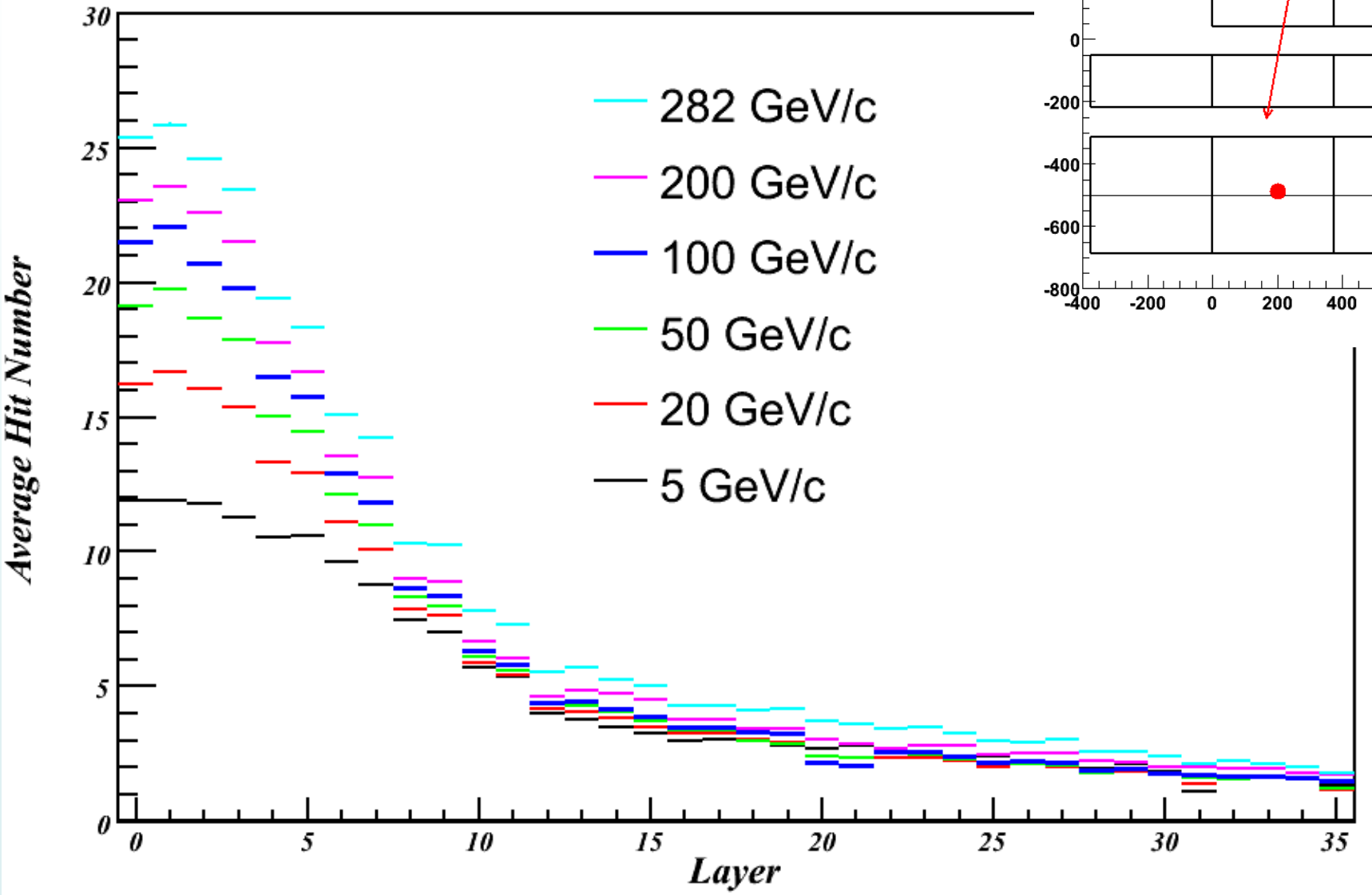


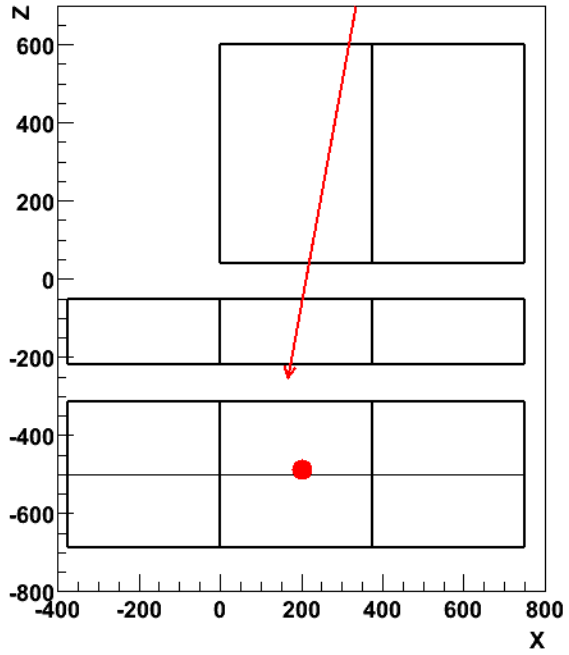




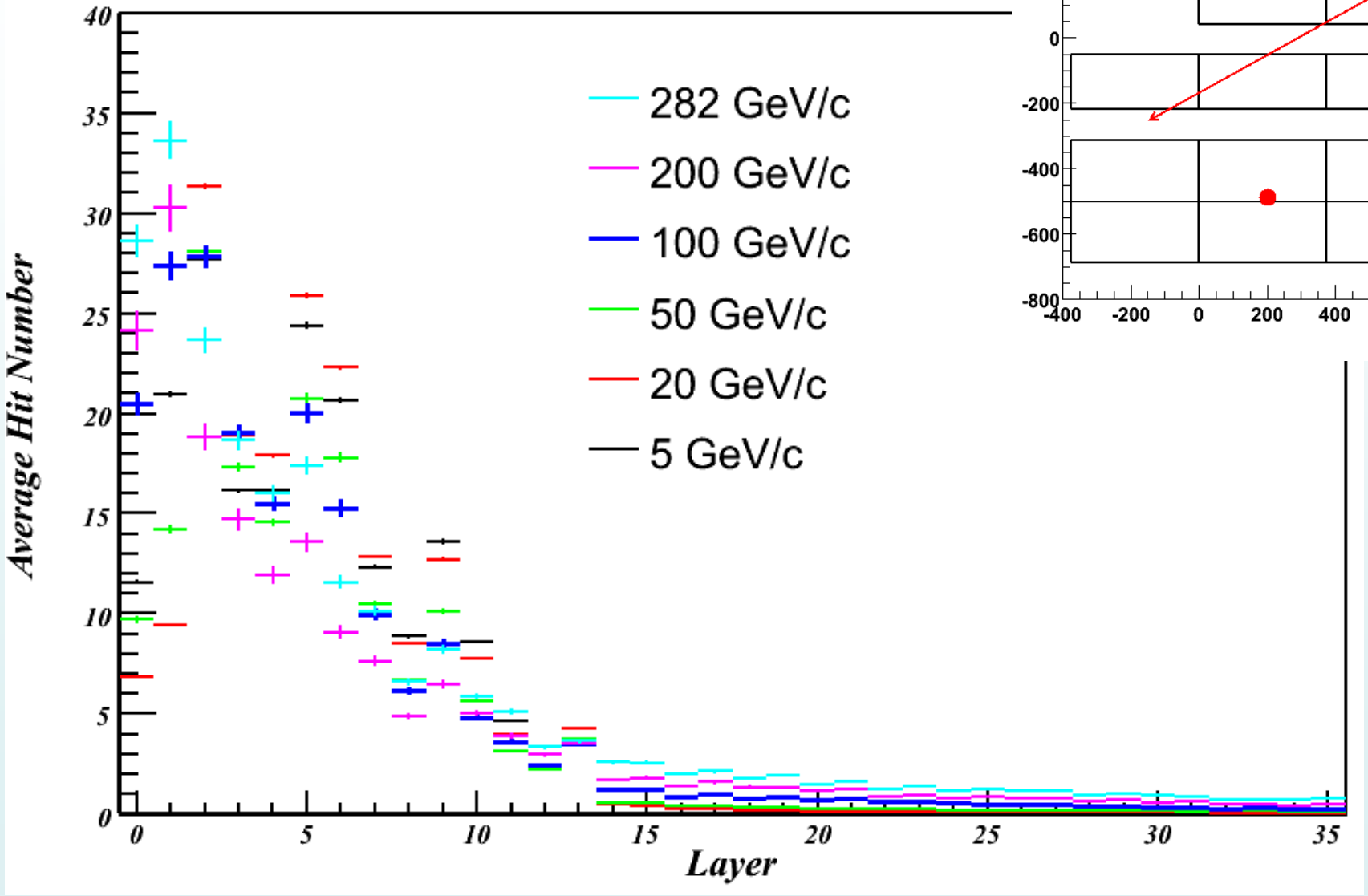


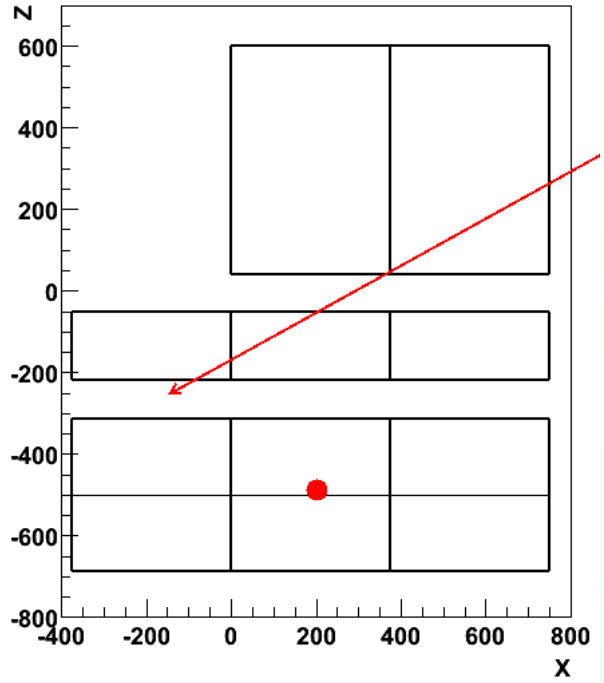
Hit Multiplicity layer by layer for 10 degrees electron runs @ different momenta





Hit Multiplicity layer by layer for 60 degrees electron runs @ different momenta





Conclusions:

- **We analyzed electron runs at different angles and momenta:**
  - **Hit multiplicity profiles are consistent with the development of electromagnetic showers at all angles;**
  - **As expected, the average hit number increases with increasing momentum;**

- **We compared experimental data with MC simulations for 0 degrees electrons:**
  - **The average hit multiplicity from MC is lower than the measured one at all momenta;**
  - **The ToT distributions from MC simulations have a different shape in comparison with experimental ones.**