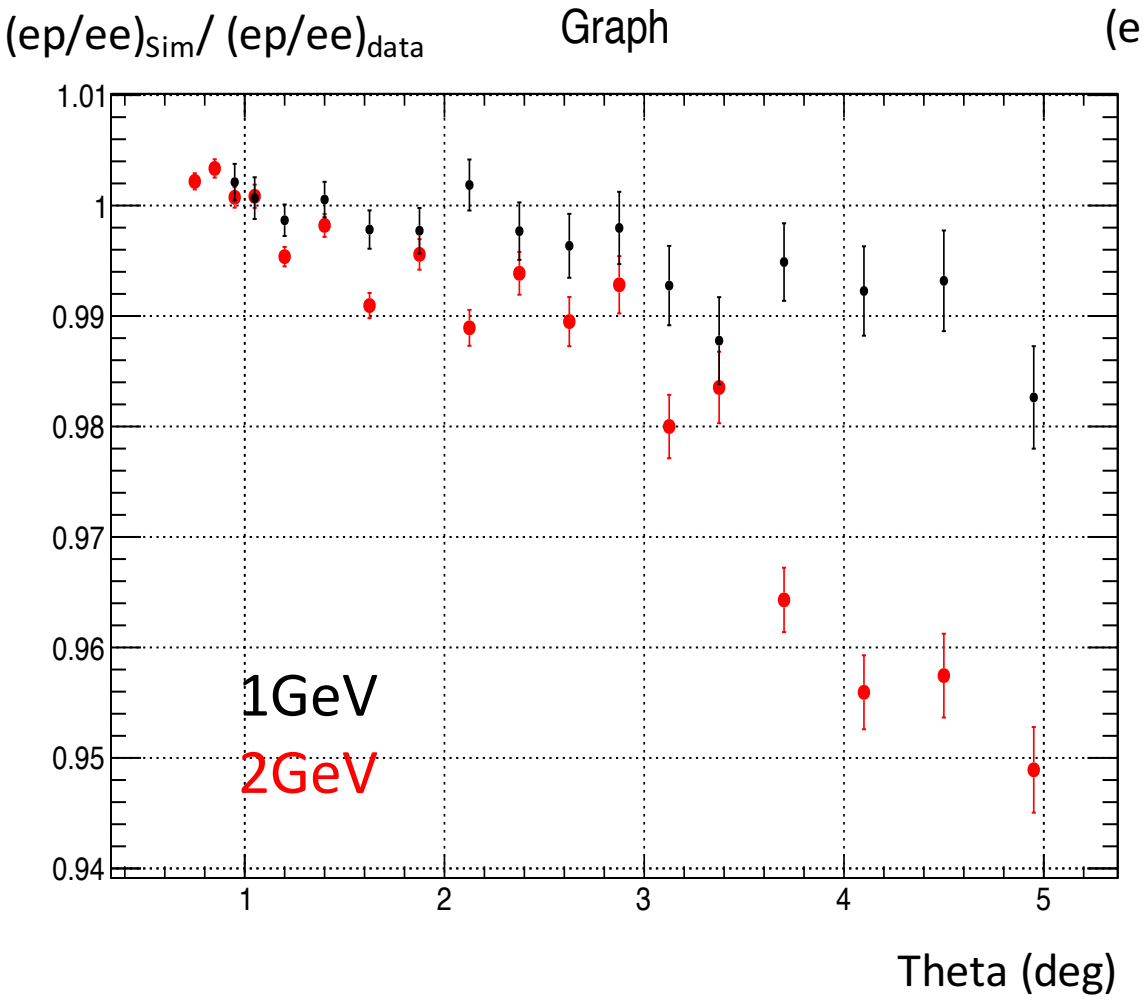
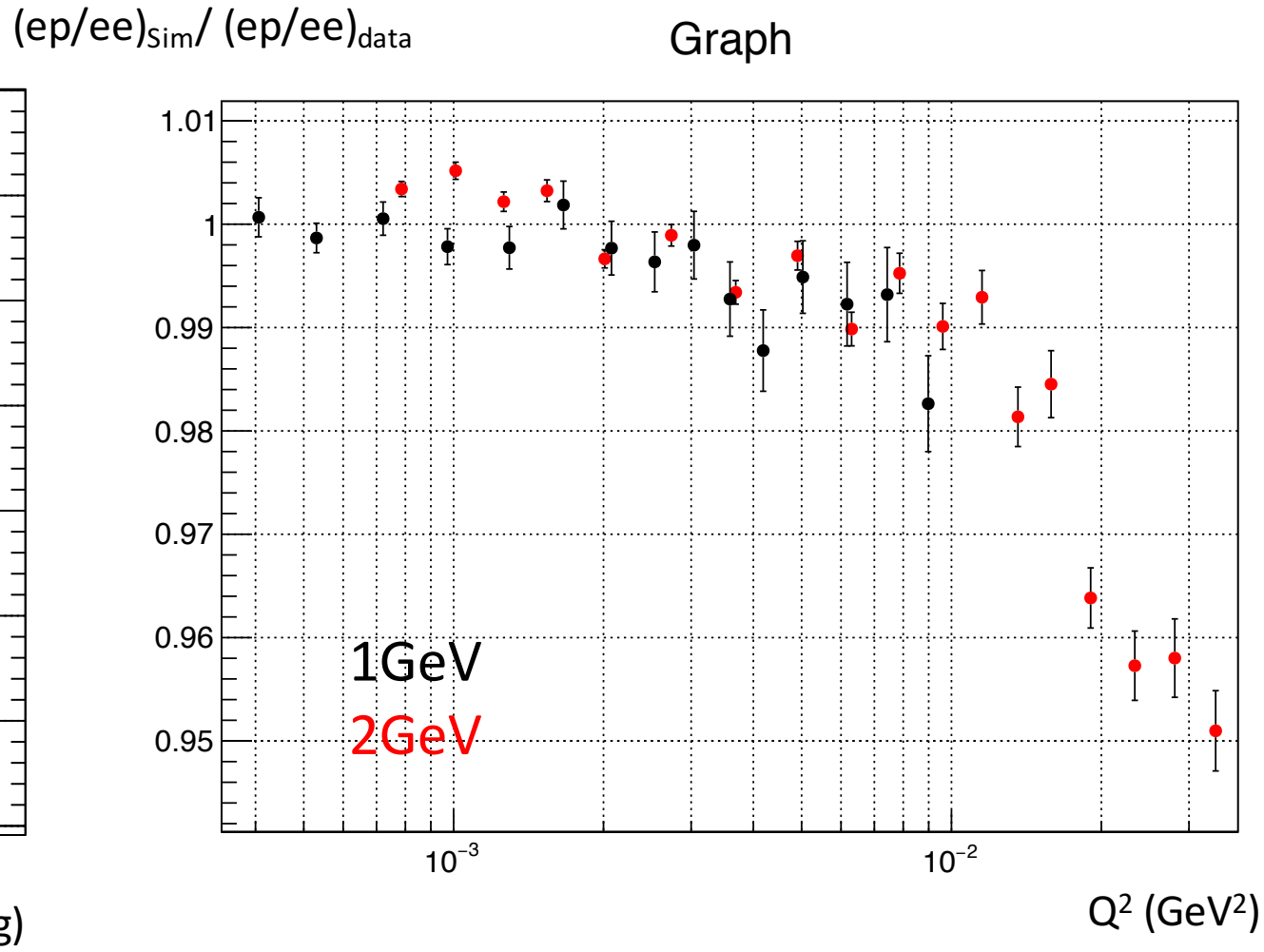
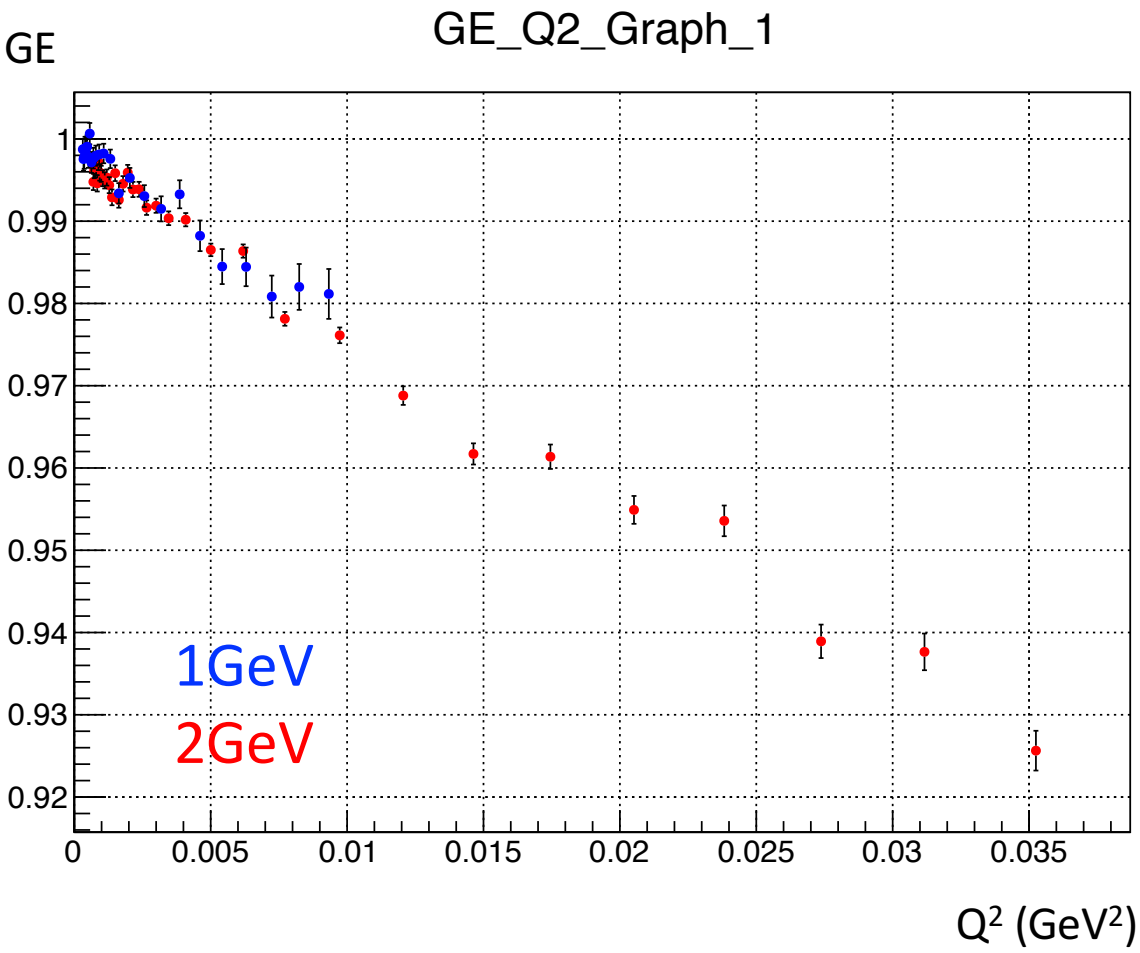
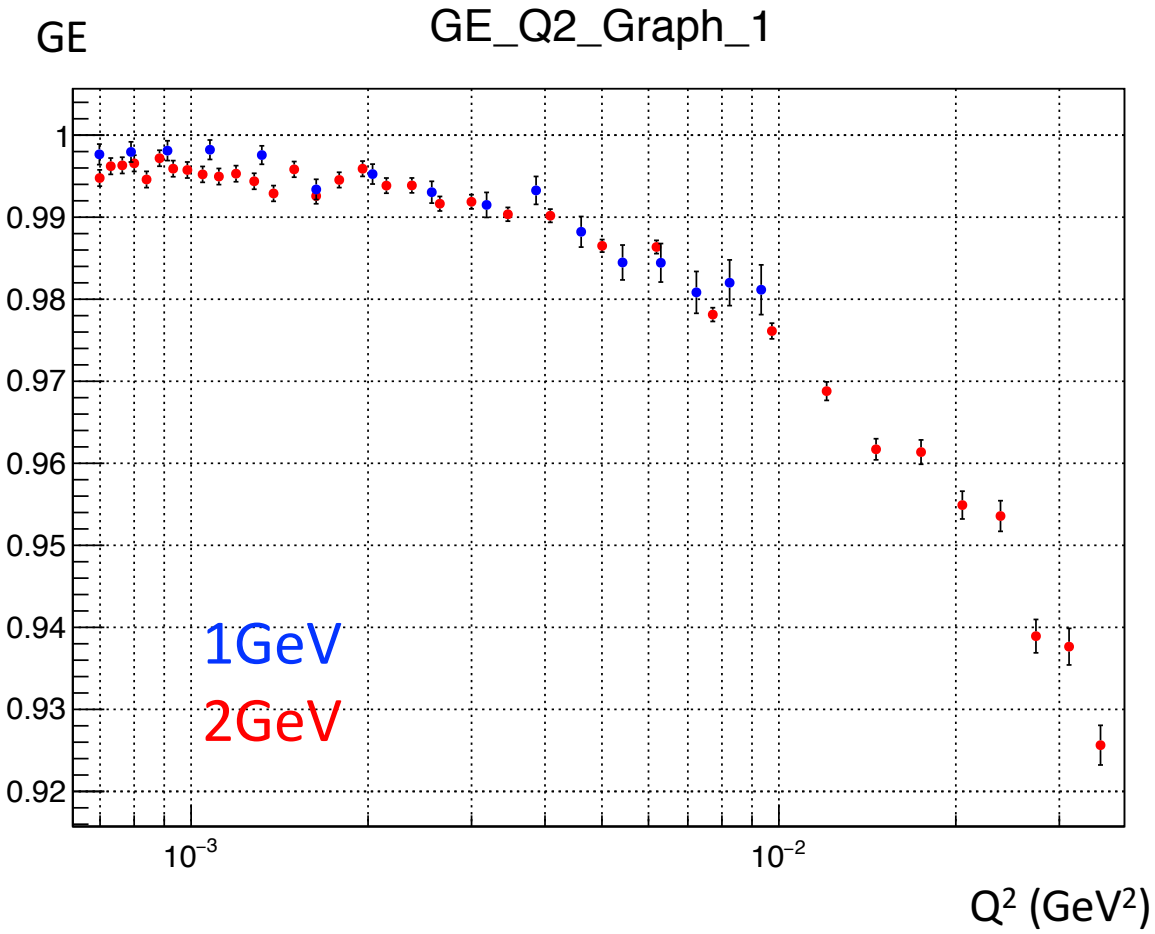
ep/ee super ratio



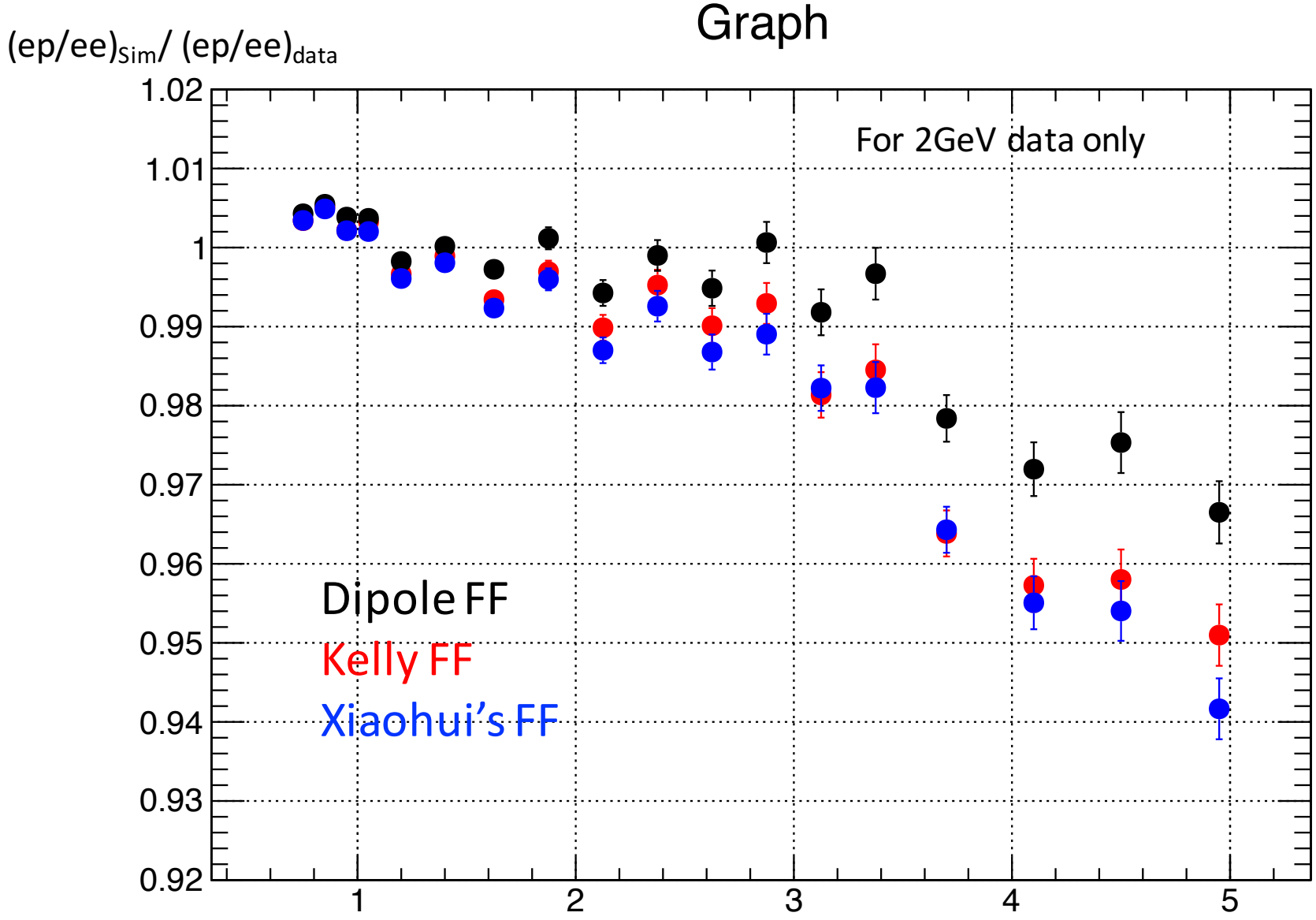


Electric form factor

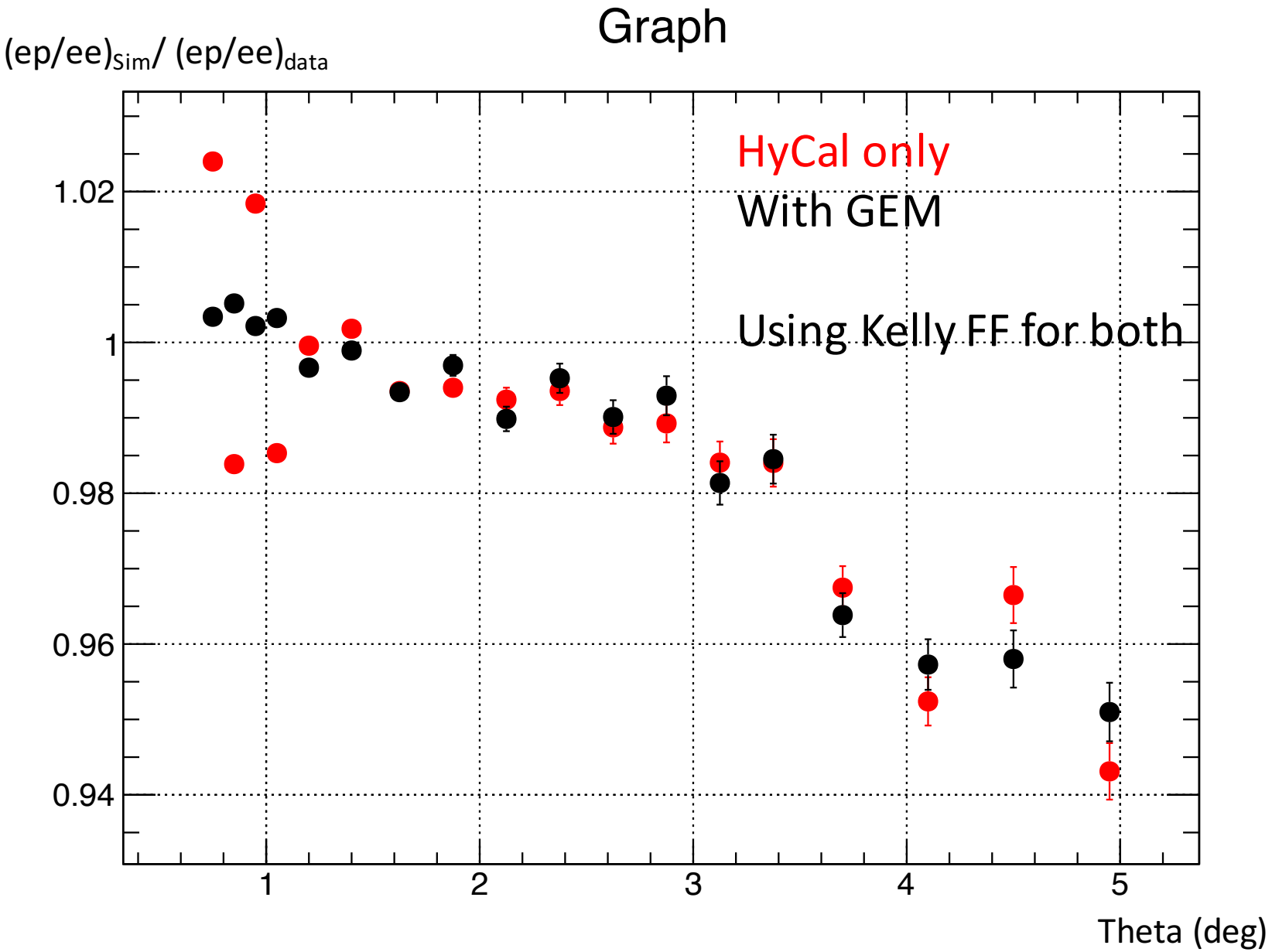




ep/ee super ratio vs diffent FFs



ep/ee super ratio



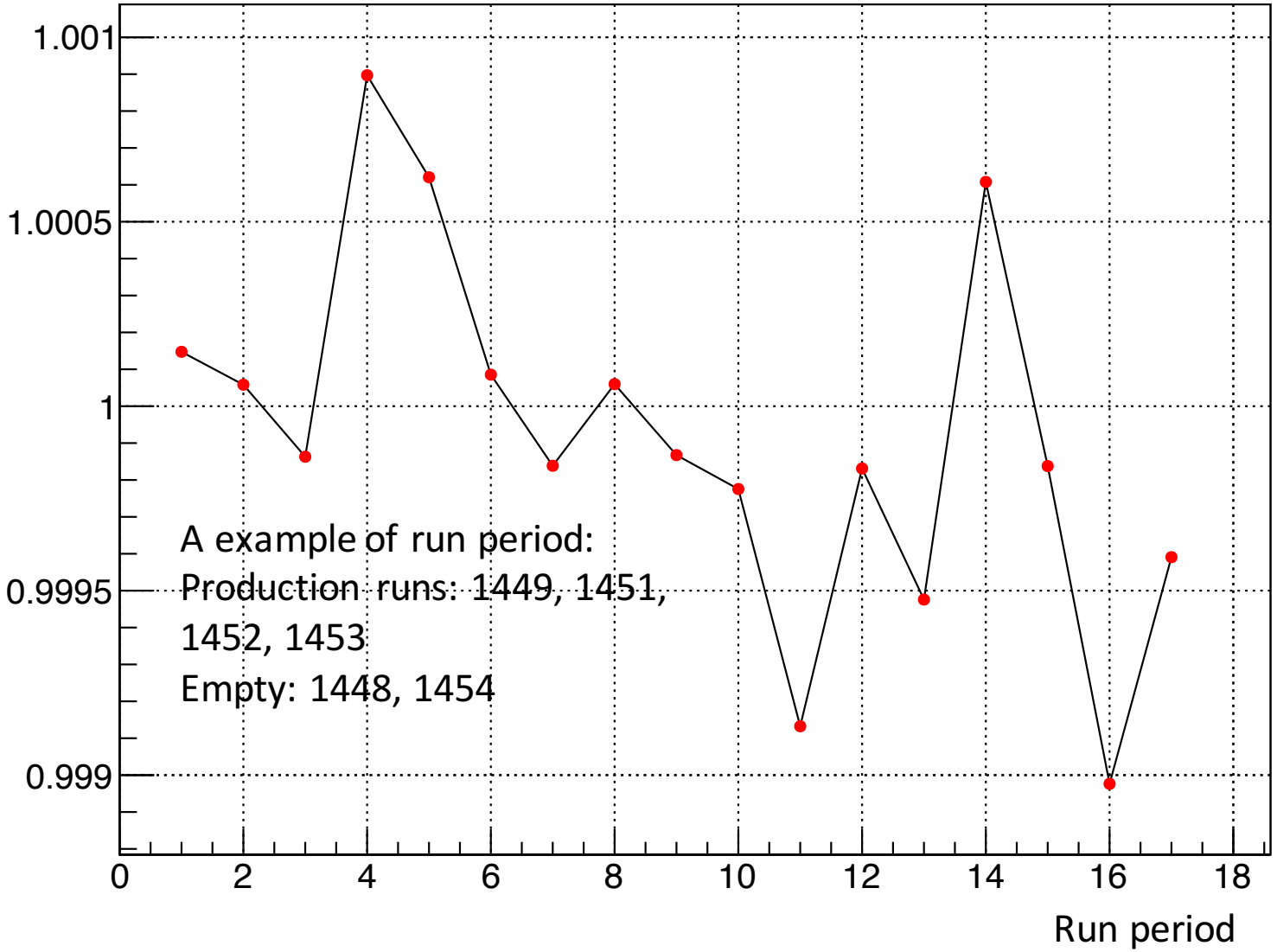
- To subtract background from beamline, we should use the live charge ratio between the production runs and empty target runs

- To subtract cosmic background, we should use the live time ratio between the production runs and empty target runs

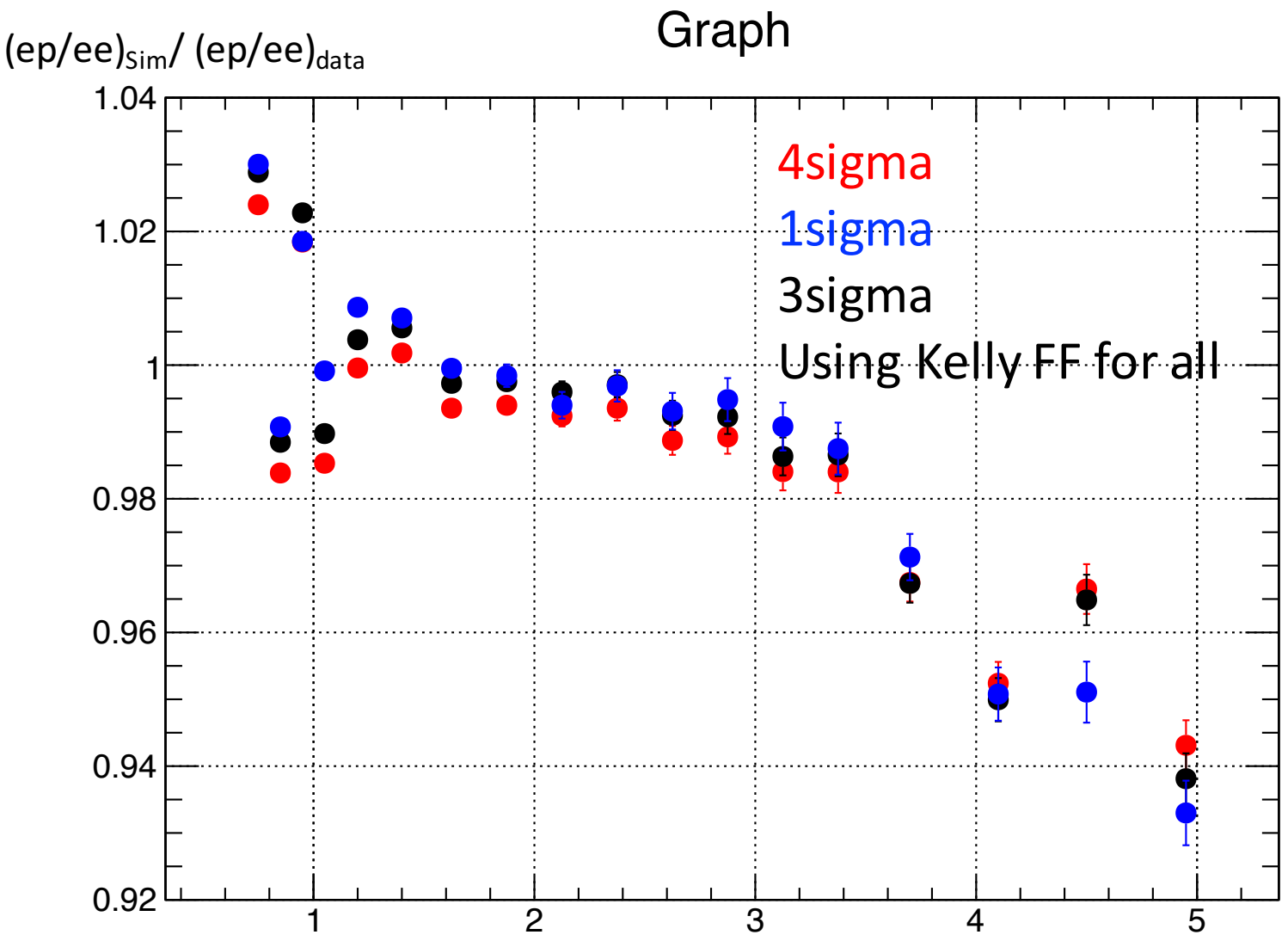
- If this two ratios are about the same, we can subtract the cosmic contribution by just using the live charge ratio

Live charge ratio to live time ratio

(live charge pro/live charge empty) / (live time pro / live time empty)



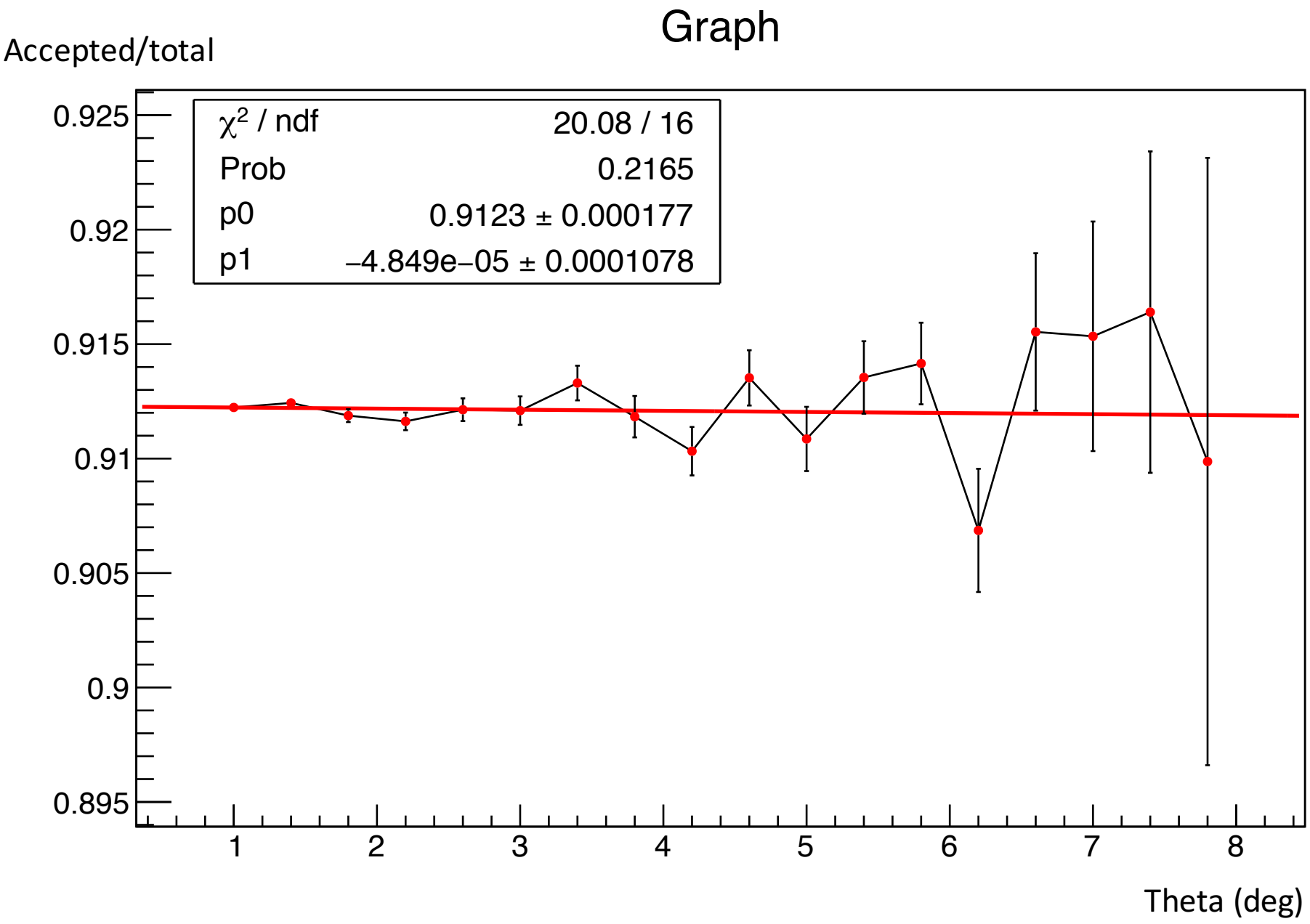
ep/ee super ratio vs different E cuts

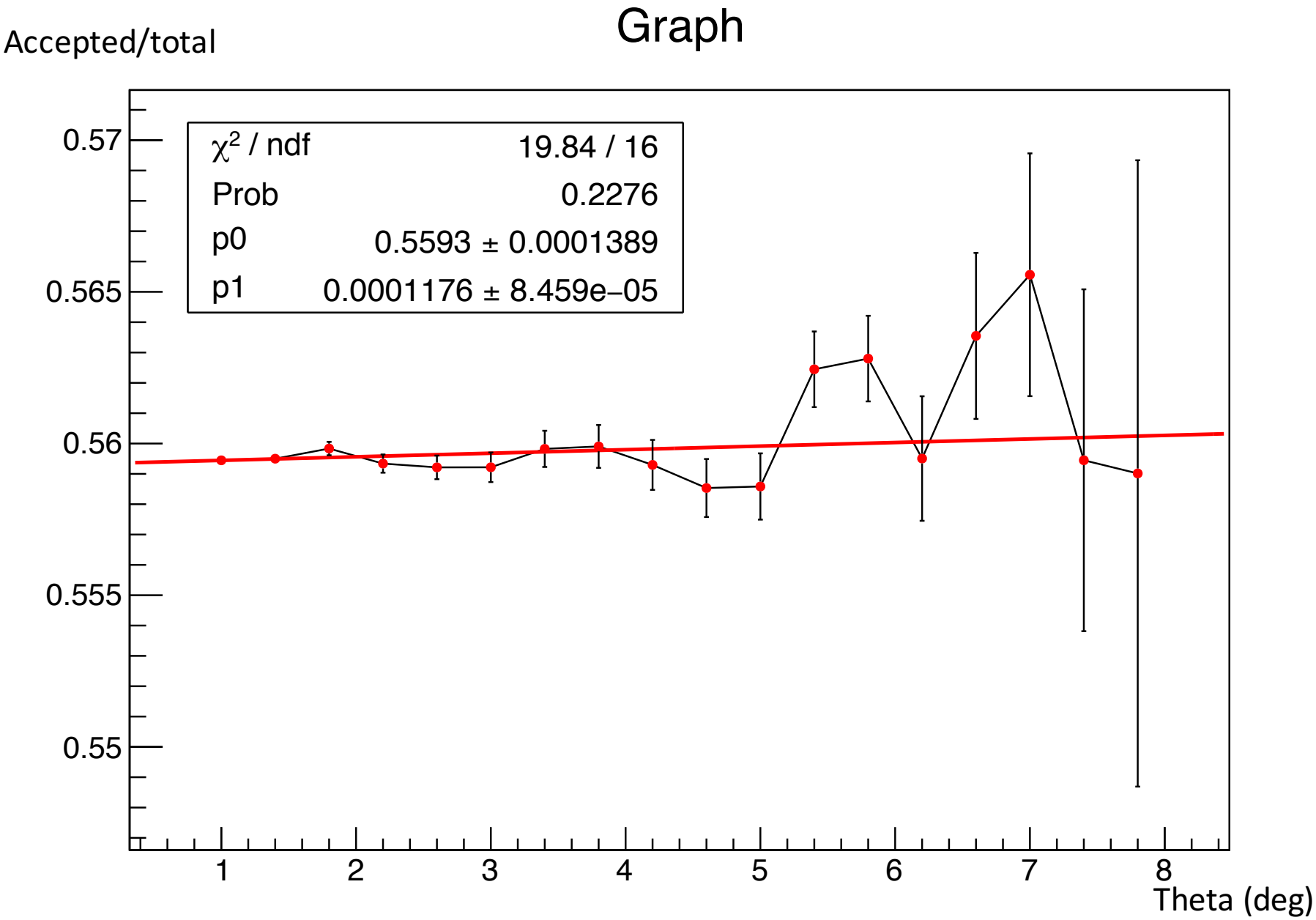


Dead time test

- Q: whether dead time is going to introduce a angular dependency to the yields

- Procedures:
  - Using ep simulation files
  - Distribute all events based on a flat distribution in a time window T (size of T can be determined based on total luminosity, beam current, target thickness…)
  - Sort all events in increasing time order
  - Starting from the first sorted event, a dead time window t is opened. If the following events are inside t, they are rejected, otherwise the event is accepted and a new dead time window is open
  - Compared to ratios of accepted events over total events to see whether there are angular dependencies


Graph
Accepted/total
χ² / ndf 20.08 / 16
Prob 0.2165
p0 0.9123 ± 0.000177
p1 −4.849e−05 ± 0.0001078
0.925
0.92
0.915
0.91
0.905
0.9
0.895
1
2
3
4
5
6
7
8
Theta (deg)


Graph
Accepted/total
χ² / ndf 19.84 / 16
Prob 0.2276
p0 0.5593 ± 0.0001389
p1 0.0001176 ± 8.459e−05
0.57
0.565
0.56
0.555
0.55
1
2
3
4
5
6
7
8
Theta (deg)