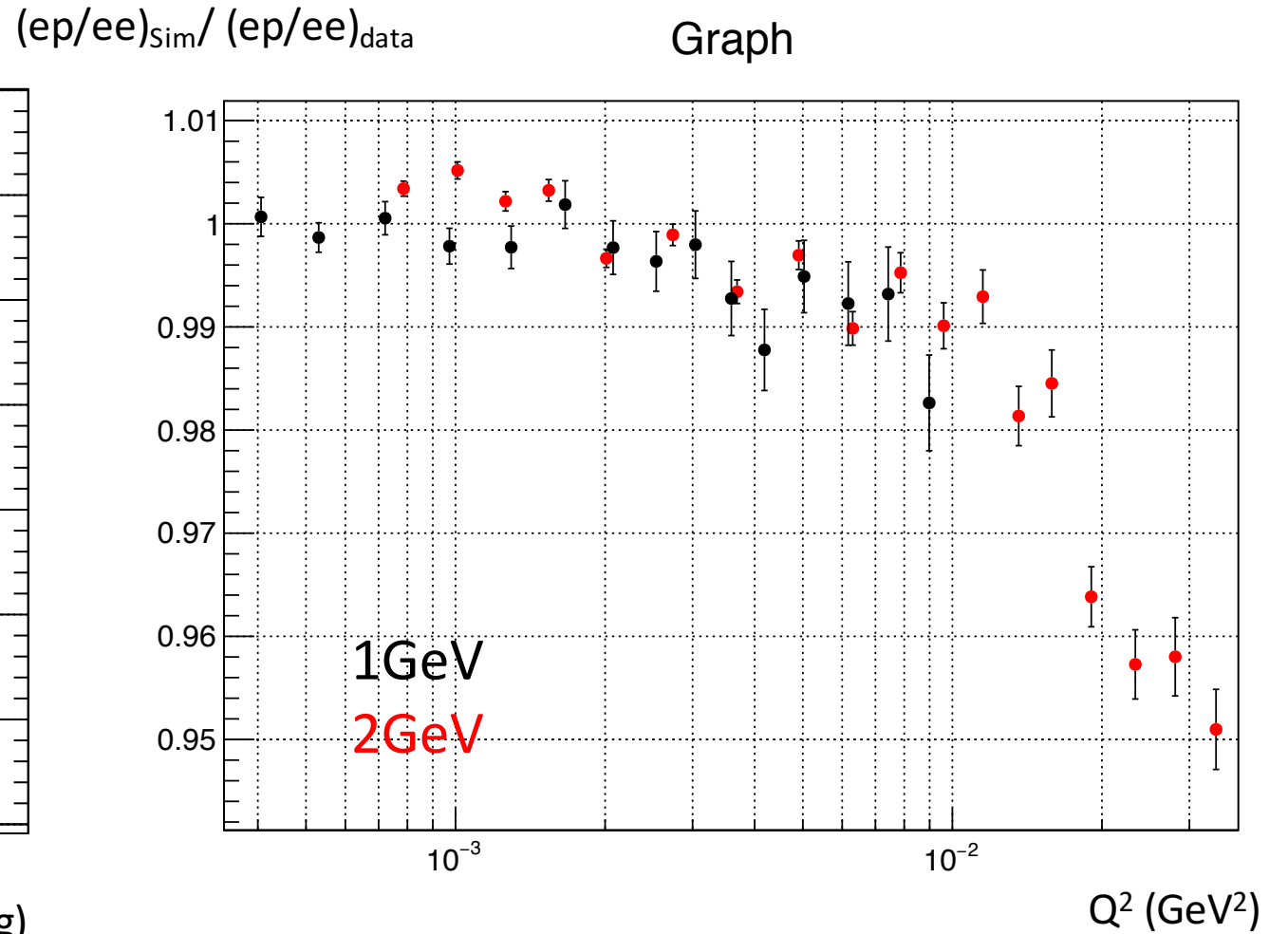
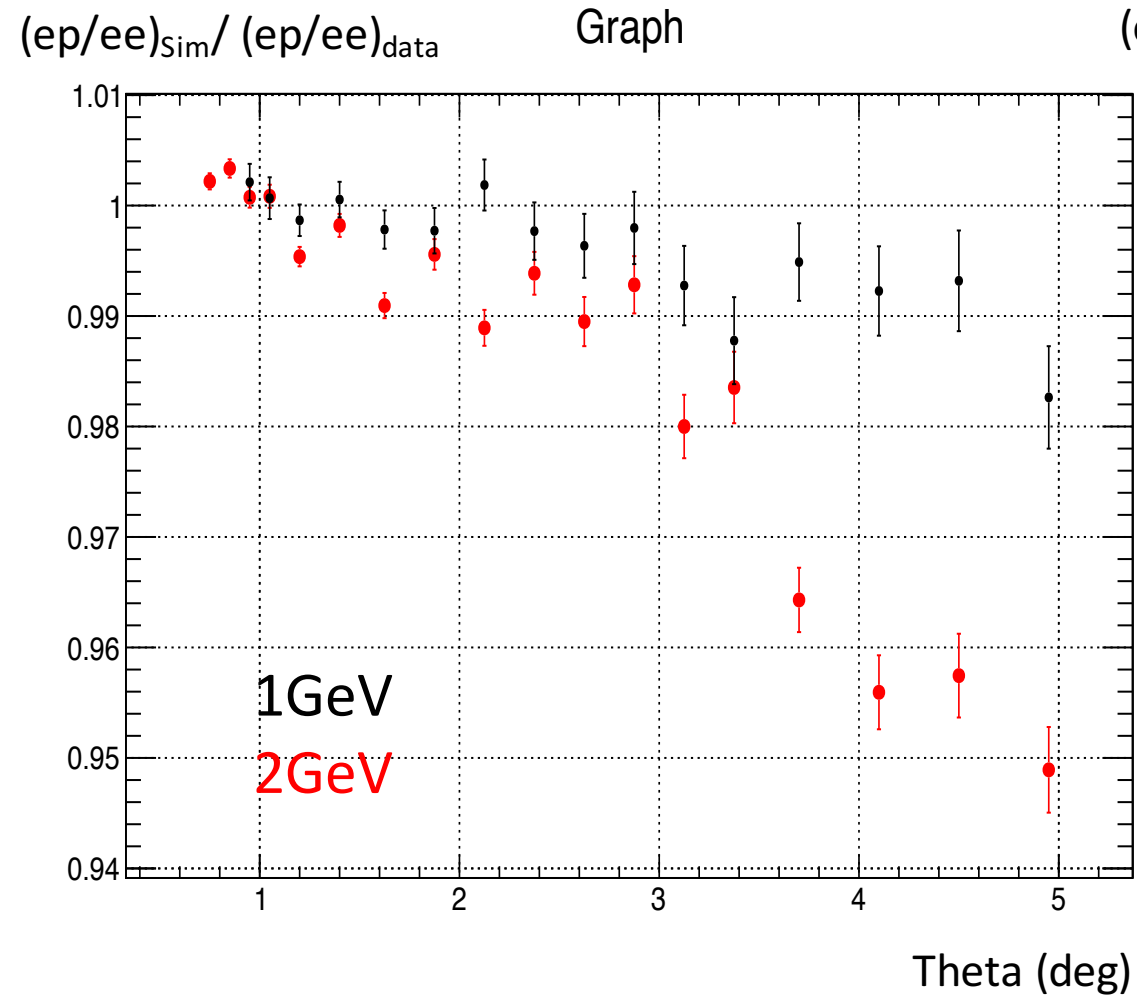


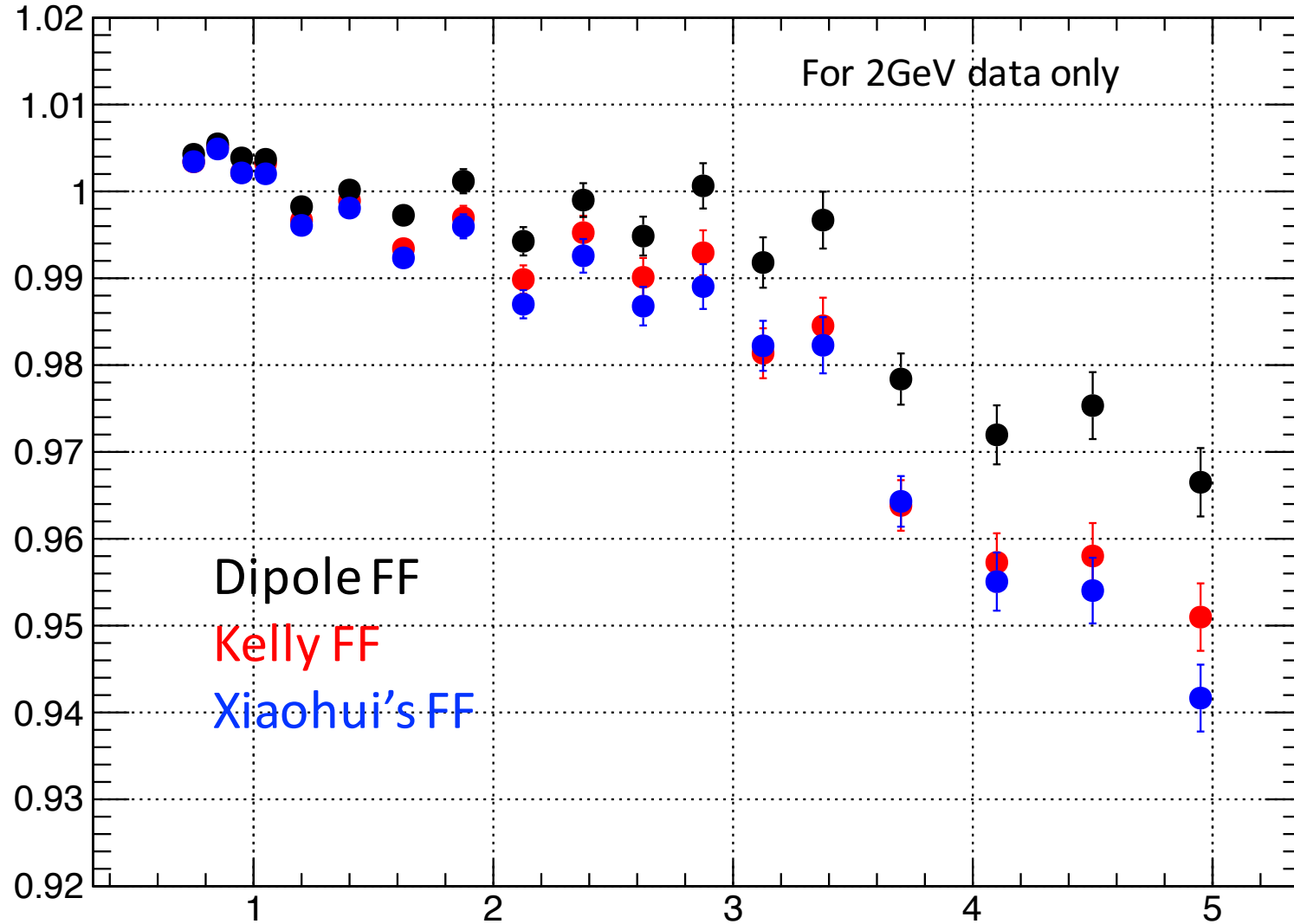
# ep/ee super ratio



# ep/ee super ratio vs diffent FFs

Graph

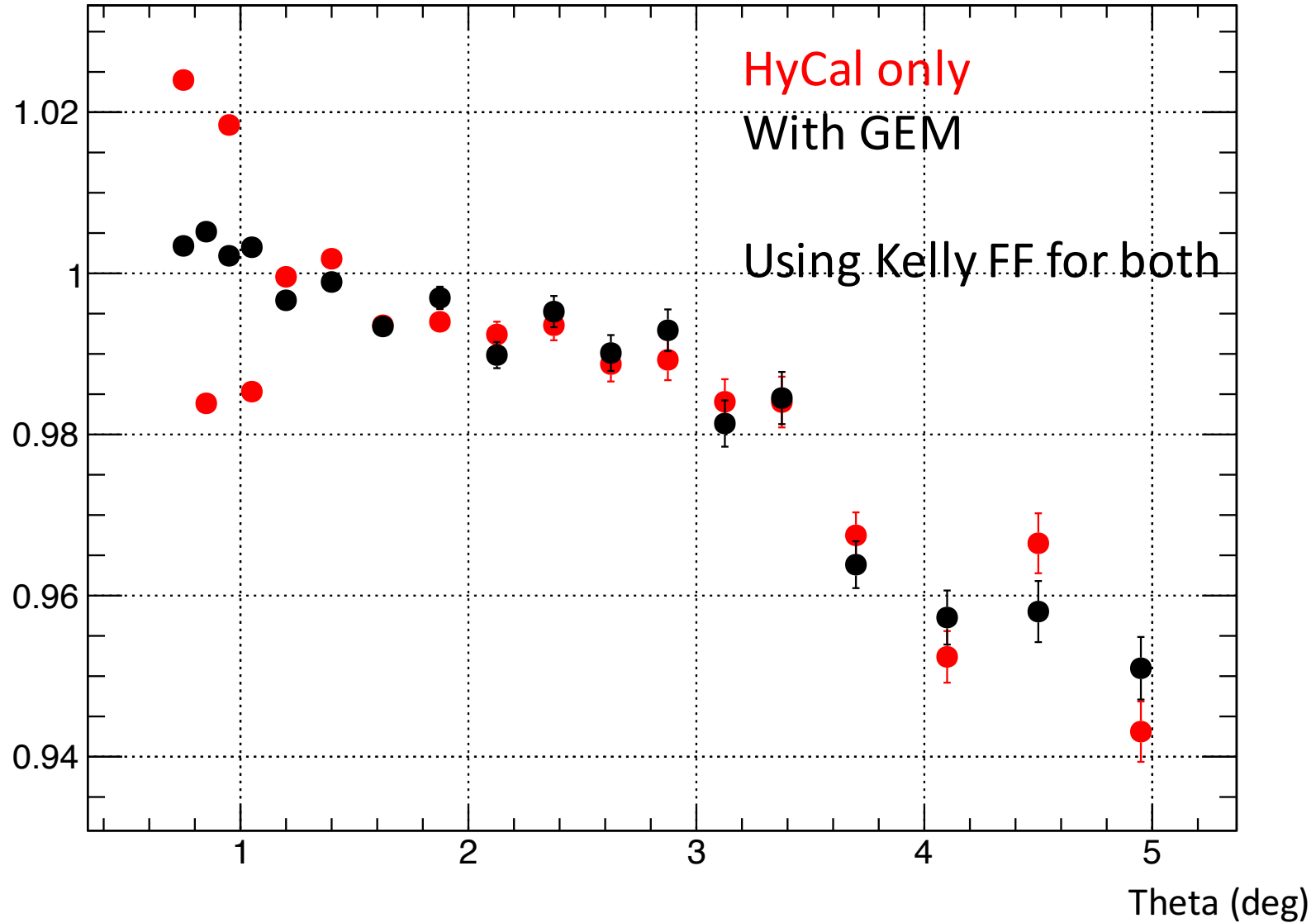
$(ep/ee)_{sim} / (ep/ee)_{data}$



# ep/ee super ratio

Graph

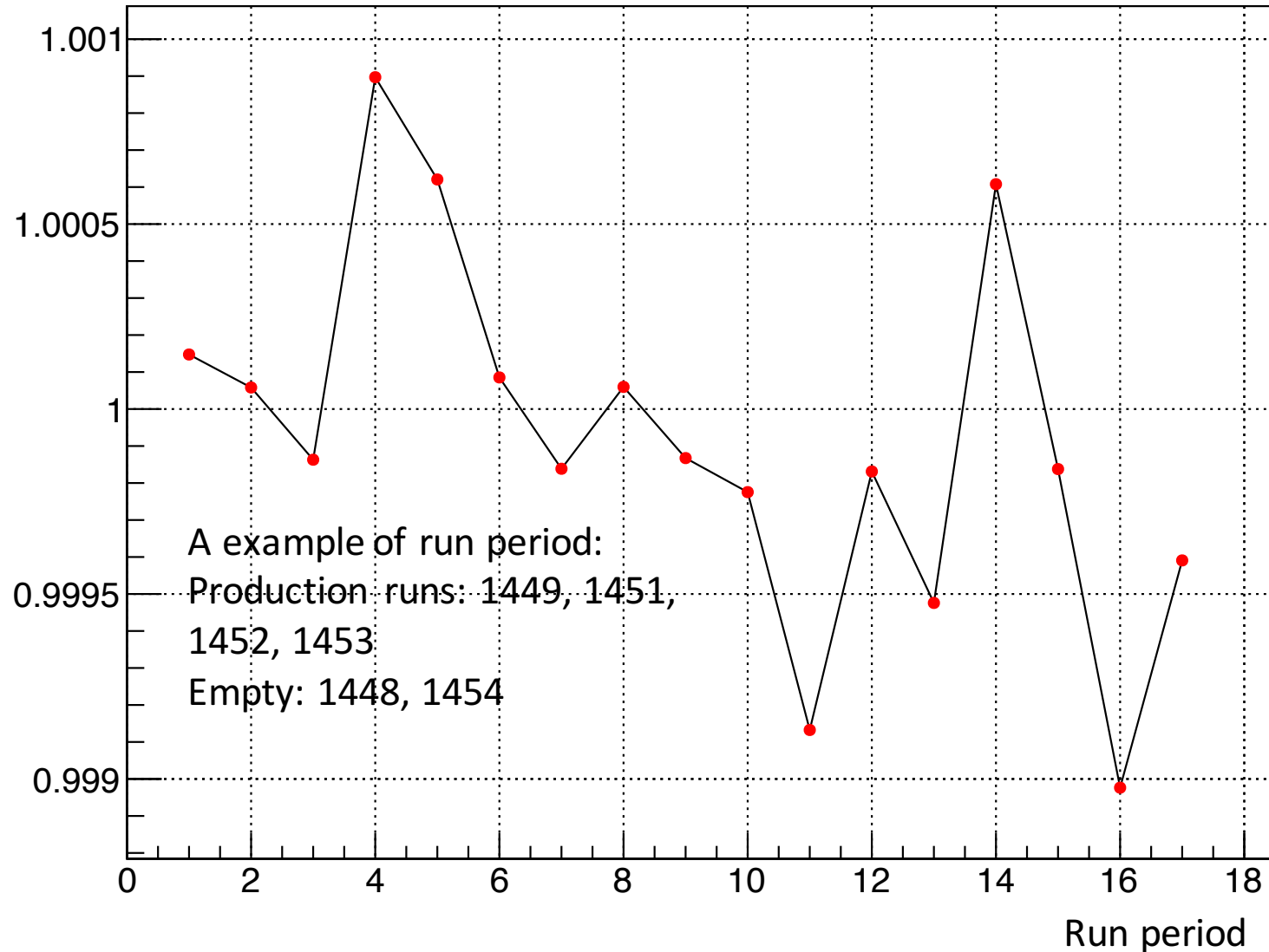
$(ep/ee)_{sim} / (ep/ee)_{data}$



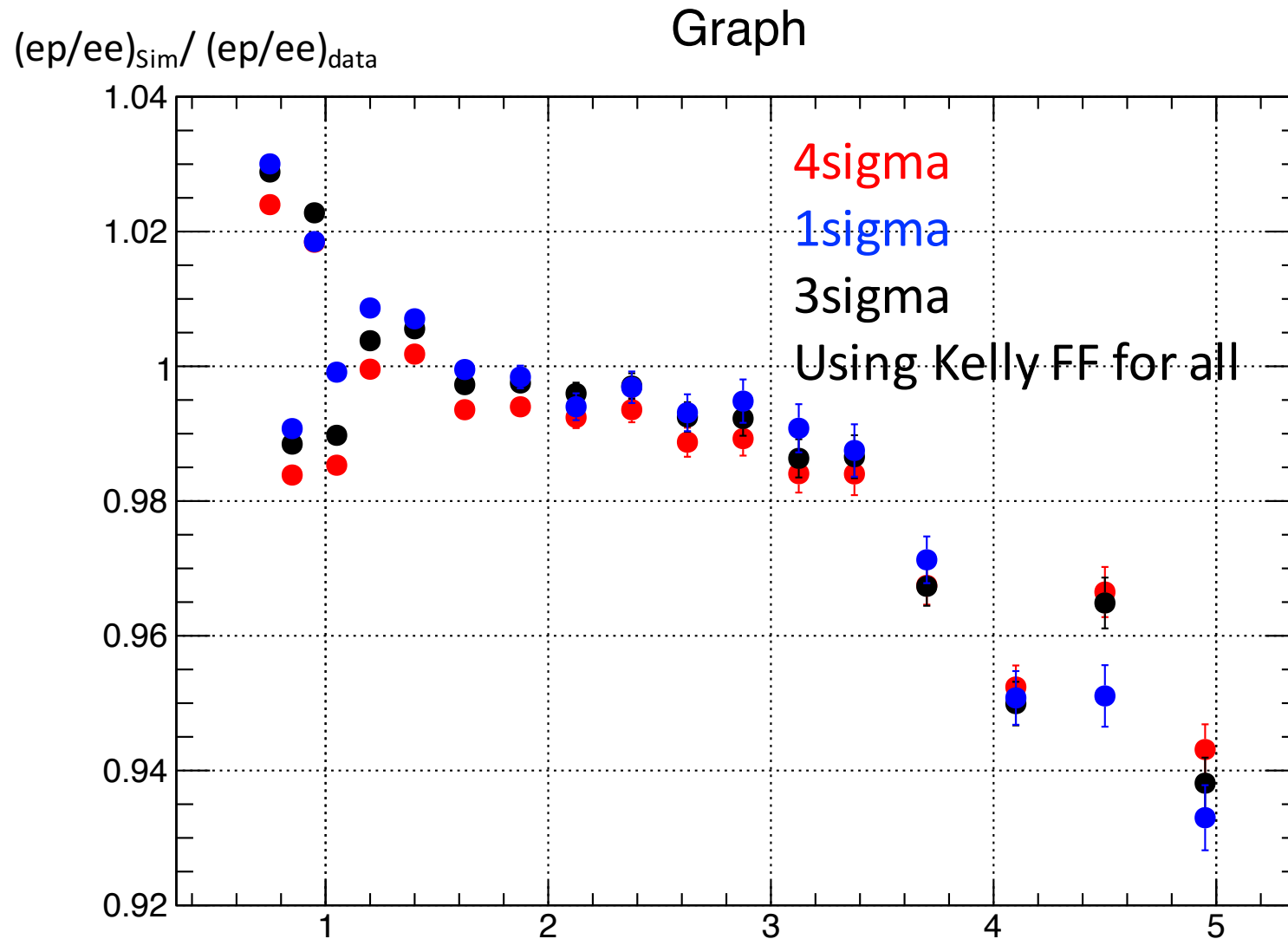
- To subtract background from beamline, we should use the live charge ratio between the production runs and empty target runs
- To subtract cosmic background, we should use the live time ratio between the production runs and empty target runs
- If these two ratios are about the same, we can subtract the cosmic contribution by just using the live charge ratio

# Live charge ratio to live time ratio

$(\text{live charge pro} / \text{live charge empty}) / (\text{live time pro} / \text{live time empty})$



# ep/ee super ratio vs different E cuts

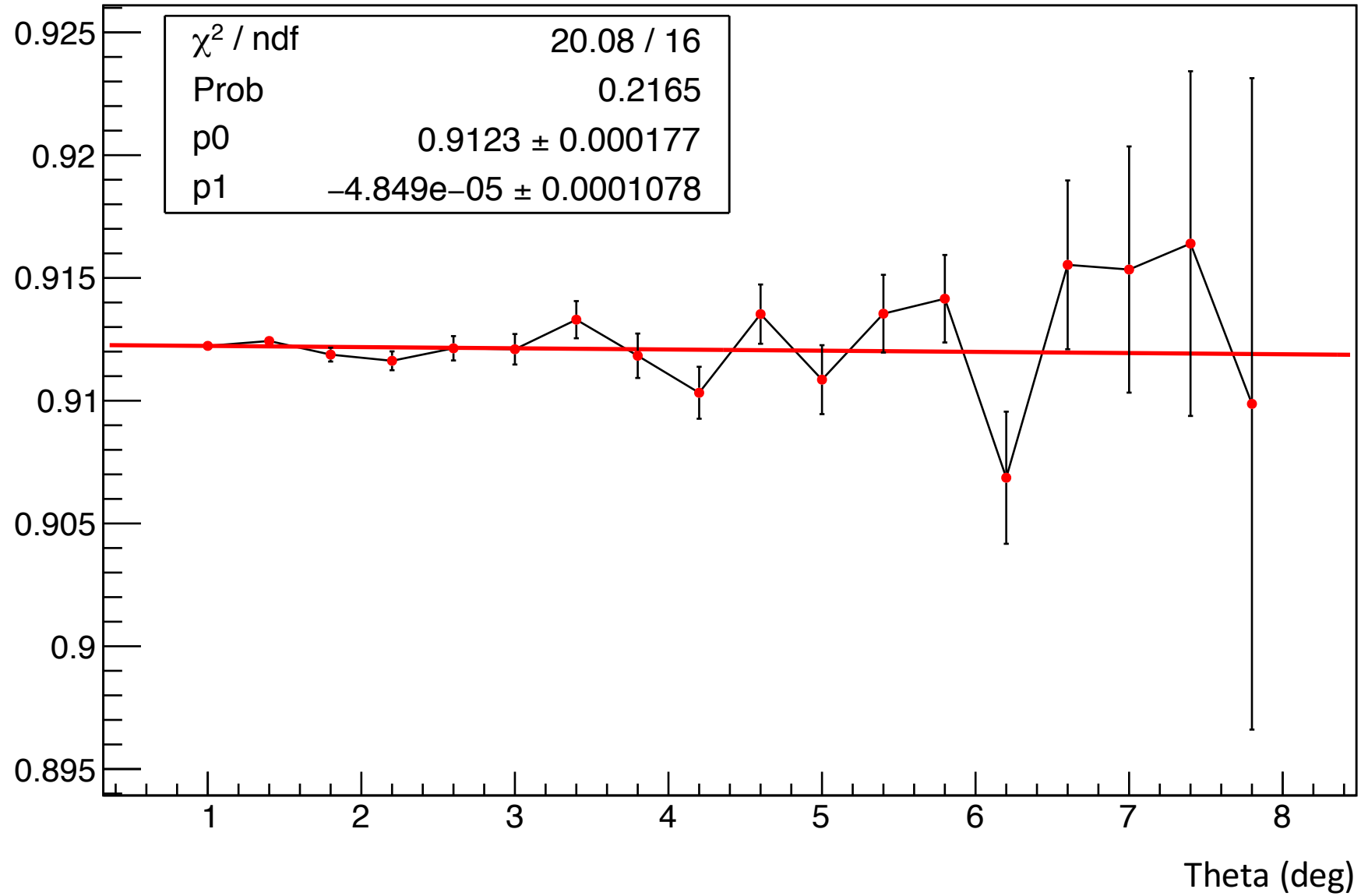


# Dead time test

- Q: whether dead time is going to introduce an 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





# Graph

Accepted/total

