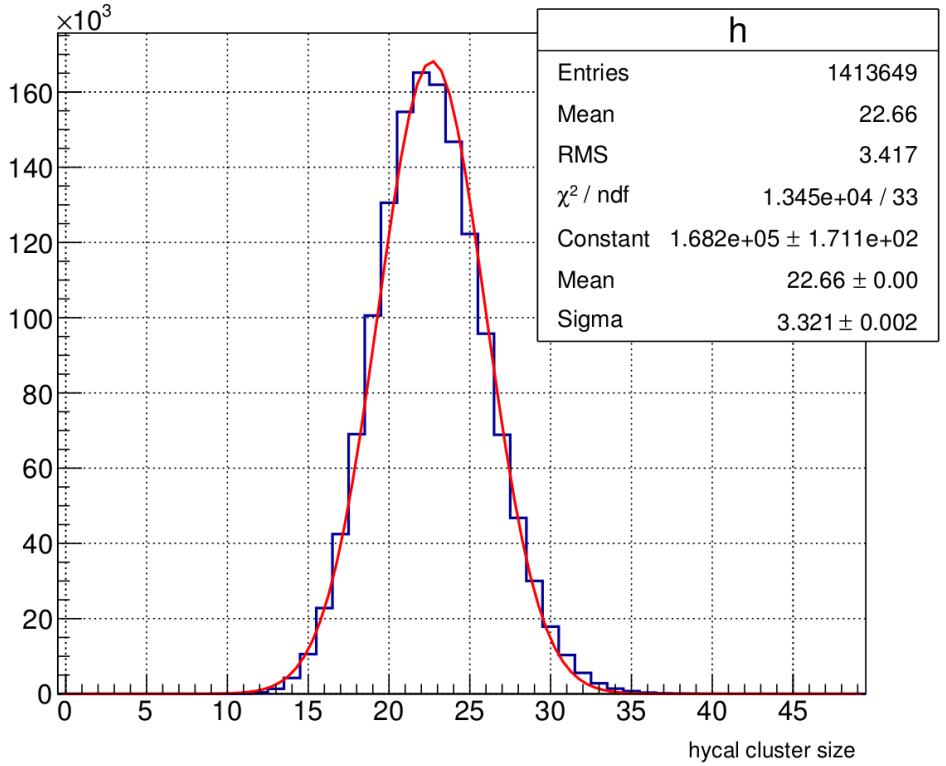
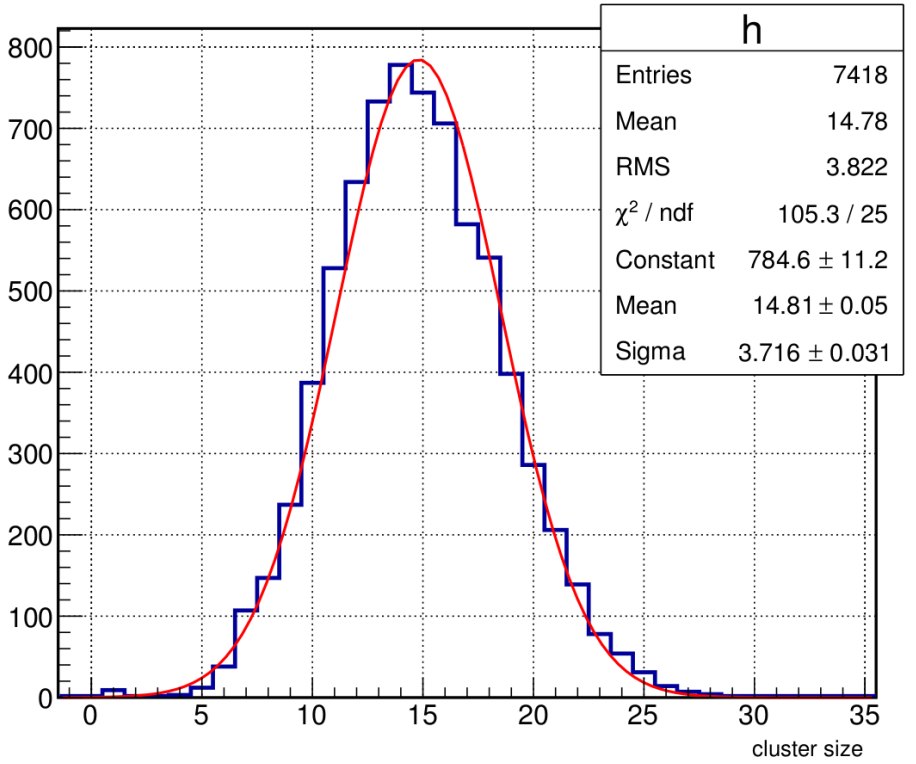
2GeV beam ep event HyCal cluster size (nblocks) distribution

pwo



lg

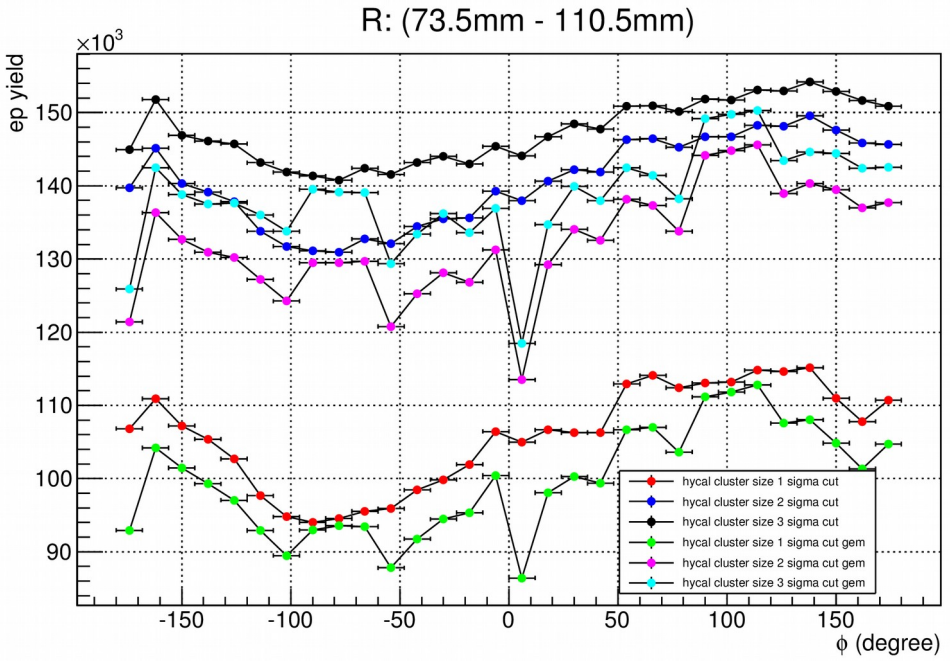


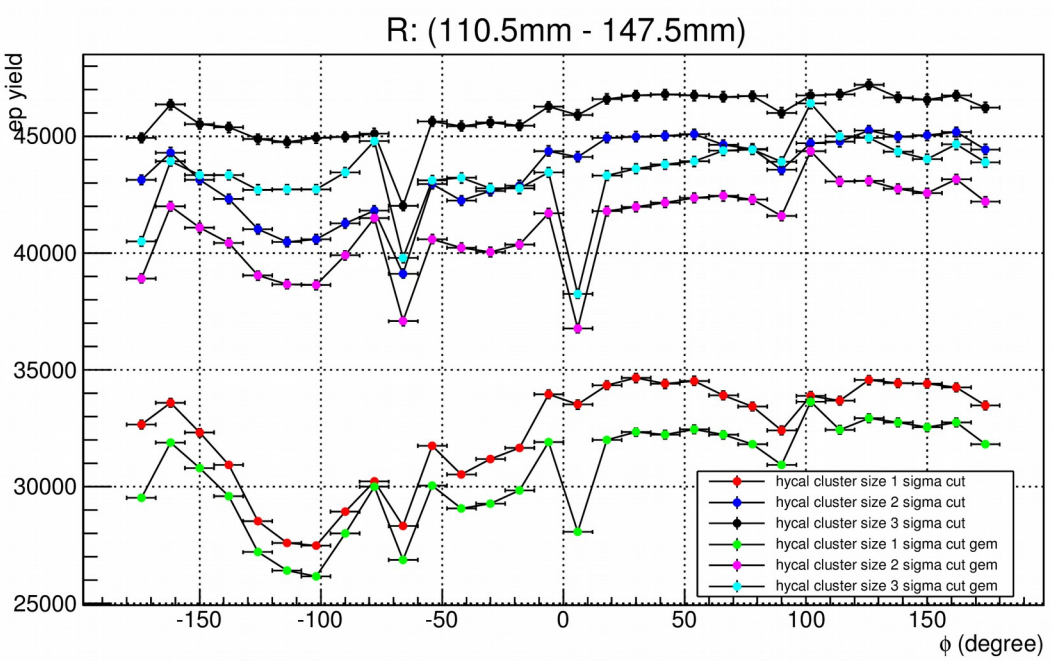
2GeV beam ep yield phi asymmetry vs HyCal cluster size cut

GEM dead area not removed
Empty run not subtracted

R: distance to beam center

12 2GeV runs





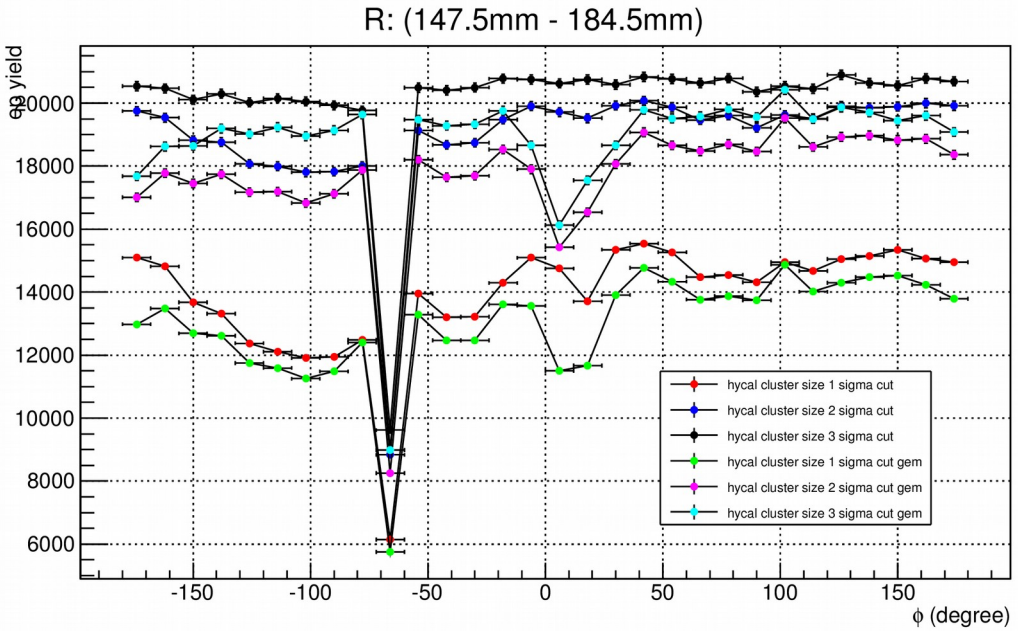
- HyCal cluster size 1 sigma cut: (pwo: 20-26; lg: 11-19; transition: 16-22)
- HyCal cluster size 2 sigma cut: (pwo: 17-29; lg: 7-23; transition: 13-25)
- HyCal cluster size 3 sigma cut: (pwo: 14-32; lg: 3-27; transition: 10-28)

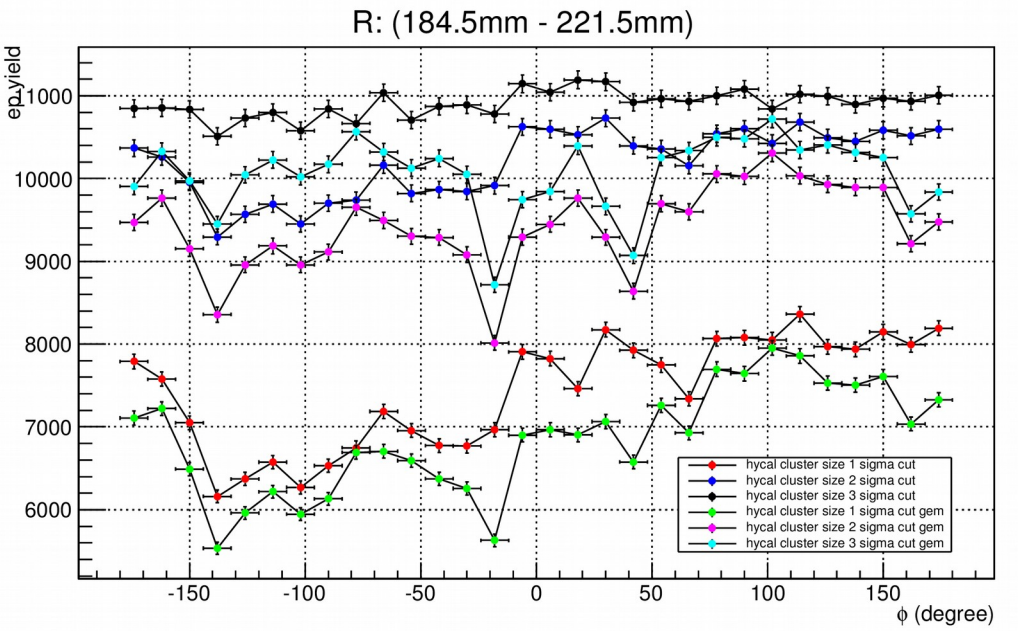
2GeV beam ep yield phi asymmetry vs HyCal cluster size cut

GEM dead area not removed
Empty run not subtracted

R: distance to beam center

12 2GeV runs





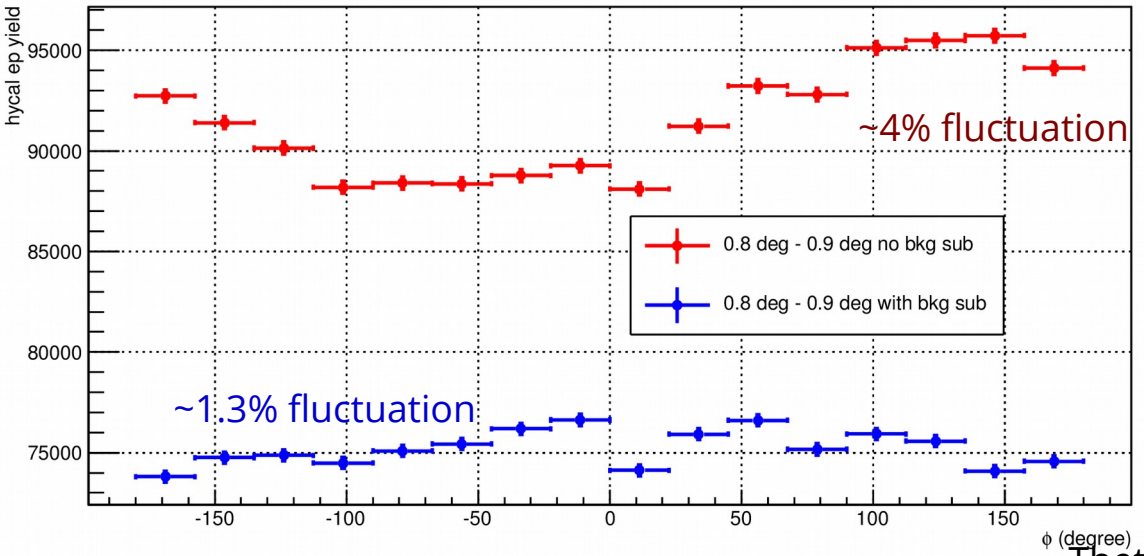
- HyCal cluster size 1 sigma cut: (pwo: 20-26; lg: 11-19; transition: 16-22)
- HyCal cluster size 2 sigma cut: (pwo: 17-29; lg: 7-23; transition: 13-25)
- HyCal cluster size 3 sigma cut: (pwo: 14-32; lg: 3-27; transition: 10-28)

2GeV beam ep yield phi asymmetry – background subtraction

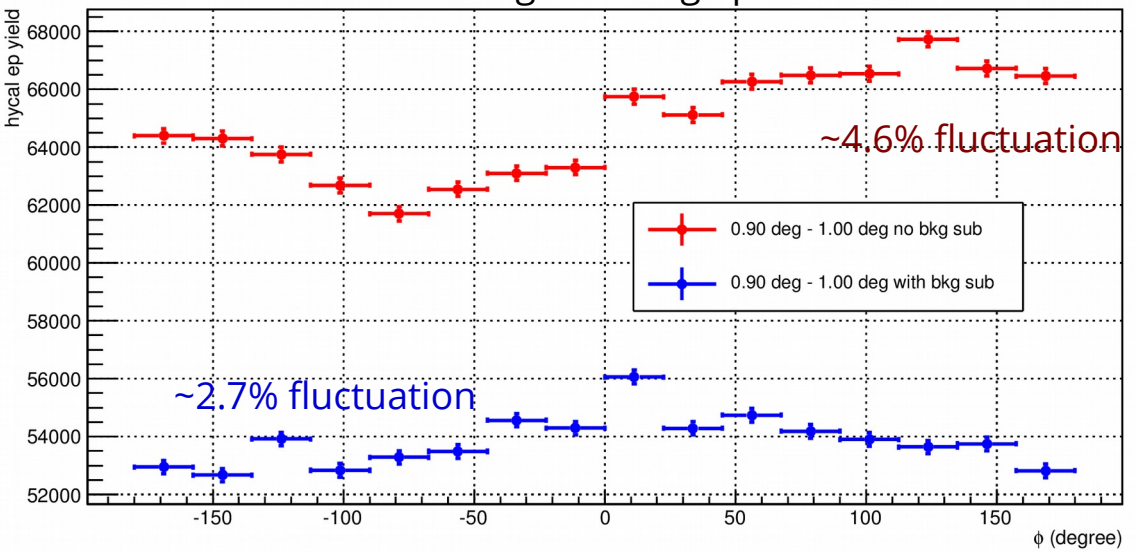
- HyCal cluster size 3 sigma cut

12 2GeV runs

Theta: 0.8deg – 0.9 deg ep events



Theta: 0.9deg – 1.0 deg ep events



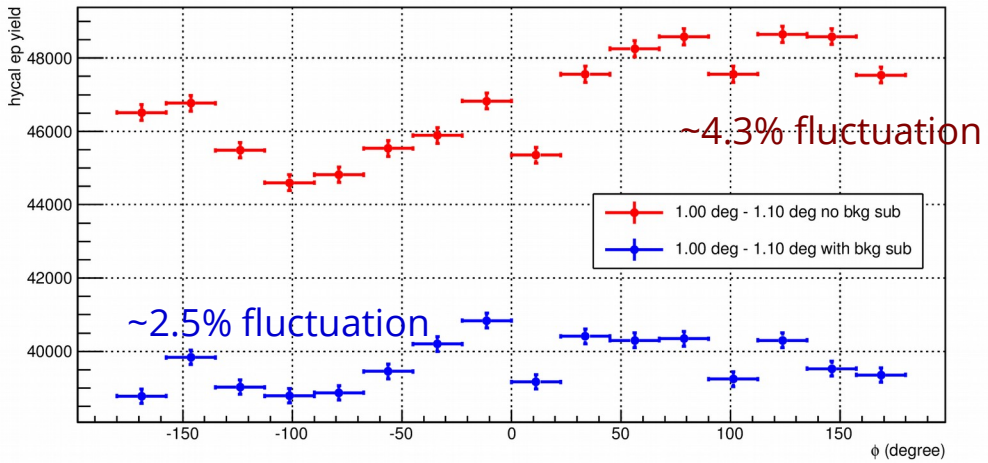
- Background level is different in different phi region
- Background sources: cosmic, bremstrulung photons (this should be symmetric to phi), etc…
- For GEM efficiency study, need good separation of Bkg and signal

2GeV beam ep yield phi asymmetry – background subtraction

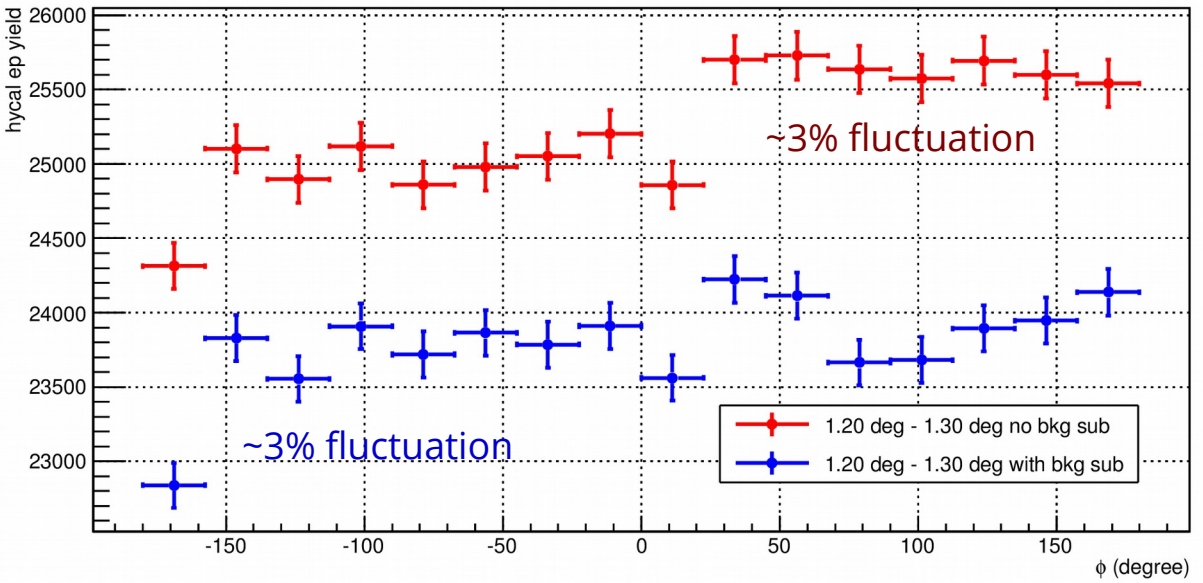
- HyCal cluster size 3 sigma cut

12 2GeV runs

Theta: 1.0deg – 1.1 deg ep events



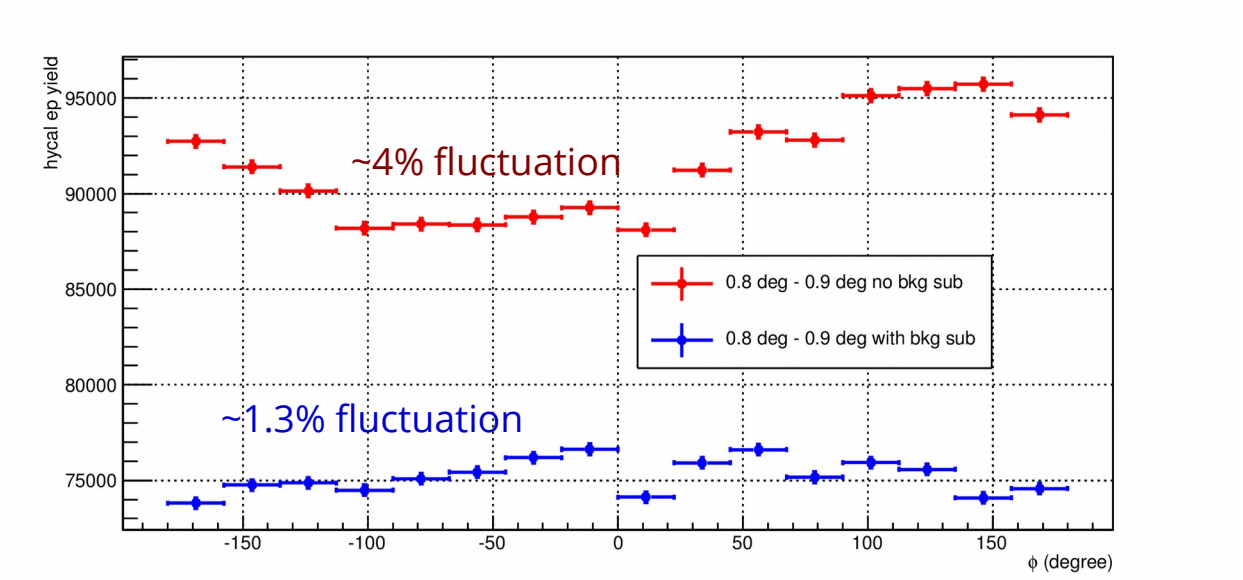
Theta: 1.2deg – 1.3 deg ep events



- Background level is different in different phi region
- Background sources: cosmic, bremstrulung photons (this should be symmetric to phi), etc…
- For GEM efficiency study, need good separation of Bkg and signal

2GeV beam ep yield phi asymmetry – background subtraction
Compare between ep and ee2

ep events



ee2 events