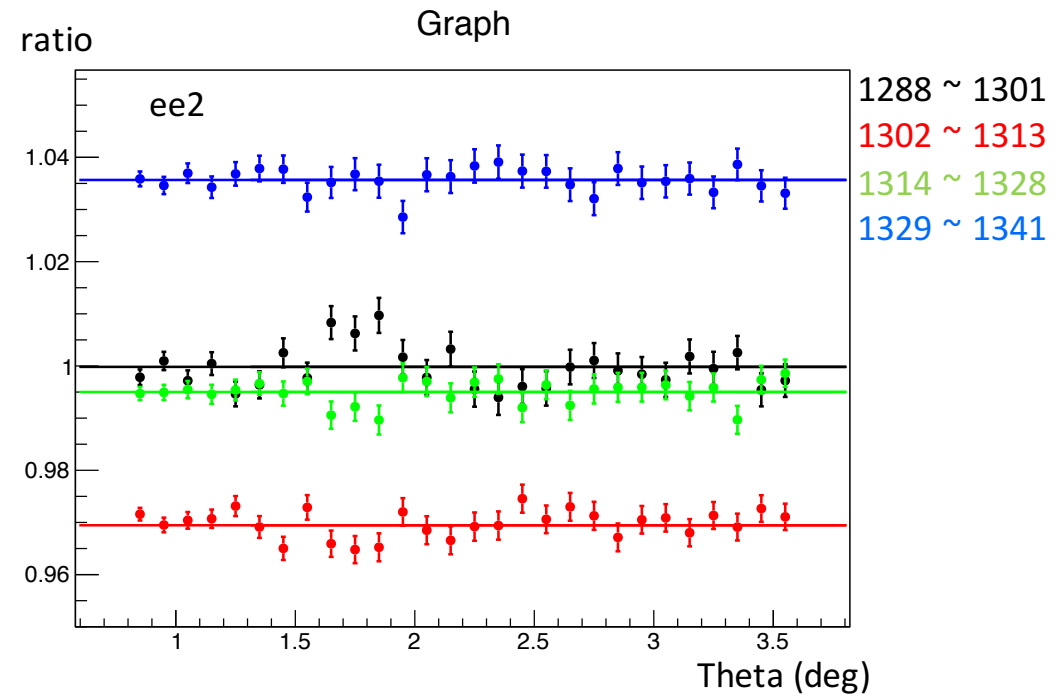
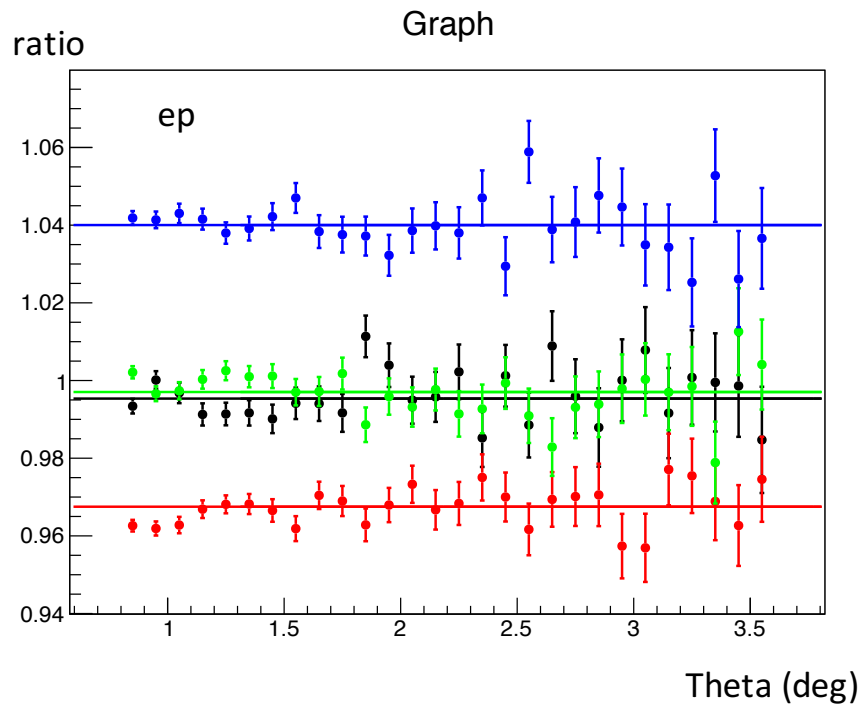


Study for the background time variation

- Divide the 1 GeV calibrated runs into multiple periods
- For each period, calculated the live charge weighted and background subtracted ep yield and ee yield, and also live charge weighted ep and ee yields from the empty target runs
- normalize the yields to the corresponding mean yields from all data from the calibrated runs so that error due to geometric acceptance and efficiency will be canceled
- The remaining fluctuation comes from the time variation of luminosity, beam line background...

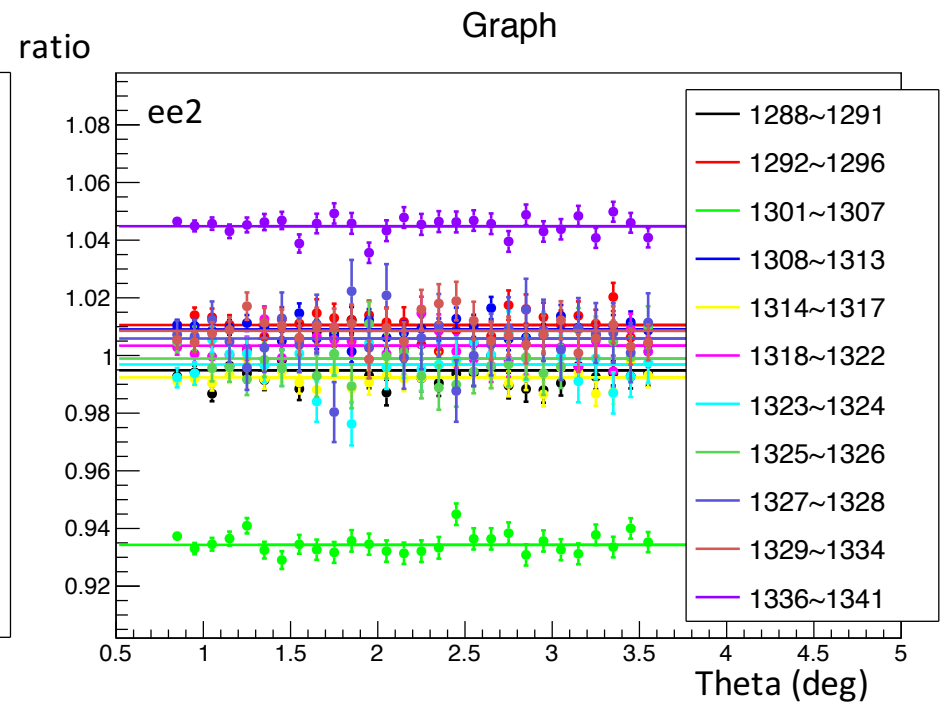
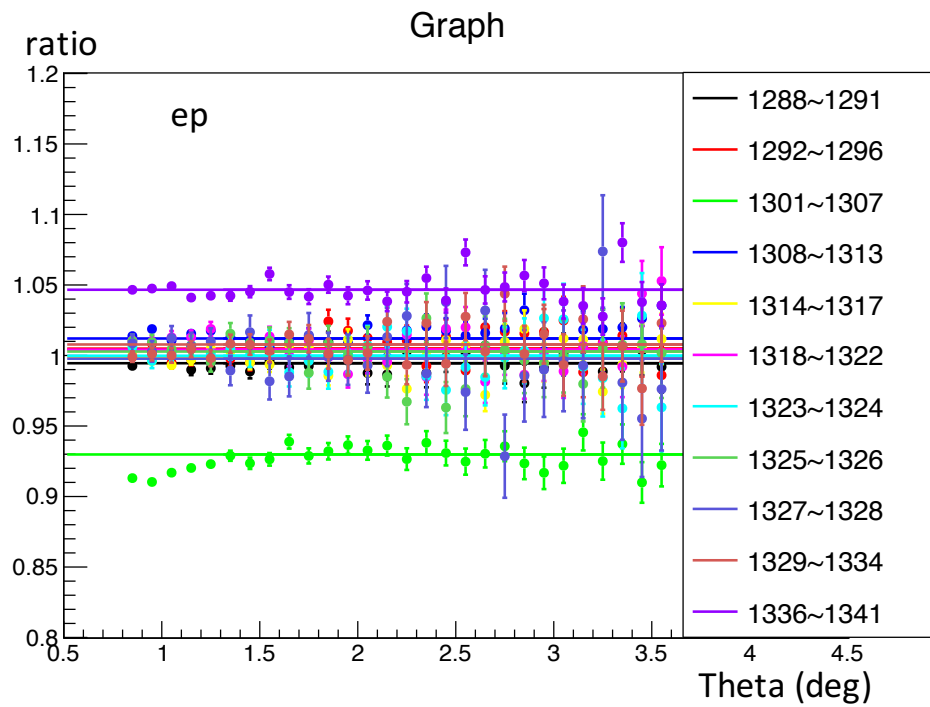
Live charge weighted and bg subtracted ep and ee yield

- Weight the yields by the live charge of the corresponding period
- Normalize to the mean value of the weighted yield of the 4 periods
- Straight lines obtained by fitting data points from 1.3 to 3.5 deg, so the first five points are excluded from the fitting



Live charge weighted and bg subtracted ep and ee yield

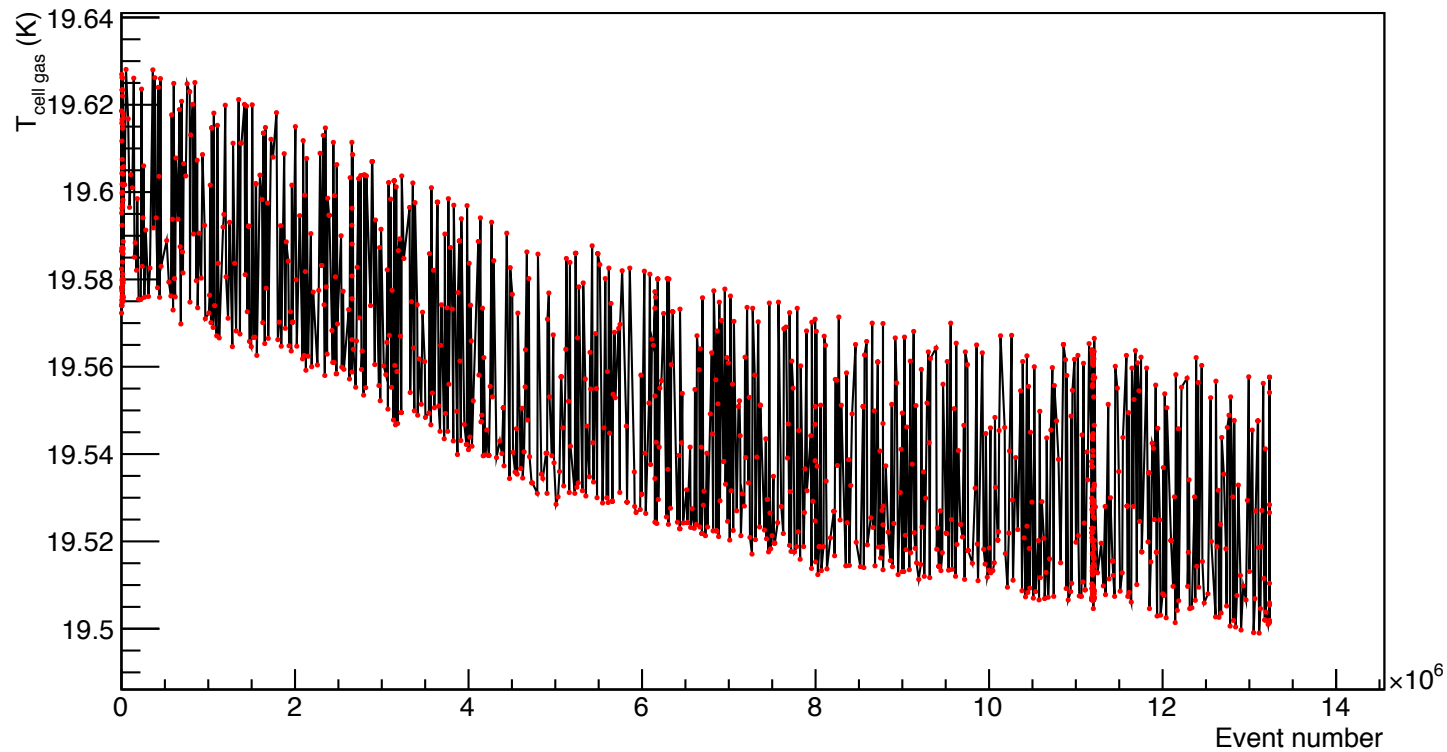
There are two outliers, otherwise the live charge weighted yields are stable within +/- 1%



Problem with run 1307

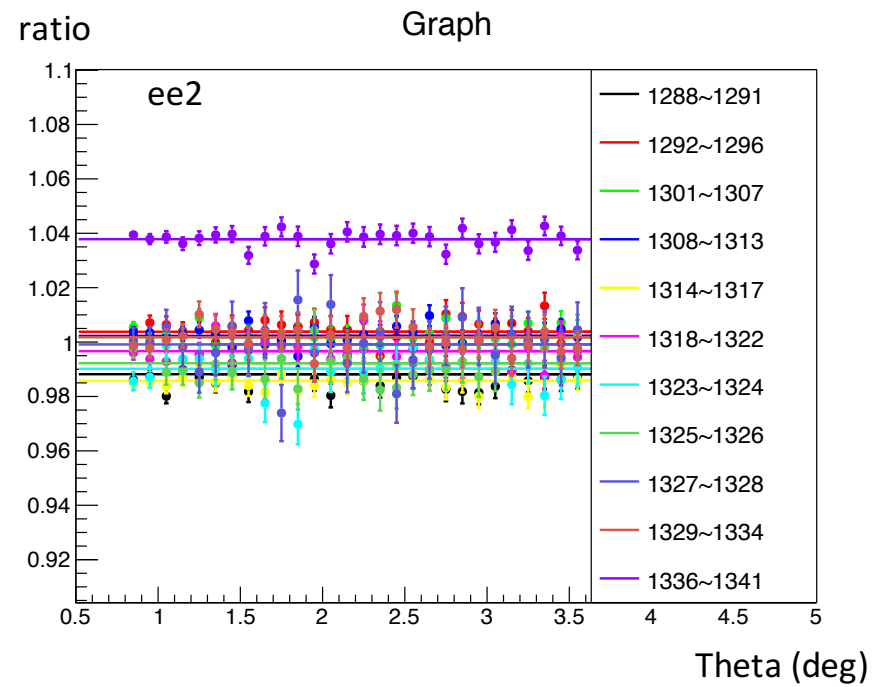
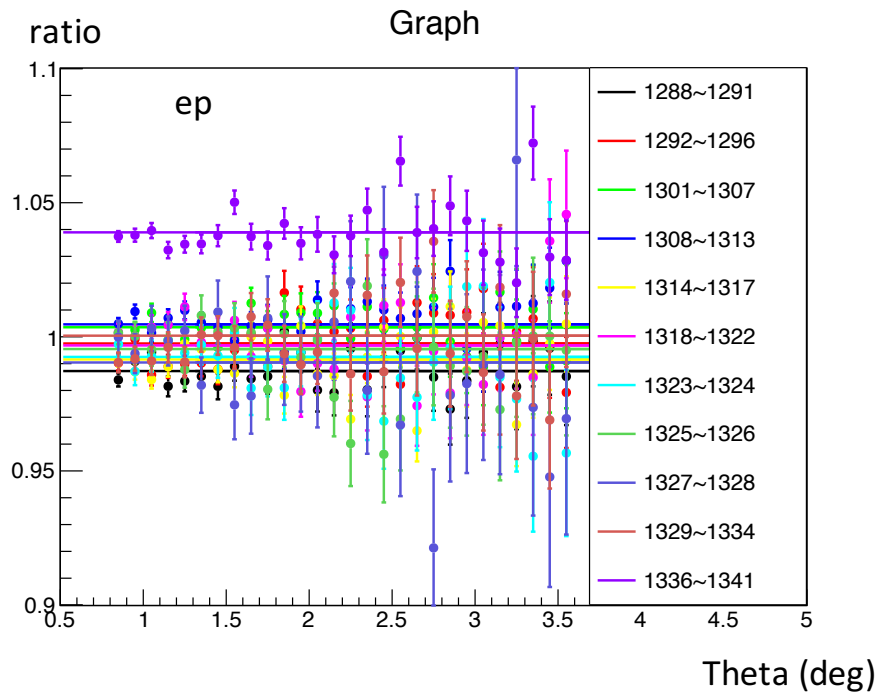
- Control access was requested to fix target temperature sensor before the run

Cell_Gas_Temperature



Live charge weighted and bg subtracted ep and ee yield

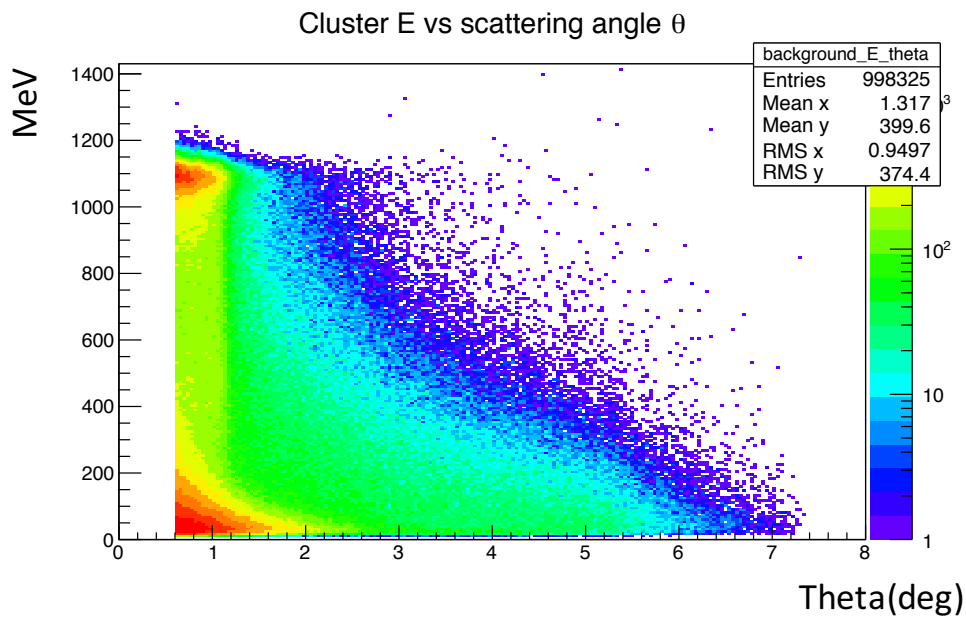
After removing run 1307



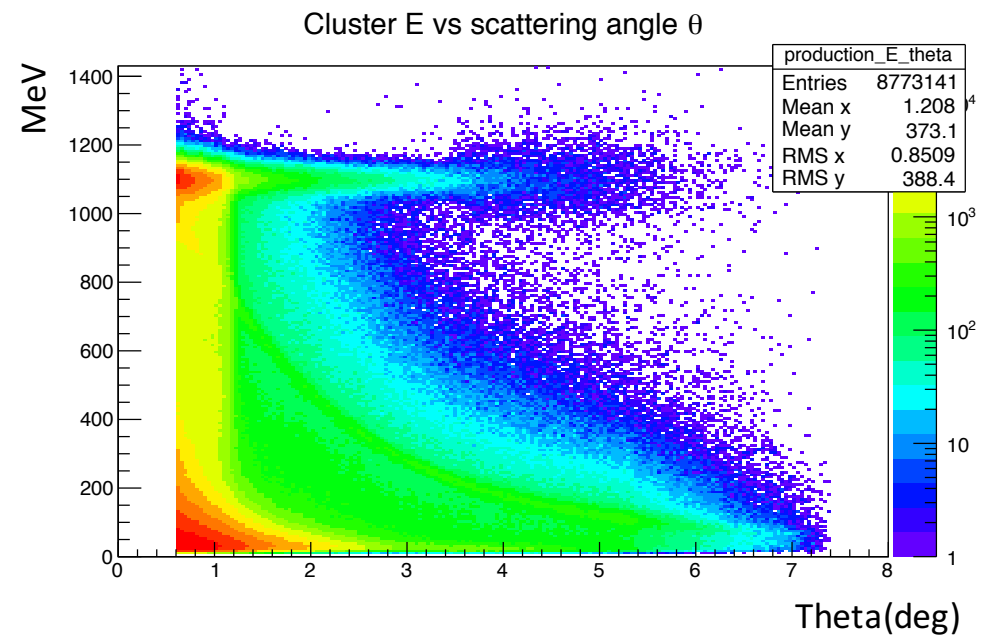
Background study

- For background at small angle, I look at the distribution of empty target and empty chamber runs
 - Only one empty chamber run in the calibration period 5, so statistics is a bit limited

Empty Chamber

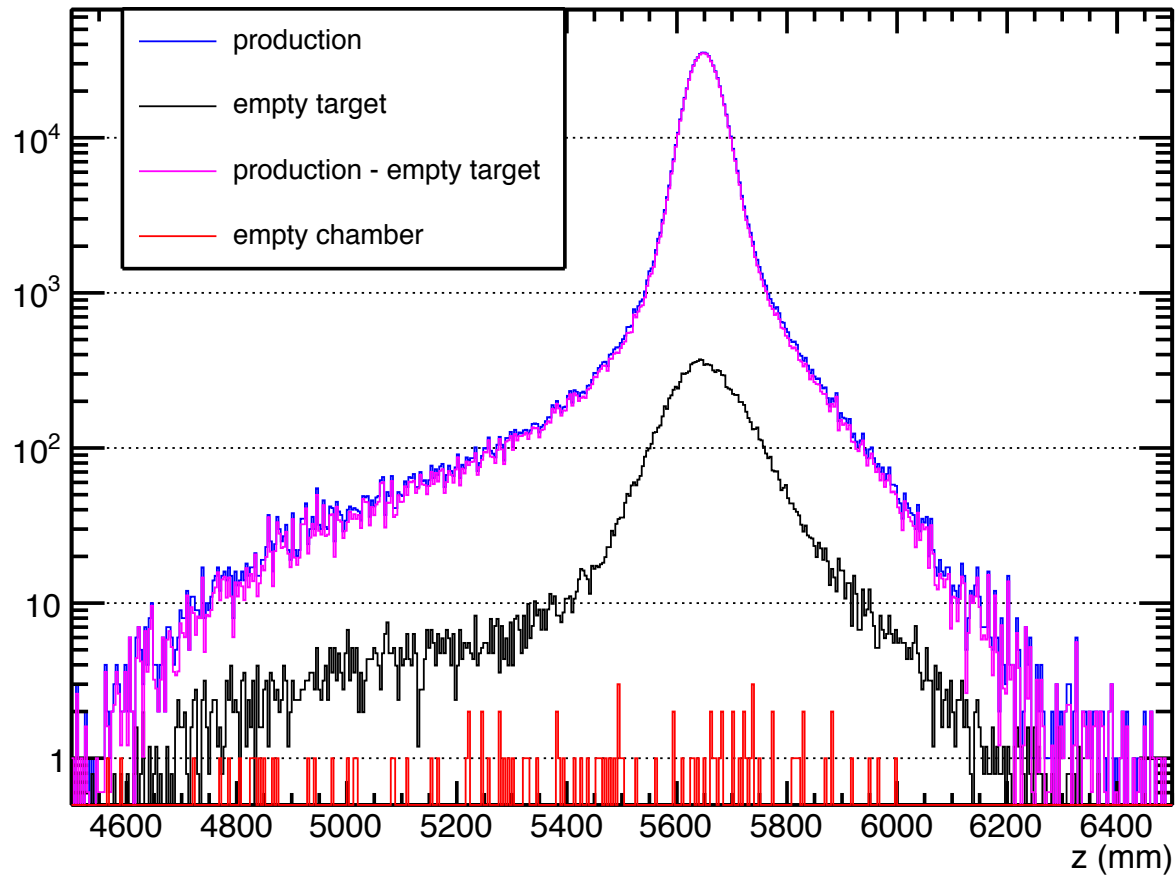


Empty Target



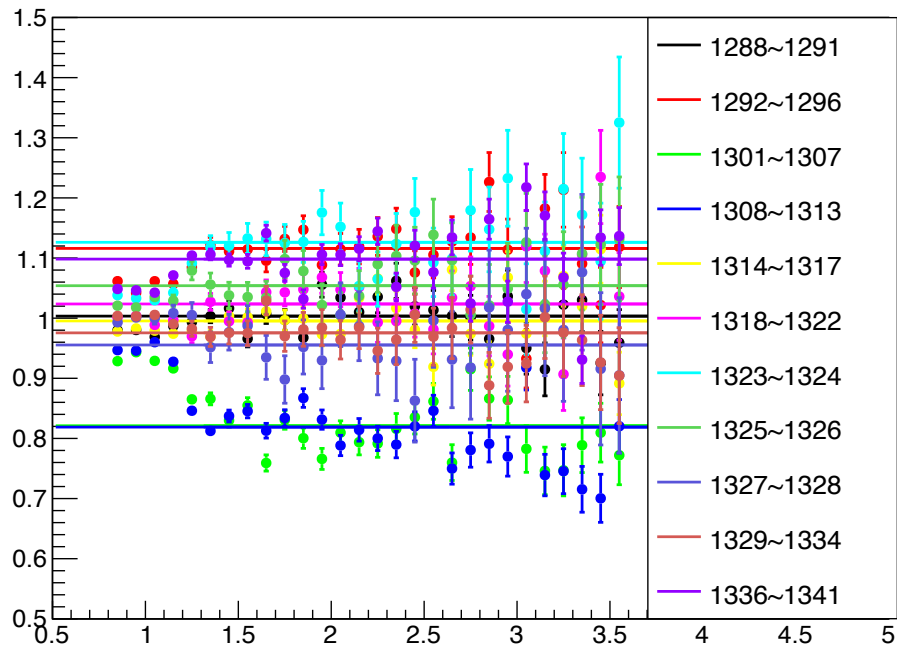
Distance between Projection Plane and Vertex Z

z_hist

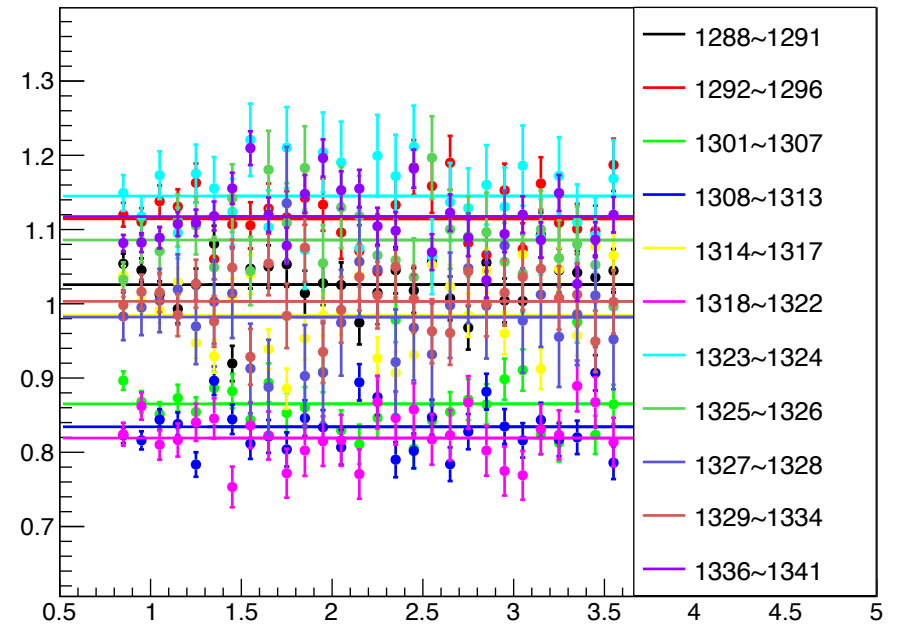


Live charge weighted ep and ee yield from empty target runs

Graph



Graph



ep to ee1 ratio

- Divide the 1 GeV calibrated runs into 4 periods
- For each period, calculated the background subtracted ep/ee1 ratio
- normalize to the mean value of (total ep yield / total ee1 yield) of the four period to bring them close to 1 for easy comparison

