



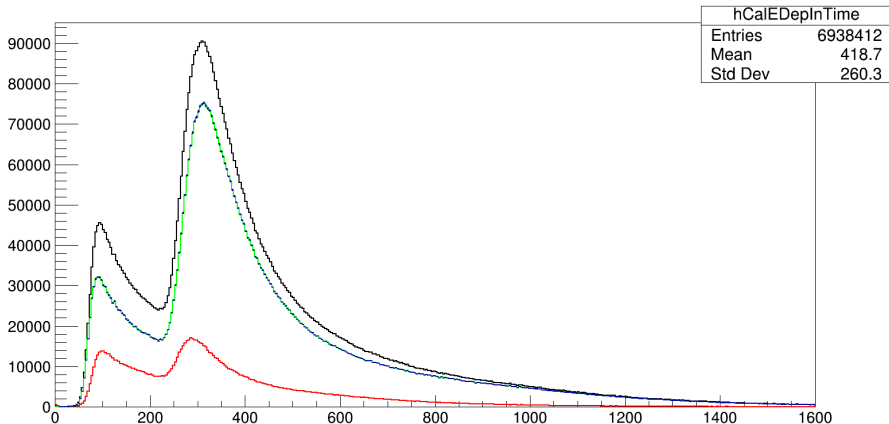
TPOL update

Sebastian Cole

ASU

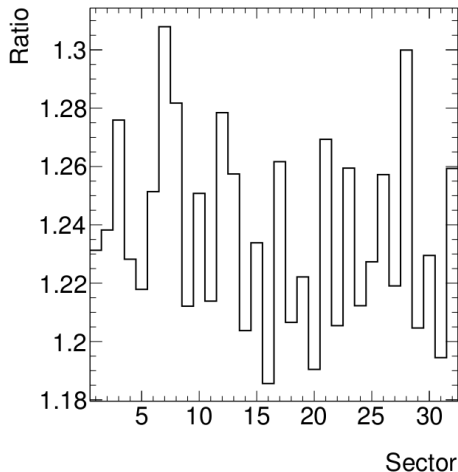
8/20/2018

Energy deposition background subtraction



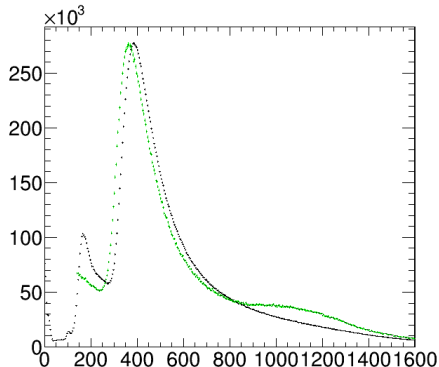
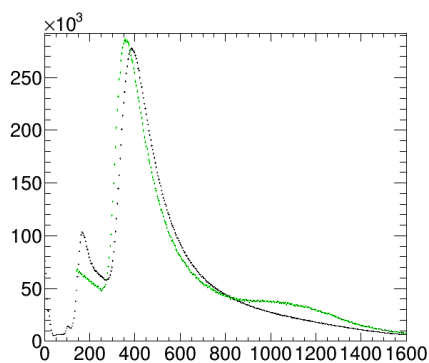
- Background subtraction to the energy deposition. No major change in peak position.
- Energy deposition (keV) on x-axis, counts on y-axis.

HI2017 ratio energy deposition peak between data and MC



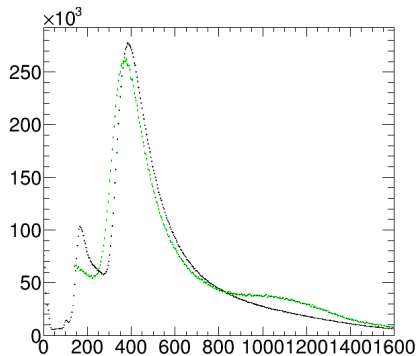
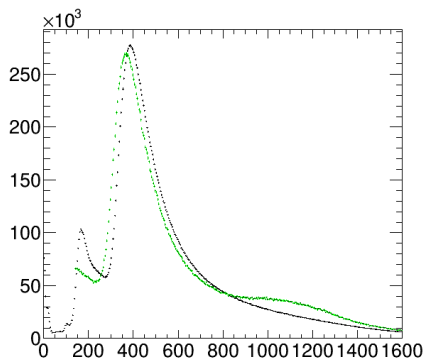
- Took ratio between most probable value of landau fit to a sector's TPOL energy deposition to that of the max value in MC. Working on fitting MC, but enhancement beyond main triplet peak.

HI2017 energy deposition comparison to MC



- Black is data and green is mc. Energy deposition (keV) on x-axis, counts on y-axis. Left is 10keV and right is 20keV smearing.

HI2017 energy deposition comparison to MC



- Black is data and green is mc. Energy deposition (keV) on x-axis, counts on y-axis. Left is 25keV and right is 30keV smearing.
- Smearing parameter between 20keV and 25keV with current analysis. Consistent with previous results.

- What is the enhancement at 1200 keV in MC?
- Need to improve the energy deposition multiplicative constant for each sector to better align energy deposition peak. Fit to MC will produce better results than the maximum.
- Do I need to fold in pairs to the MC?
- Improve threshold cut to assist in matching energy deposition. Need to be careful. 2016 sector 32 baseline significantly lower than all other sectors.
- Finishing matching the energy deposition for TPOL to MC.
- Working on match PS and tagger to MC. Current cuts on data do not work for MC.
- Work on energy deposition contributions to systematics with previous work on min, max, and middle of the energy deposition plot per sector. The minimum will provide a mean and standard deviation for varying cut on the energy deposition.