VDC t_0

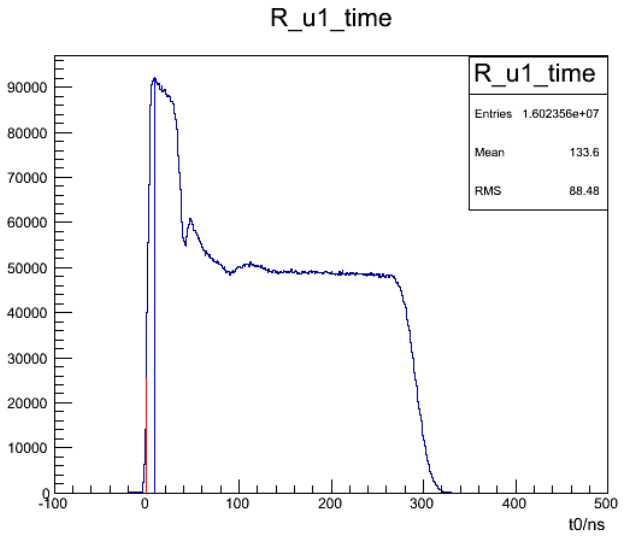
Last time: two ways

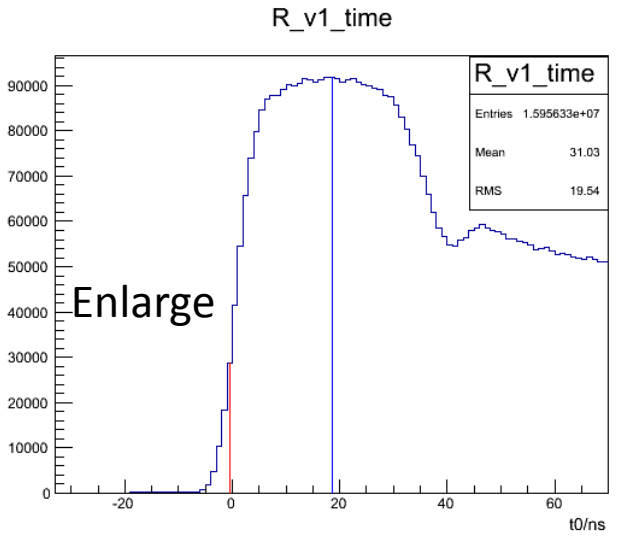
a. Choose the maximum slope as t_0 offset
b. Get the maximum slope first, then extrapolate to zero on the TDC channel axis, the incercept as t_0 offset

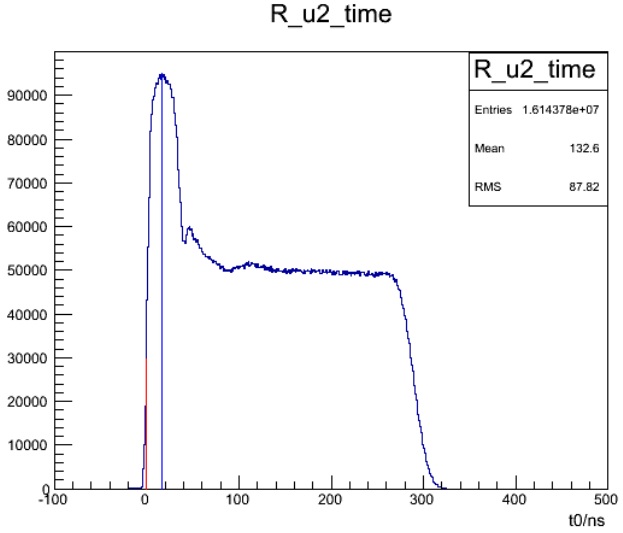
- Effects? Event lose?

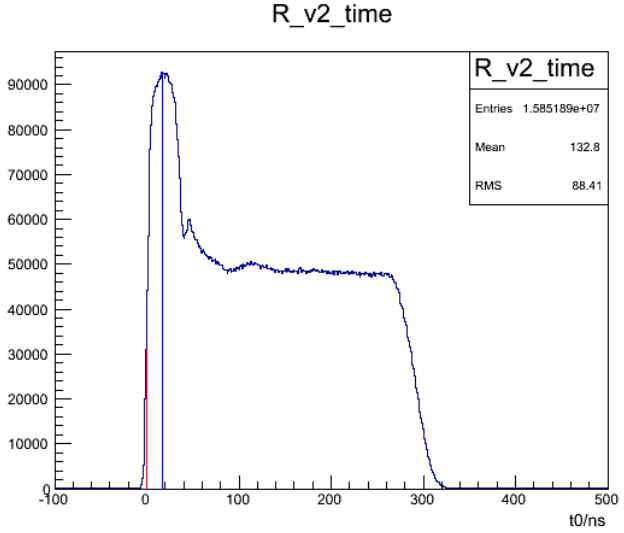
Last Time

a. Choose the maxslope as the t_0



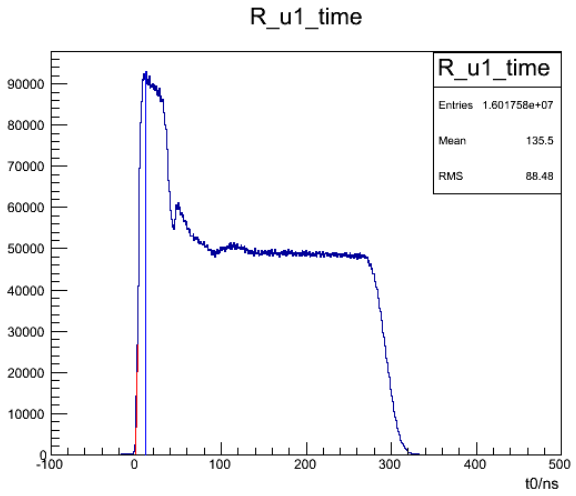


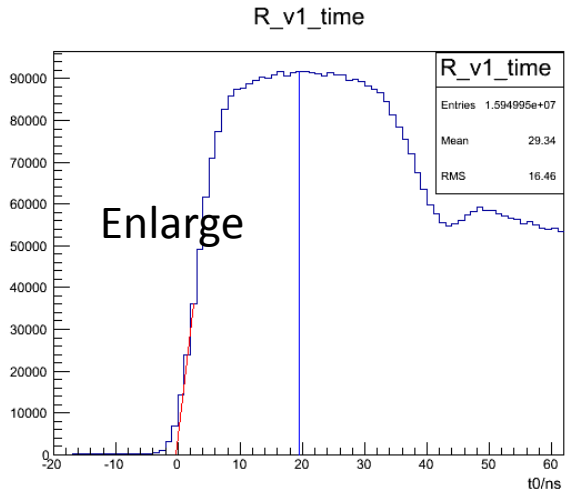


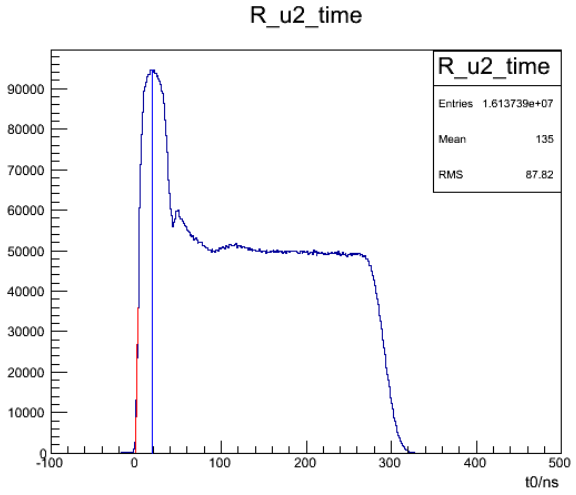


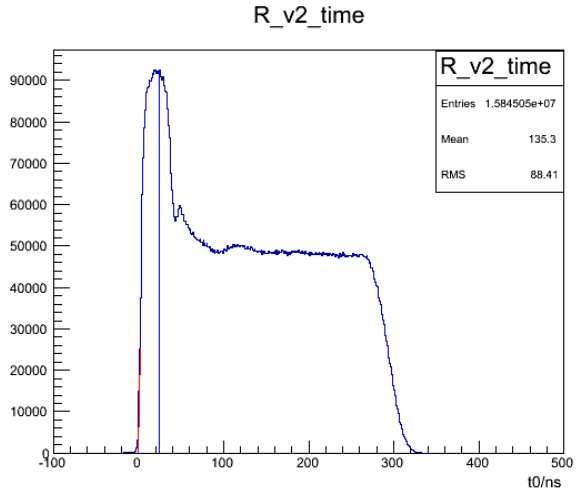
Last Time

b. Get the maxslope first and then extrapolate to the TDC channel axis, the intercept as t_0



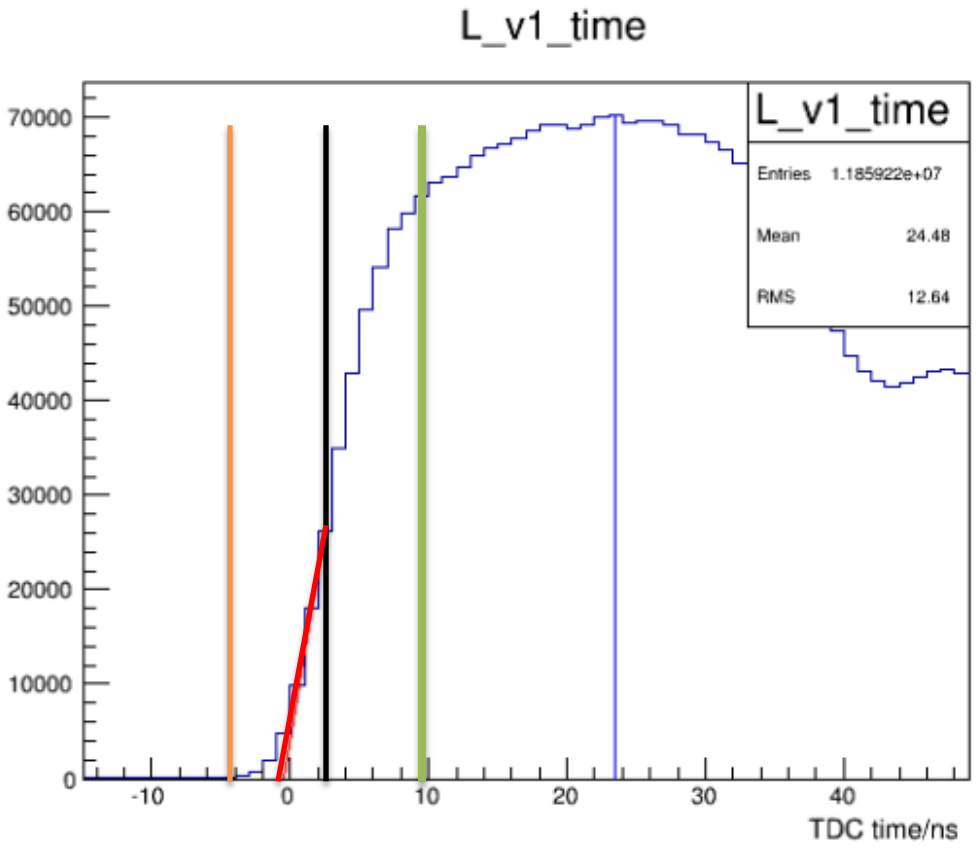






➢ t_0 effects Study

A. Maxslope (black line)
B. Maxslope extrapolate to zero (red line)
C. 10 channels shift left, compared to case b (yellow line)
D. 20 channels shift right, compared to case b (green line)



➢ t_0 effects Study—events loss?

```
      // Convert the TDC value to the drift time.
      // Being perfectionist, we apply a 1/2 channel correction to the raw
      // TDC data to compensate for the fact that the TDC truncates, not
      // rounds, the data.
      Double_t xdata = static_cast<Double_t>(data) + 0.5;
      Double_t time = fTDCRes * (toff - xdata) - evtT0;

      // If requested, ignore hits with negative drift times
      // (due to noise or miscalibration). Use with care.
      // If only fastest hit requested, find maximum TDC value and record the
      // hit after the hit loop is done (see below).
      // Otherwise just record all hits.
      if( !no_negative || time > 0.0 ) {
        if( only_fastest_hit ) {
          if( data > max_data )
            max_data = data;
        } else
          new( (*fHits)[nextHit++] )  THaVDCHit( wire, data, time );
      }

    } // End hit loop

    // If we are only interested in the hit with the largest TDC value
    // (shortest drift time), it is recorded here.
    if( only_fastest_hit && max_data>0 ) {
      Double_t xdata = static_cast<Double_t>(max_data) + 0.5;
      Double_t time = fTDCRes * (toff - xdata) - evtT0;
      new( (*fHits)[nextHit++] ) THaVDCHit( wire, max_data, time );
    }
  } // End channel index loop
} // End slot loop

// Sort the hits in order of increasing wire number and (for the same wire
```

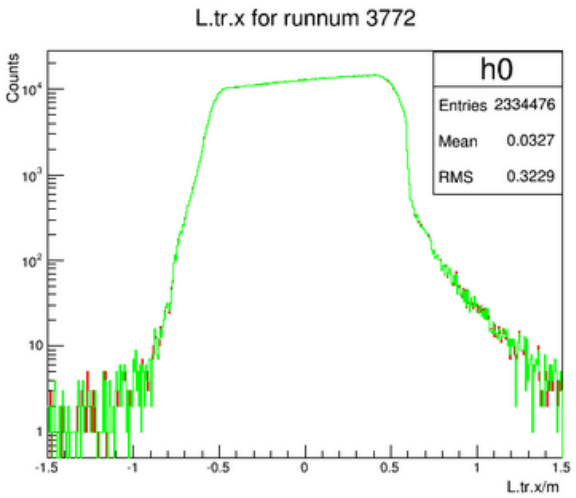
Class: THaVDCPlane

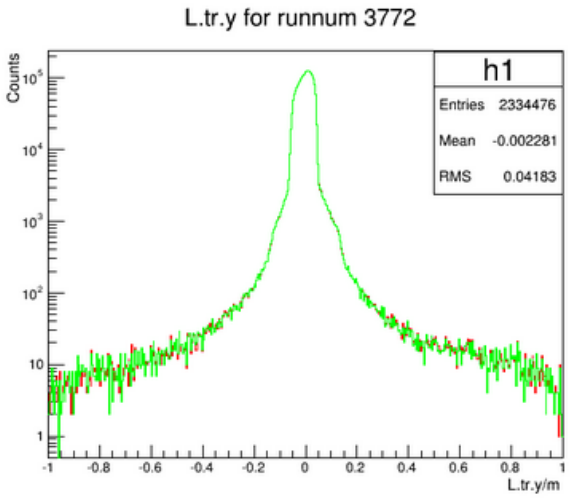
➢ No events lost for these four cases, check after replayed rootfile

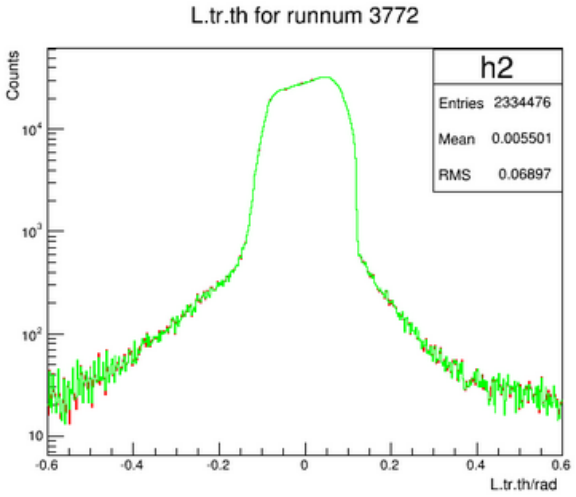
➢ t_0 effects Study— tracking variable ?

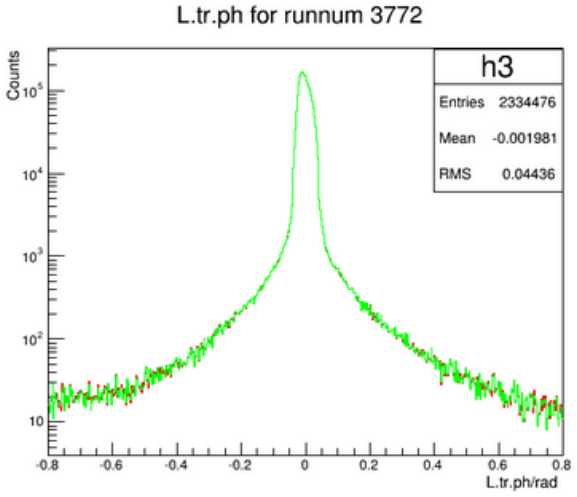
Case A: maxslope (red curve)

Case B: maxslope extrapolate to zero (green curve)



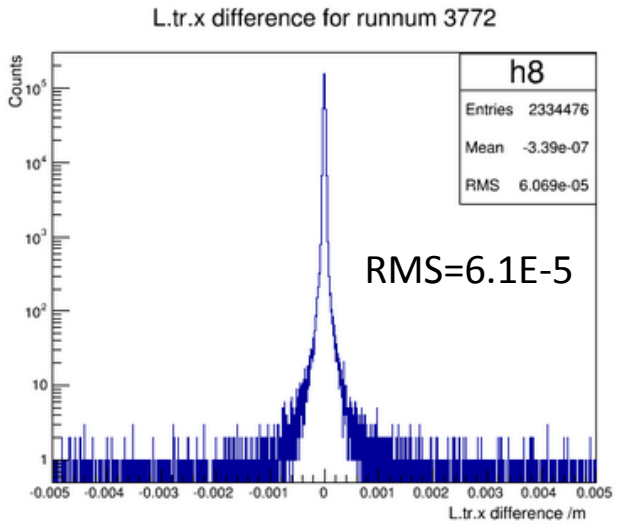


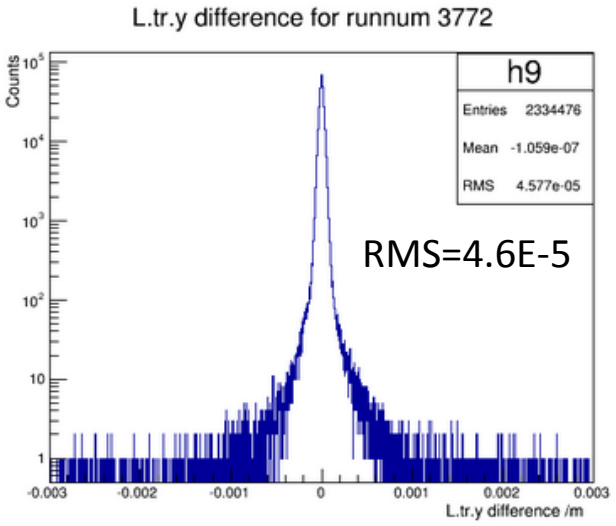


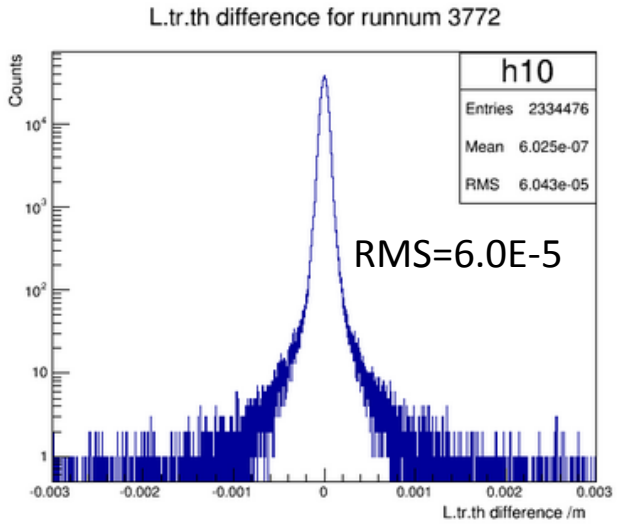


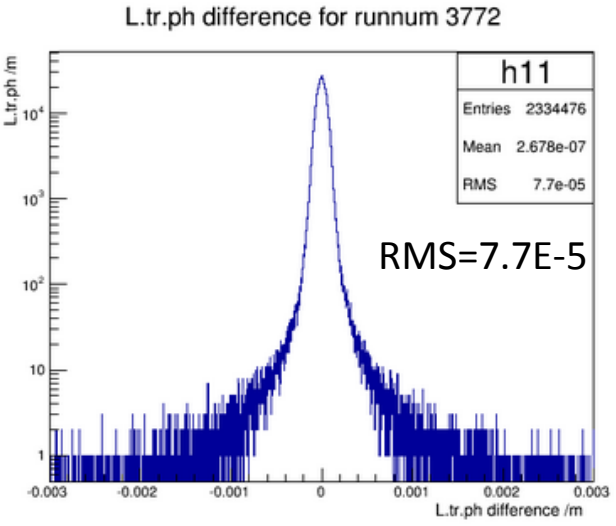
➢ t_0 effects Study— tracking variable ?

Tracking variable difference between Case A and Case B



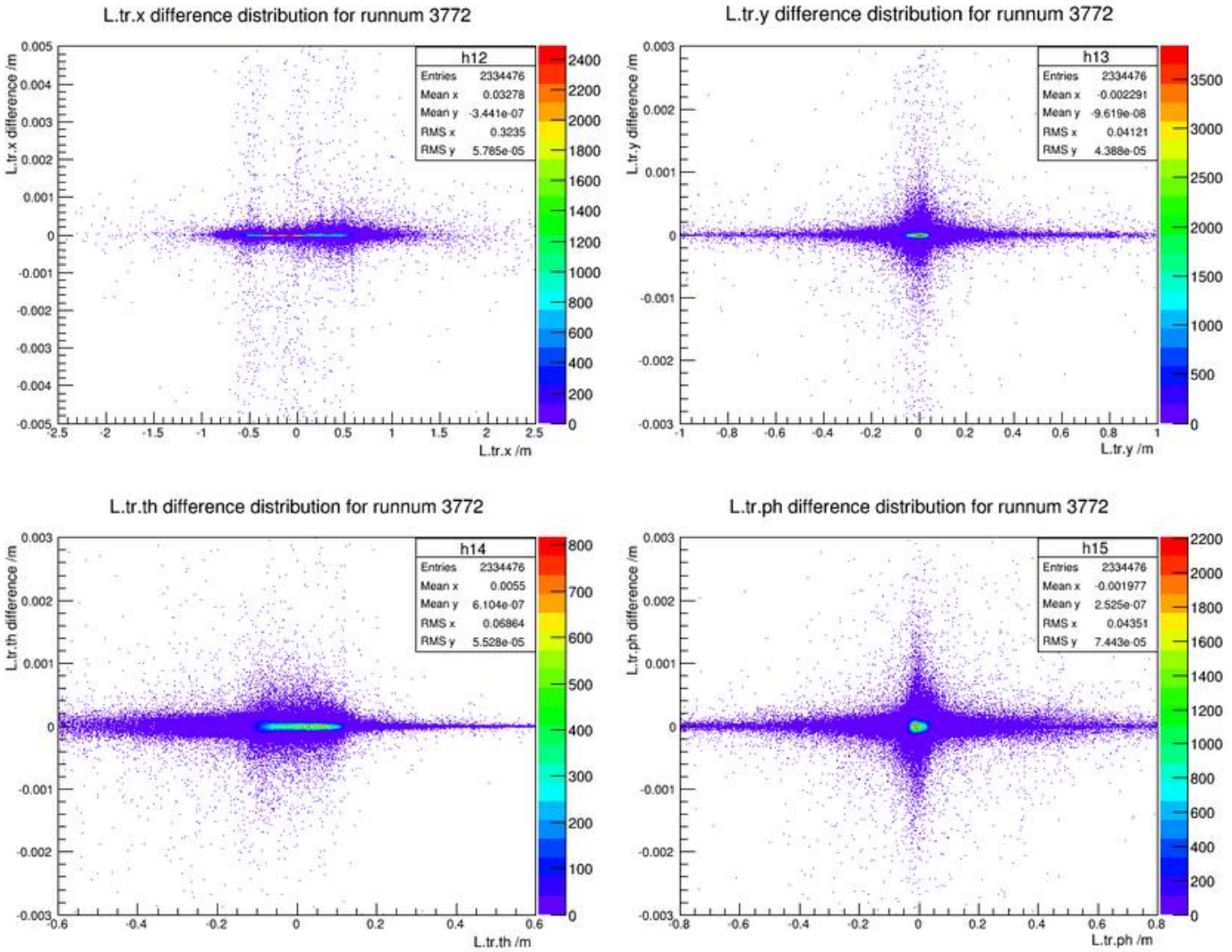






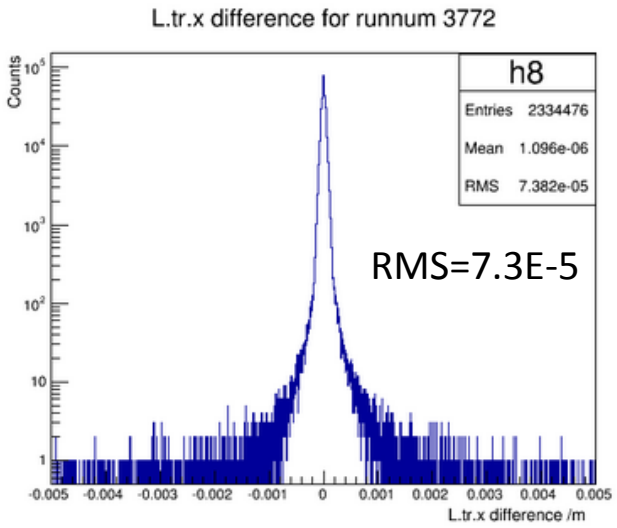
➢ t_0 effects Study— tracking variable ?

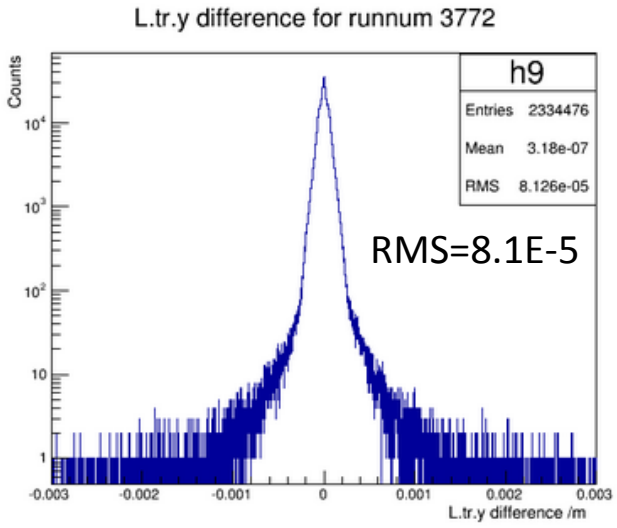
Tracking variable difference distribution between Case A and Case B

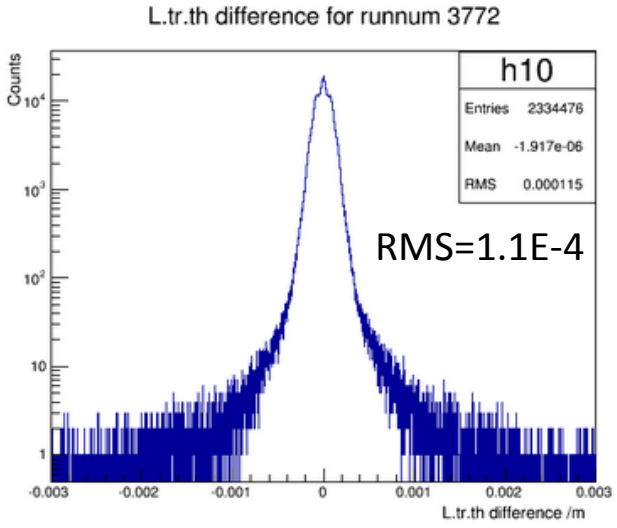


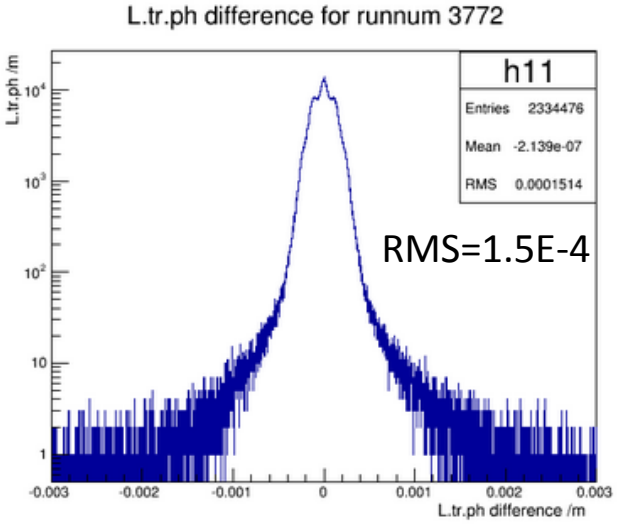
➢ t_0 effects Study— tracking variable ?

Tracking variable difference between Case C and Case B



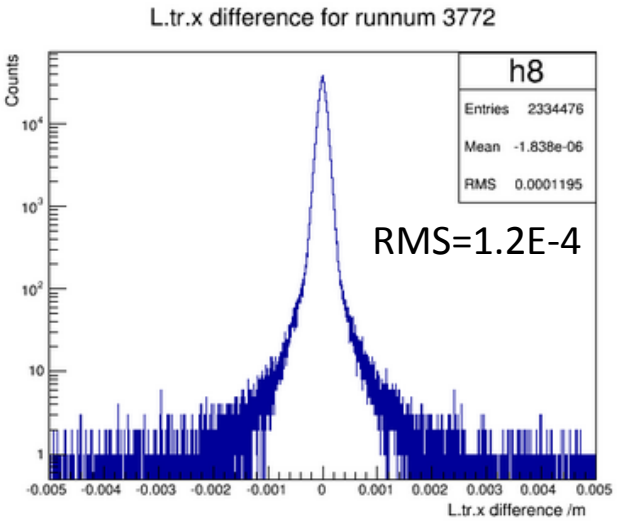


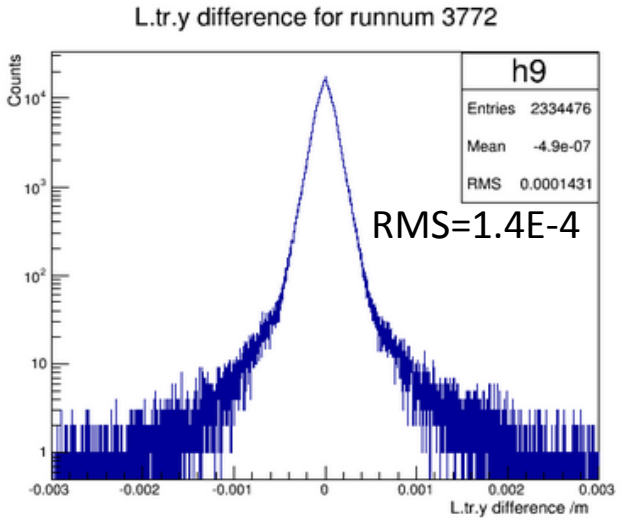


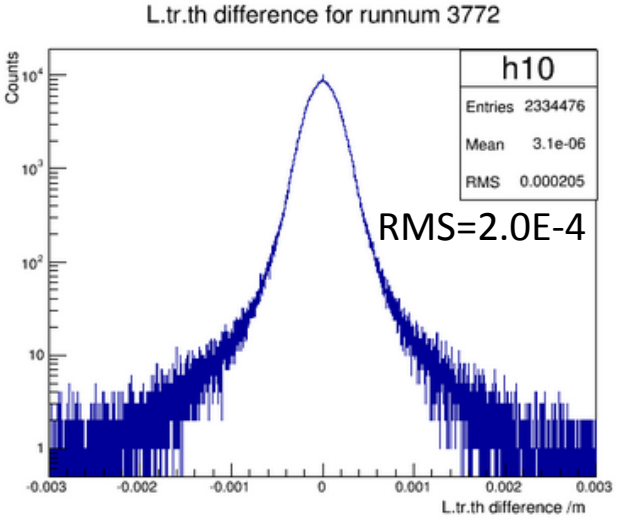


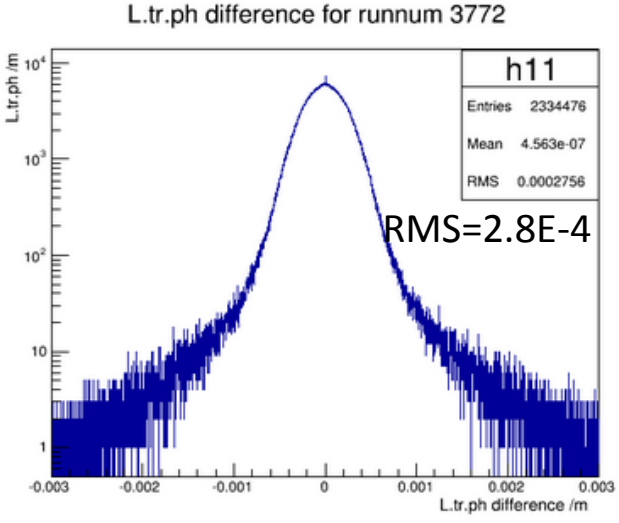
➢ t_0 effects Study— tracking variable ?

Tracking variable difference between Case D and Case B









For VDC
position resolution ~ 100um
Angle resolution ~0.5mrad

Multi-track update

- Updated the code for very tight acceptance cut.
- It can compute the multi-track efficiency at almost any solid angle, no matter tight or loose
- Ready for final result when we get the acceptance cut
- Updated the technotes with Melissa’s help

To do

- VDC done?
- Focus on the simulation package
- Added SNAKE model with help of Min
- Start tuning code
- Physics models and energy loss