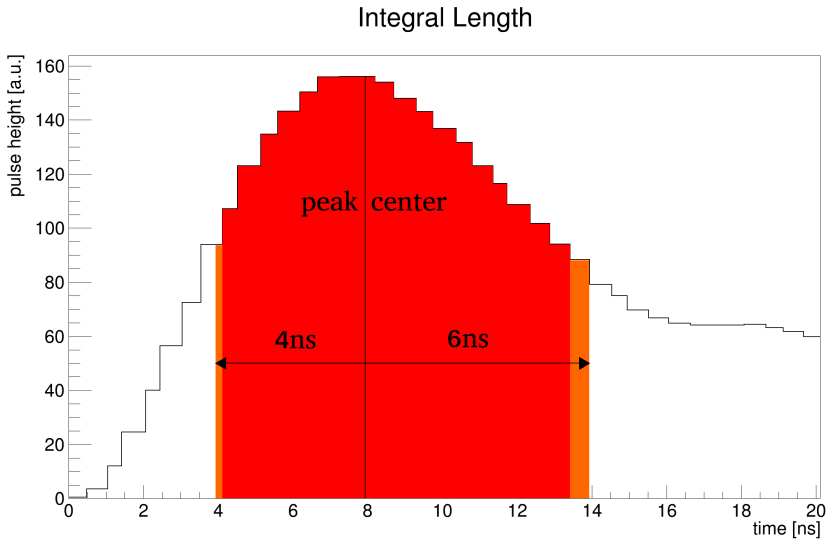

Meeting 22nd April 2016

Speaker: Felix Bachmair

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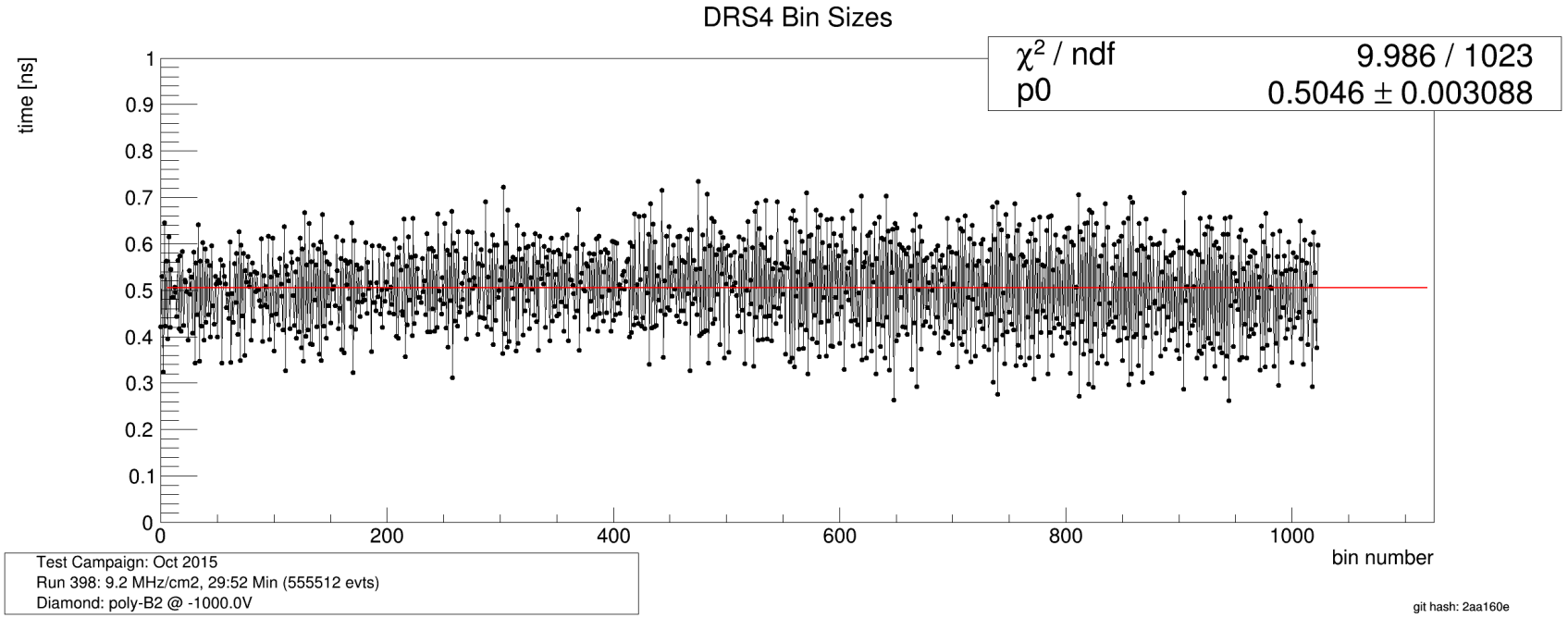
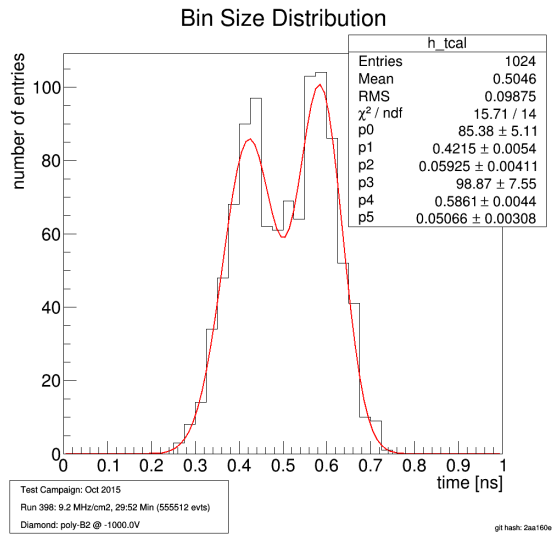
Section 1

DRS4 Cells

Cell Length

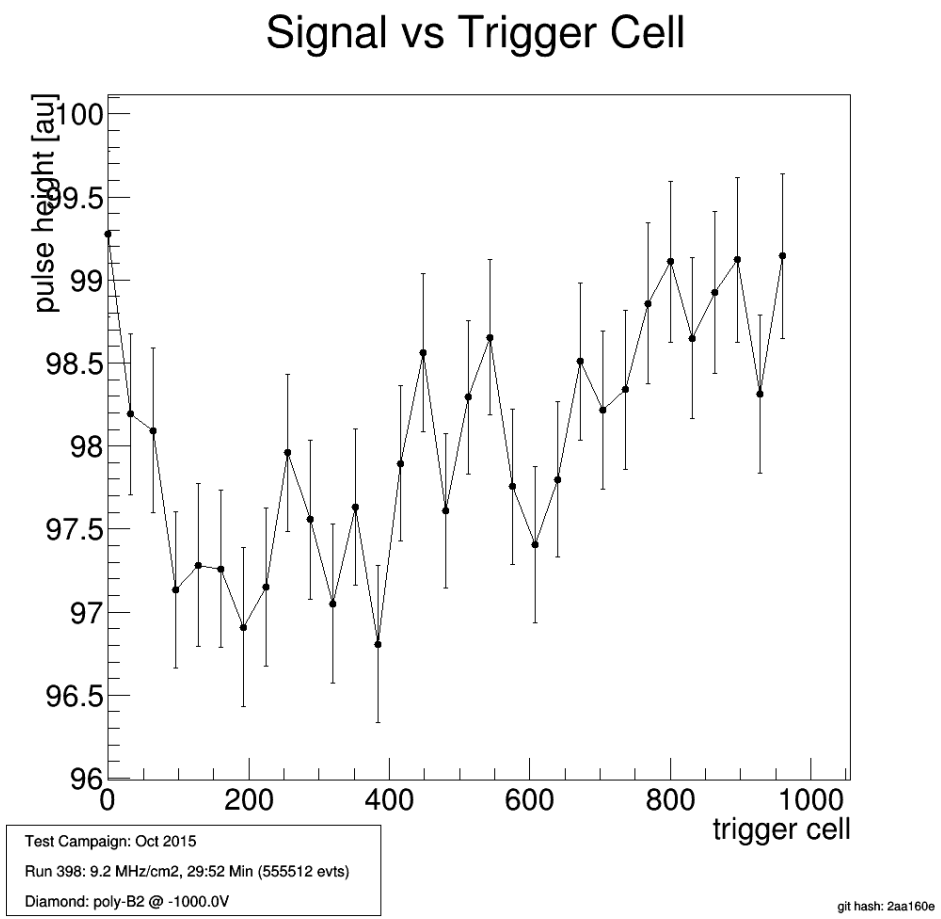




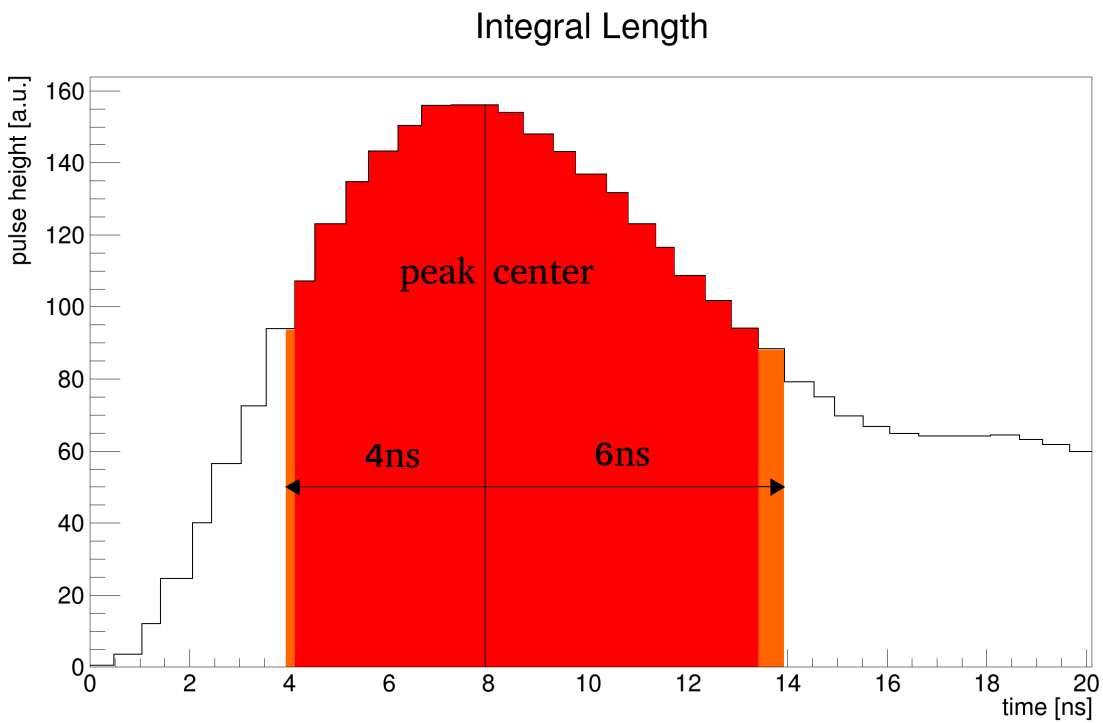
- bin sizes centered around .5

Section 2

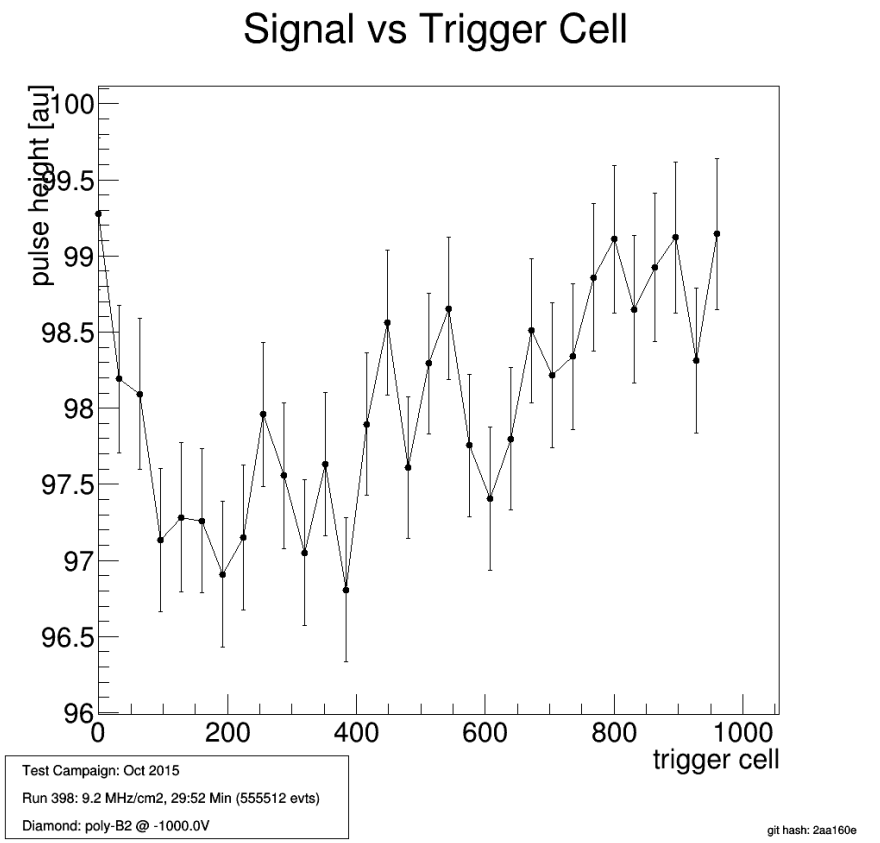
Signal Vs. Trigger Cell

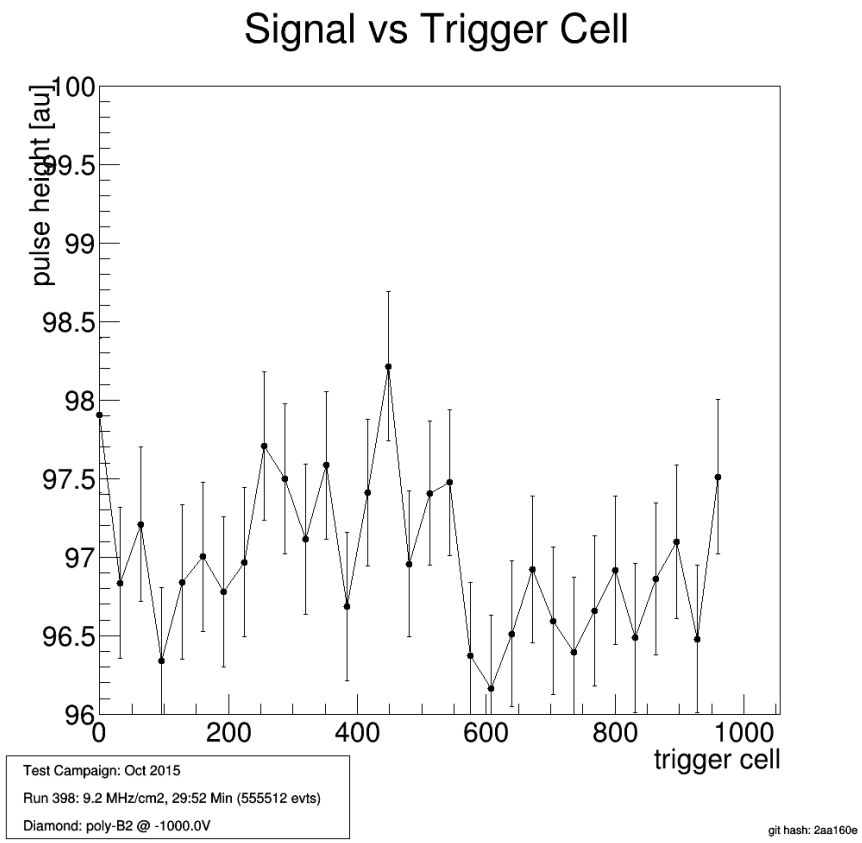


- using fixed bin size for the integration
  - length of integral depending on trigger cell since bins have different sizes



- different time sizes of the bins
- using same interval as before: [8,12] $\rightarrow$ [4 ns, 6 ns] taking 0.5 ns as average bin size
- summing up the pulse heights until the integral has a fixed time size
- taking part of the outer bins (orange) that is missing to the exact time value
- $\rightarrow$ make new SNR study!

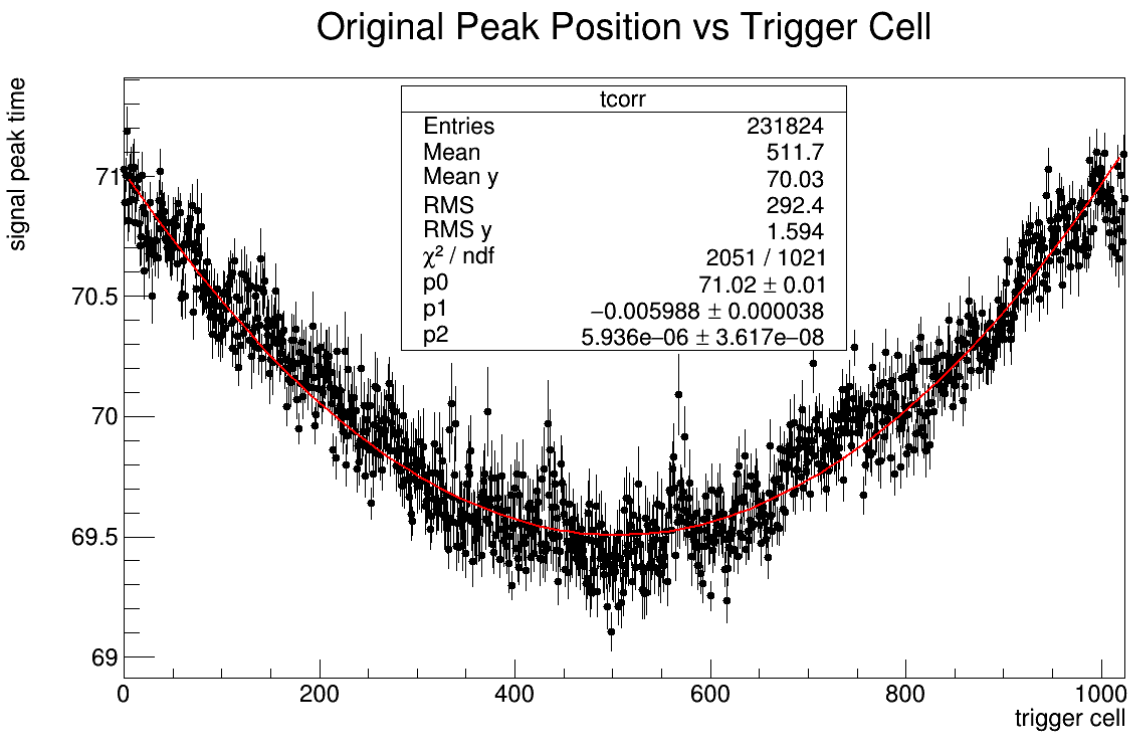




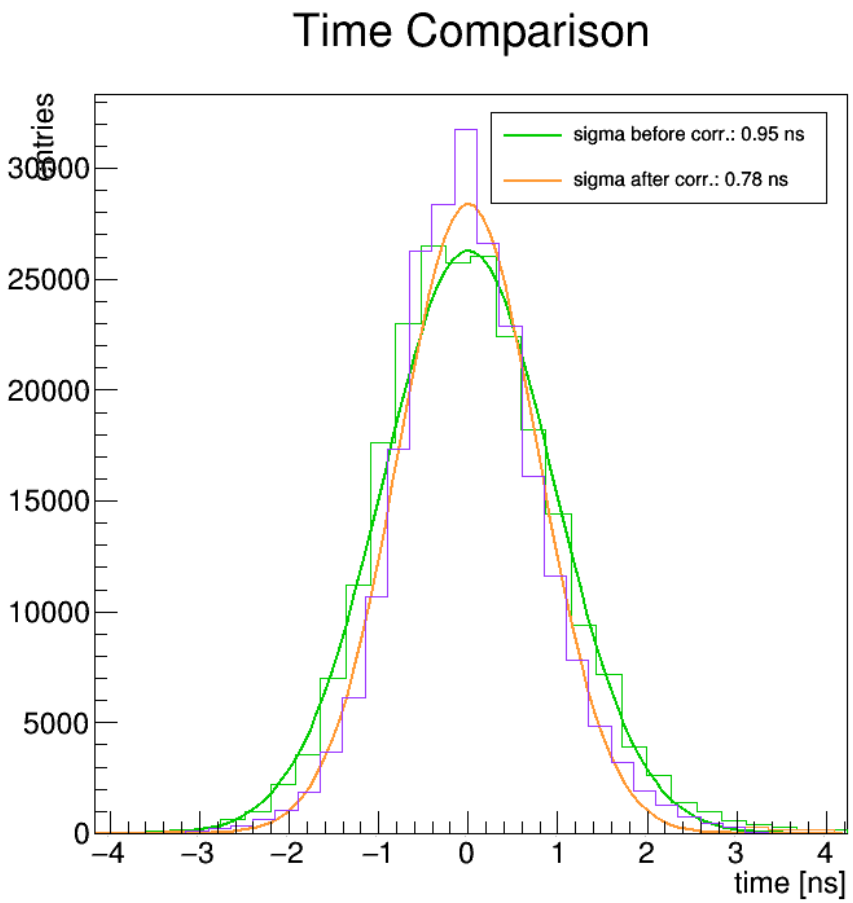
- using fixed time integral length flattens the behaviour of the pulse heights

Section 3

Peak Timing Cut



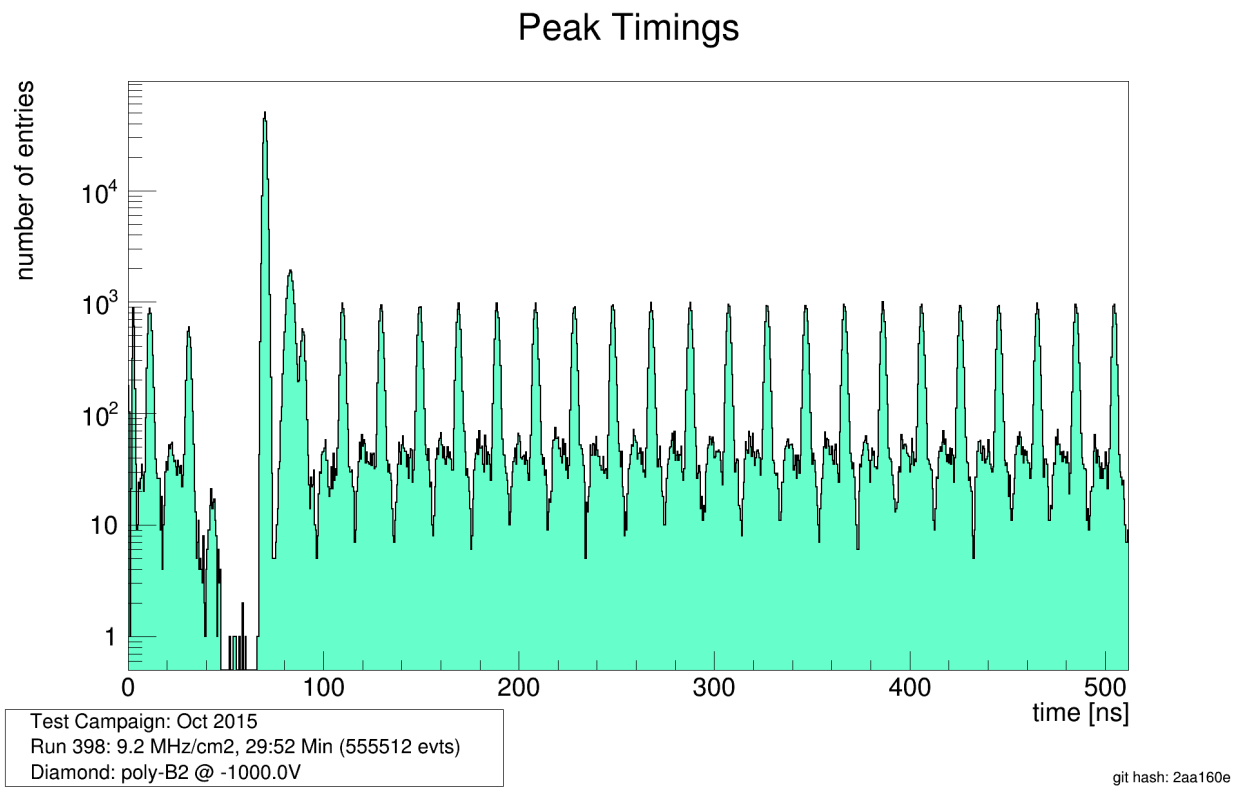
- still slight dependence on the trigger cell
- introducing trigger cell dependent cut based on the pol2 fit
  - TMath::Abs(Signal - p1 * trigger_cell - p2 * trigger_cell * trigger_cell) - mean) / sigma < 3
- takes out all events that are not in between 3 sigma of the corrected peak timings



- 0.78 ns time resolution after the correction!!
- **hier waere dein Plot mit der region auf wir cutten noch toll!!**

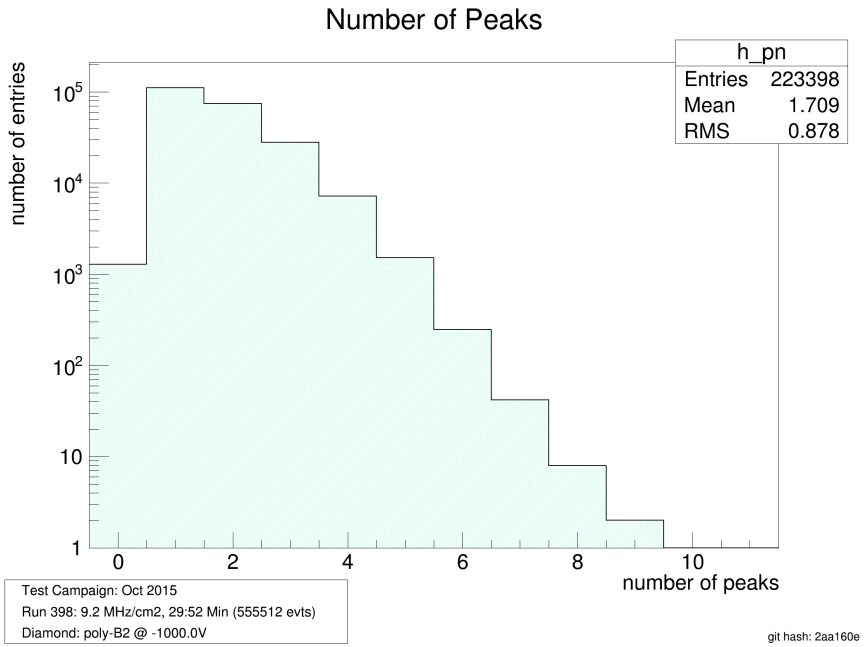
Section 4

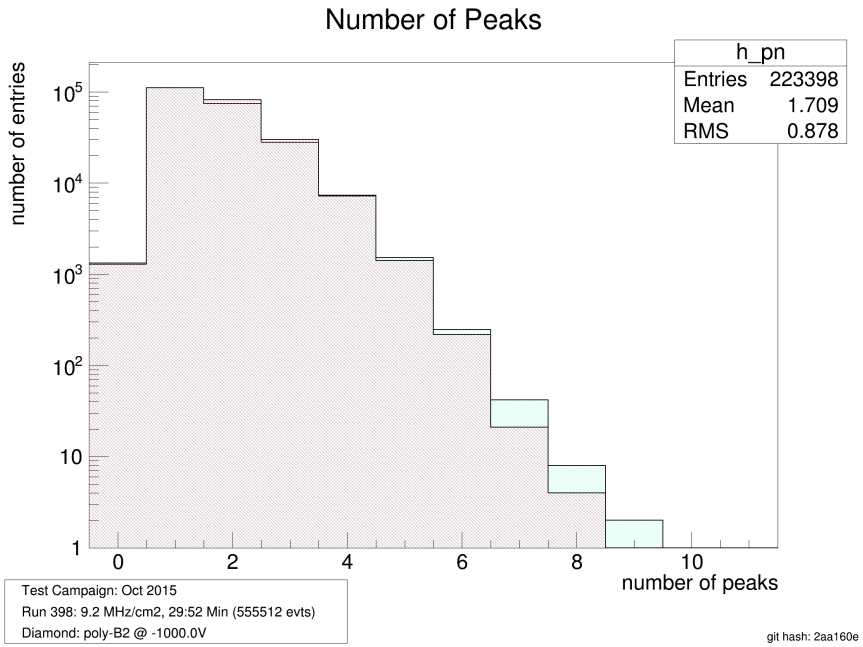
Peak Positions



- highest peak = trigger peak
- secondary peak completeley evenly distributed → nice poissonian beam
- peaks in between the secondary peaks
  - almost same ratio of trigger peak/peak after as secondary peaks/peak in between
  - idea different particle type! (positrons, myon)
  - possibility to trigger on other particles

Peak Numbers





- pink distribtion histo filled with gRandom.Poisson(24 * self.get_flux() / 5e4 * .5 * .5 * p2) + gRandom.Binomial(1, p1)
  - p1 = 0.988, p2 = 0.68

Section 5

August 2015 Beam Test Data

- nada

- nada

Section 6

Conclusion

- improving signal calculation by fixing the integral in time