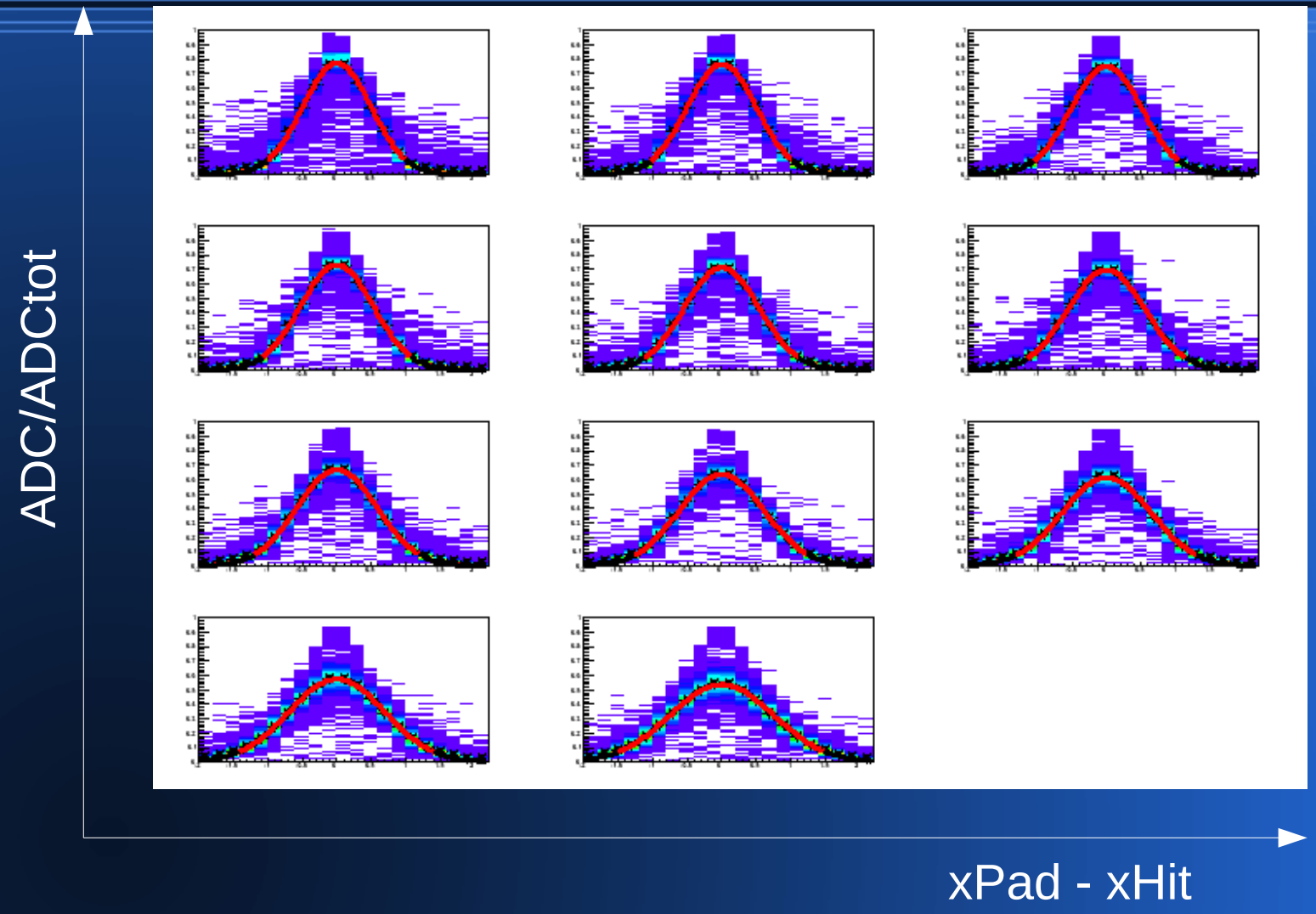
Analysis update

- PRF
  - 2 different methods
- Charge vs drift
  - Erratum...

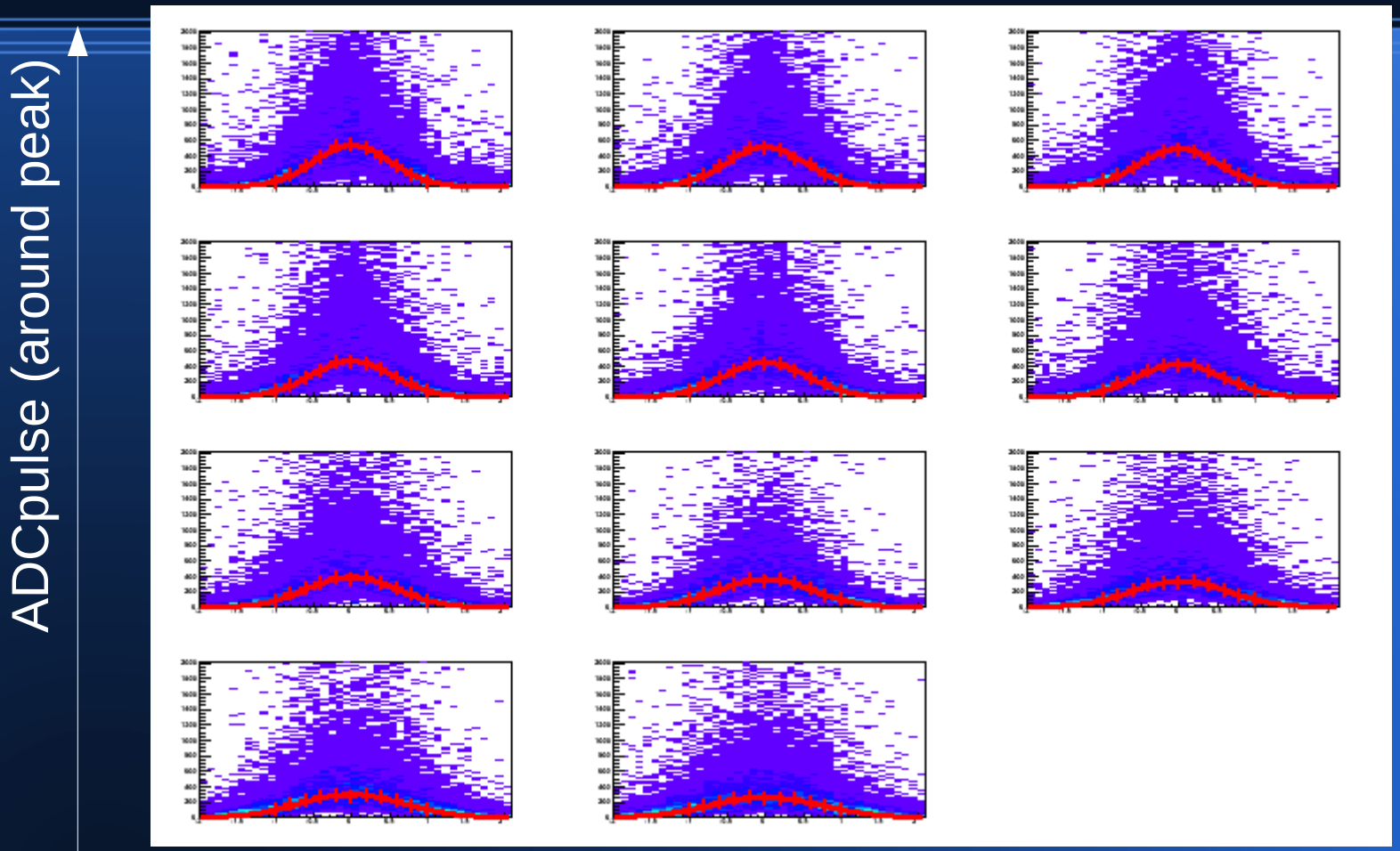
PRF

- 2 Approches:
- Use normalised pad charge
  - Classic method
  - Depends on total charge
- Use full charge spectrum
  - Use MPV from Landau fit on slices

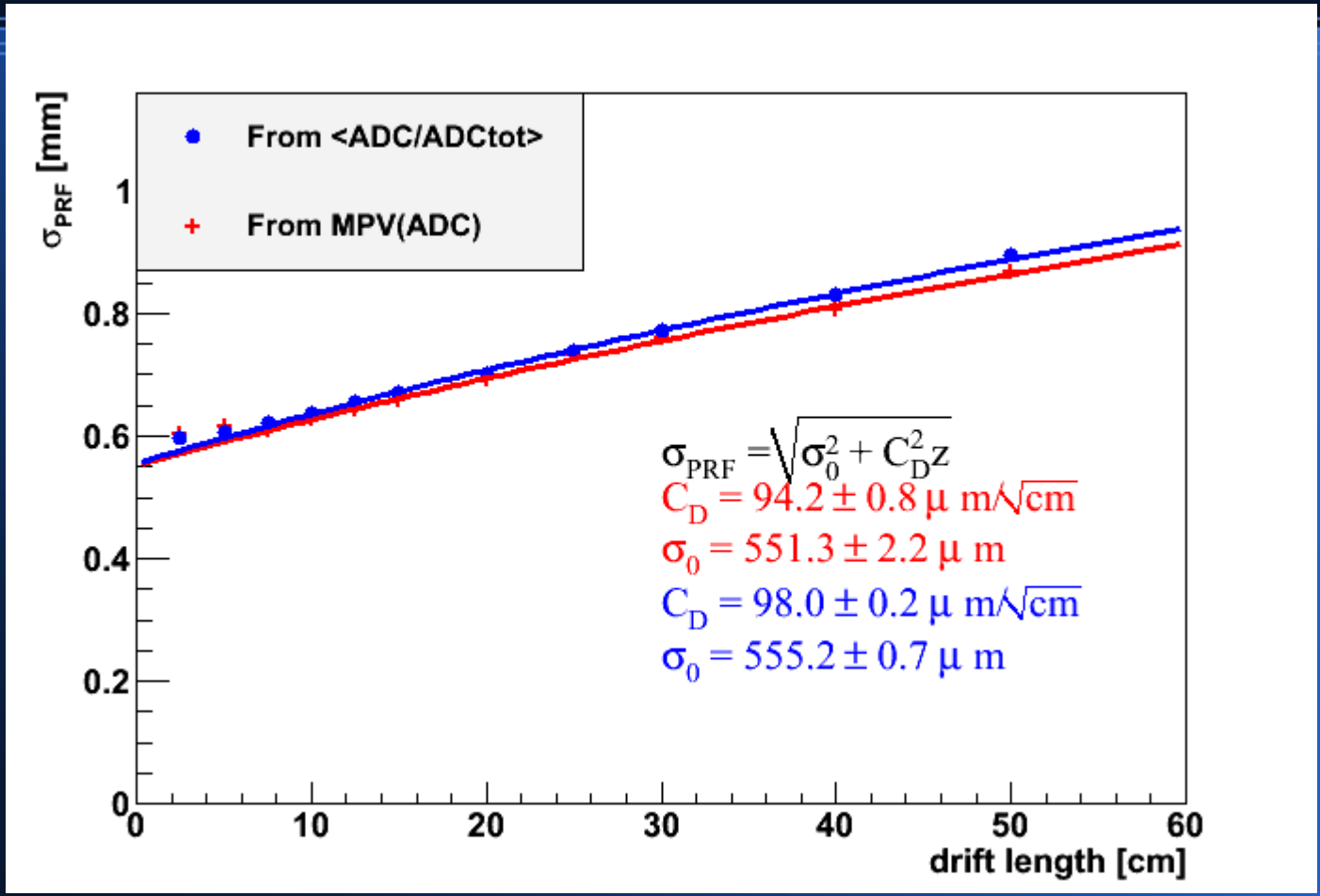
PRF from normalized charge



PRF from raw pulse charge



PRF vs drift



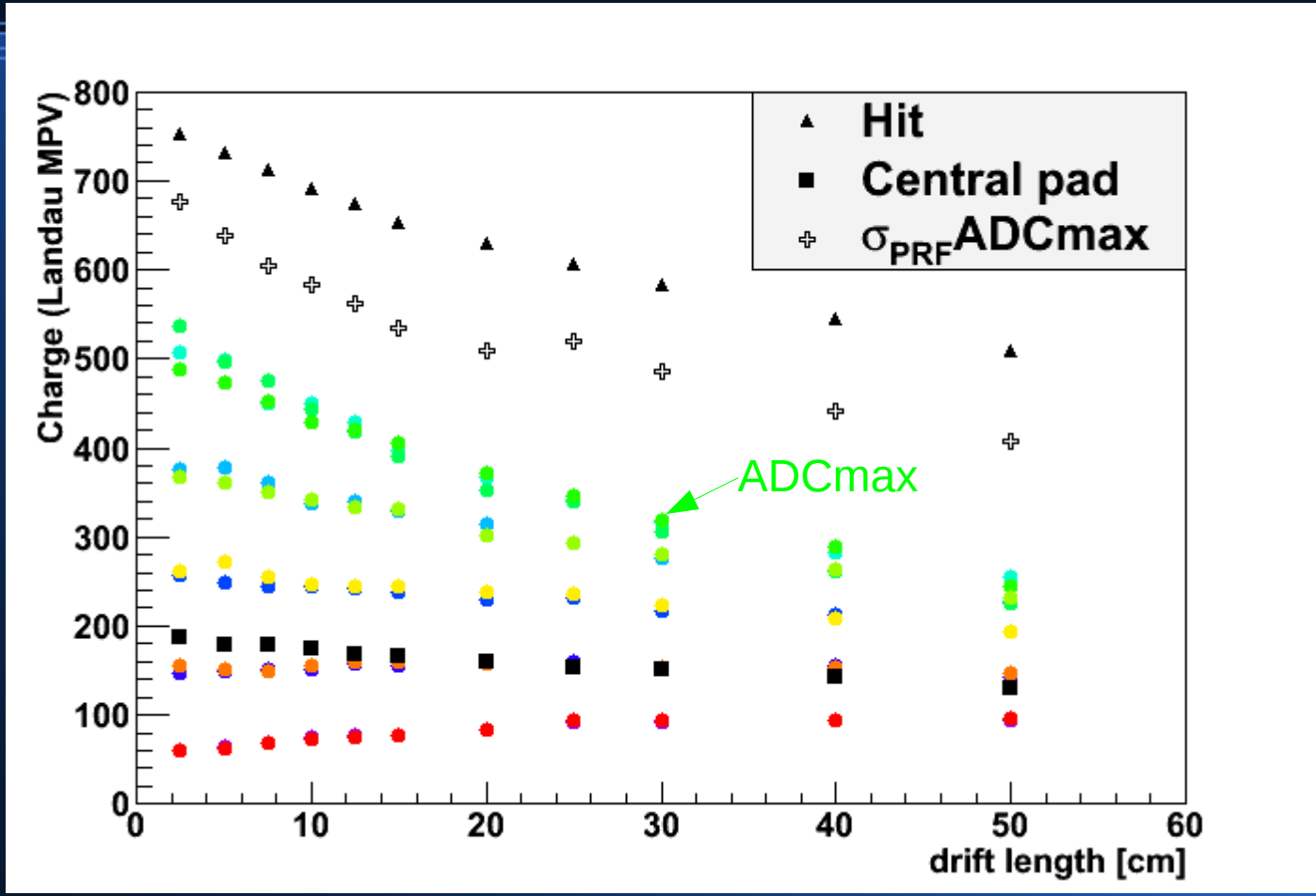
The results are a bit different with the two methods, but both fairly consistent with Magboltz (~95)

Sigma rises at low drift distance (non Gaussian...)

Charge vs Drift

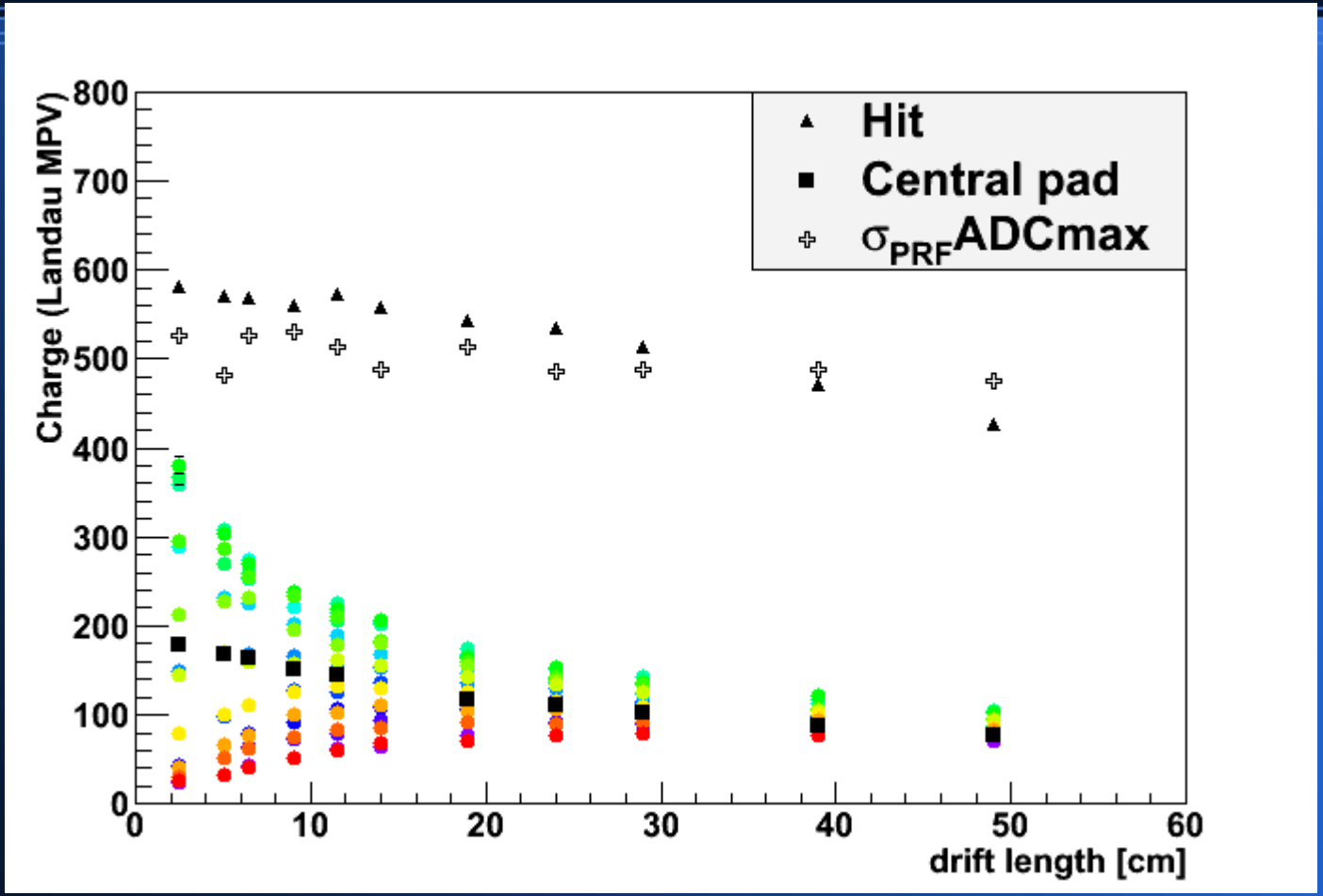
- Misinterpretation of the data last time
  - ADCmax*sigmaPRF is not the total charge (ADCmax is always smaller than the max of the Gaussian distribution)
  - Threshold effect cannot account for the 20-30% loss at long drift

Charge vs drift



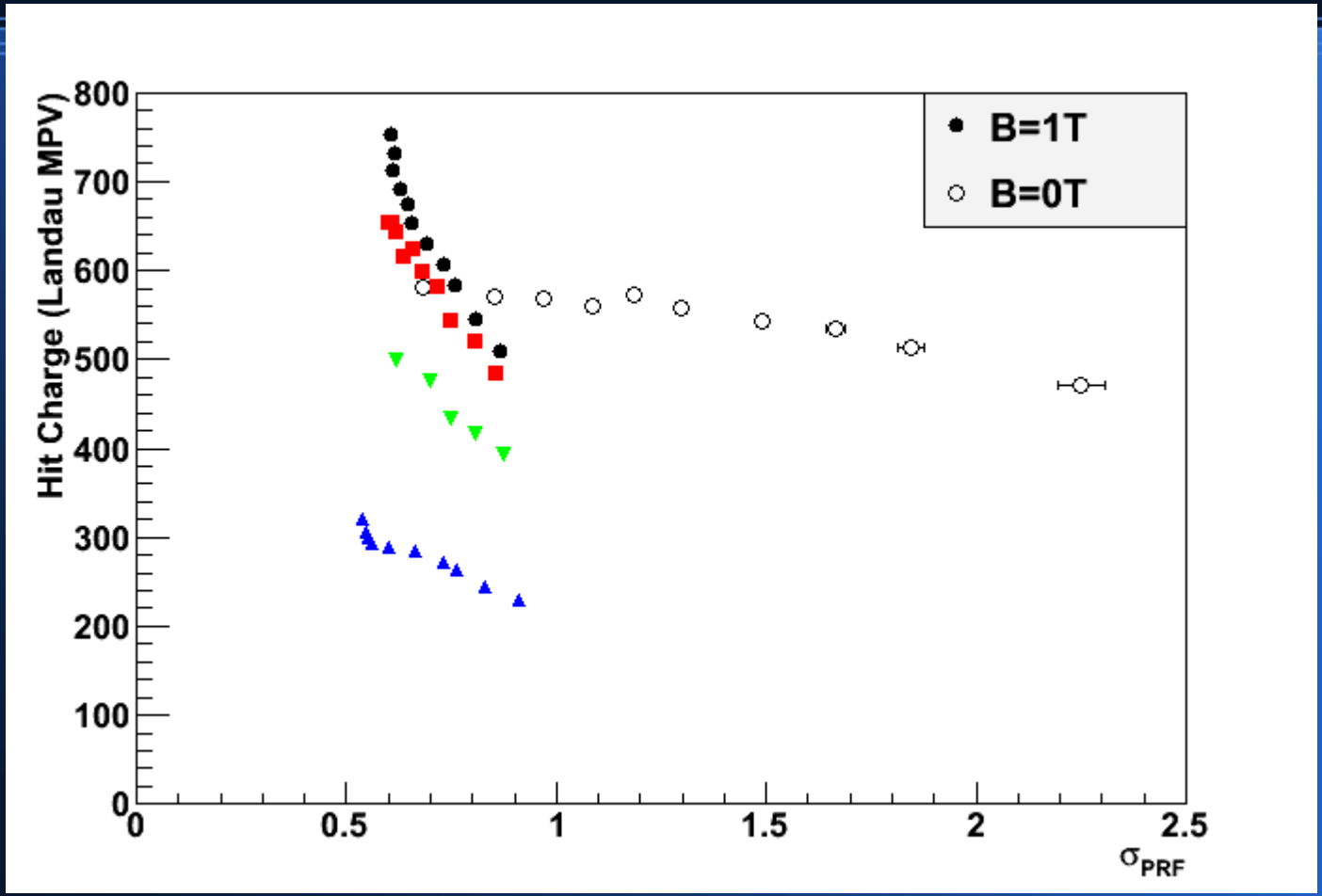
Total charge and central charge are consistent: no obvious threshold effect

Charge vs drift, B=0



The effect is smaller than for B=1T => excludes electron absorption
Here, we see a threshold effect

Charge loss vs sigma



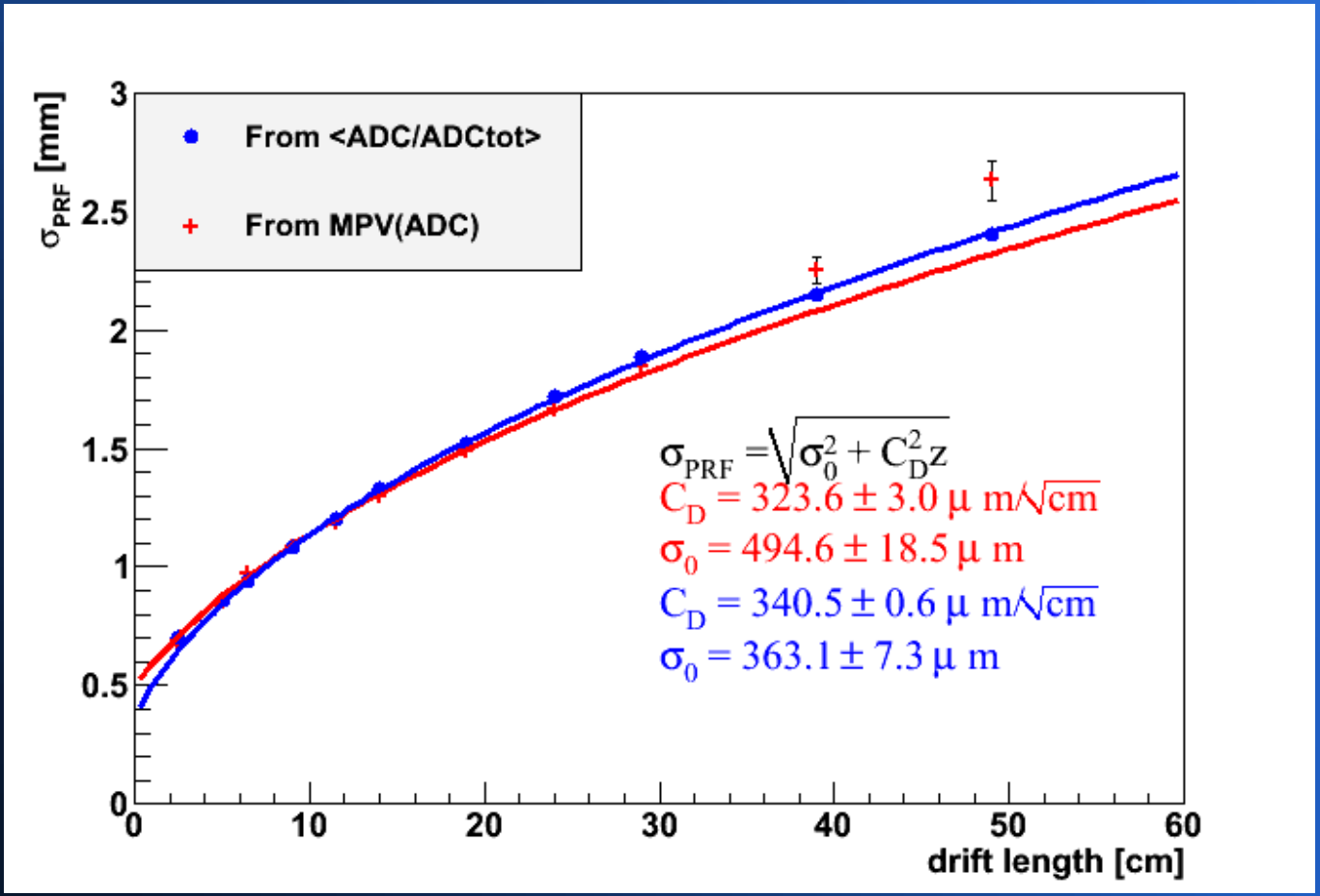
Data with and without magnetic field have different behaviours: not simply related to diffusion

Conclusion

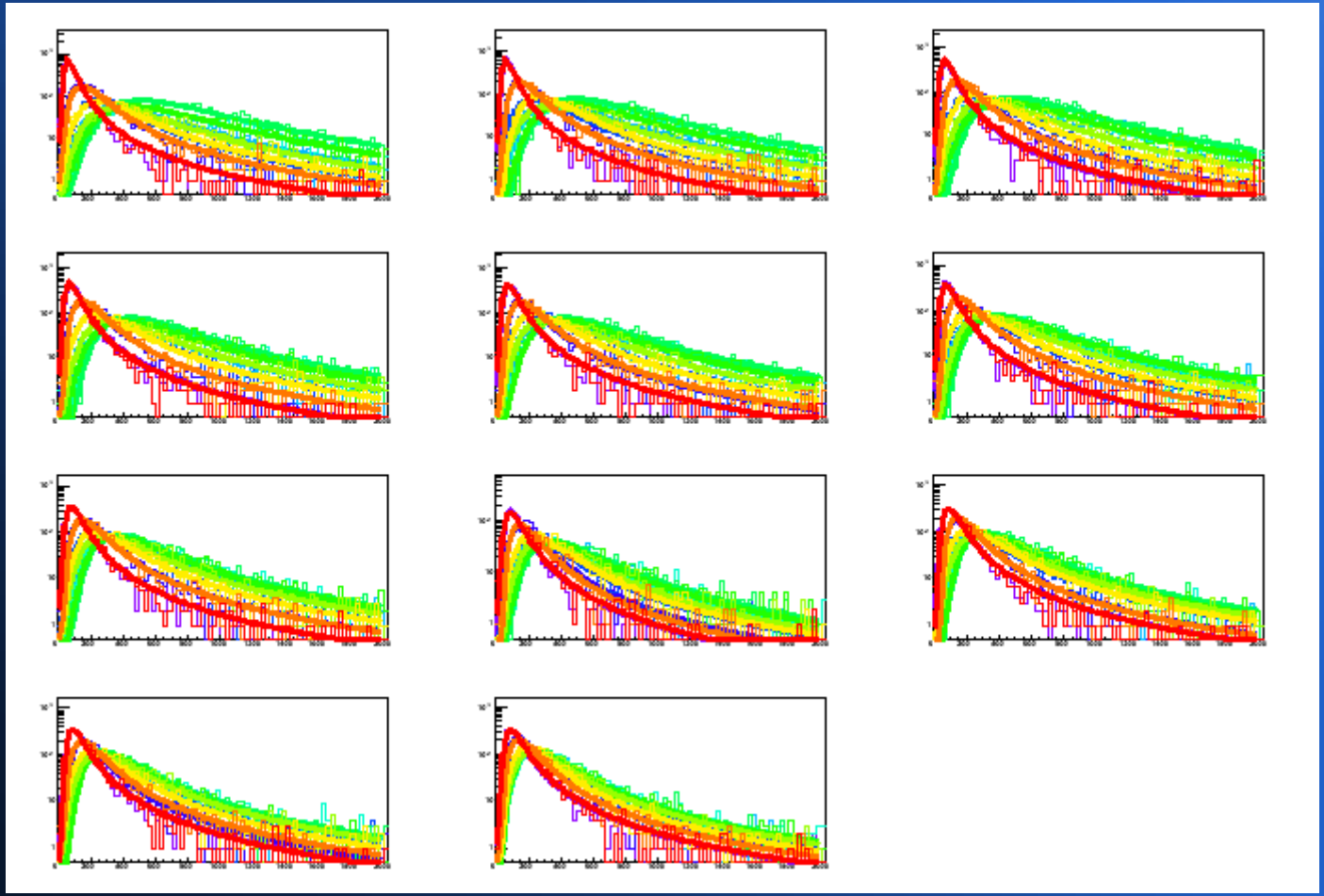
- Analysis still ongoing
- PRF looks good
- Charge dependence with drift distance still not understood
- No notable threshold effect in the data
  - Small effect in B=0 data

Backup

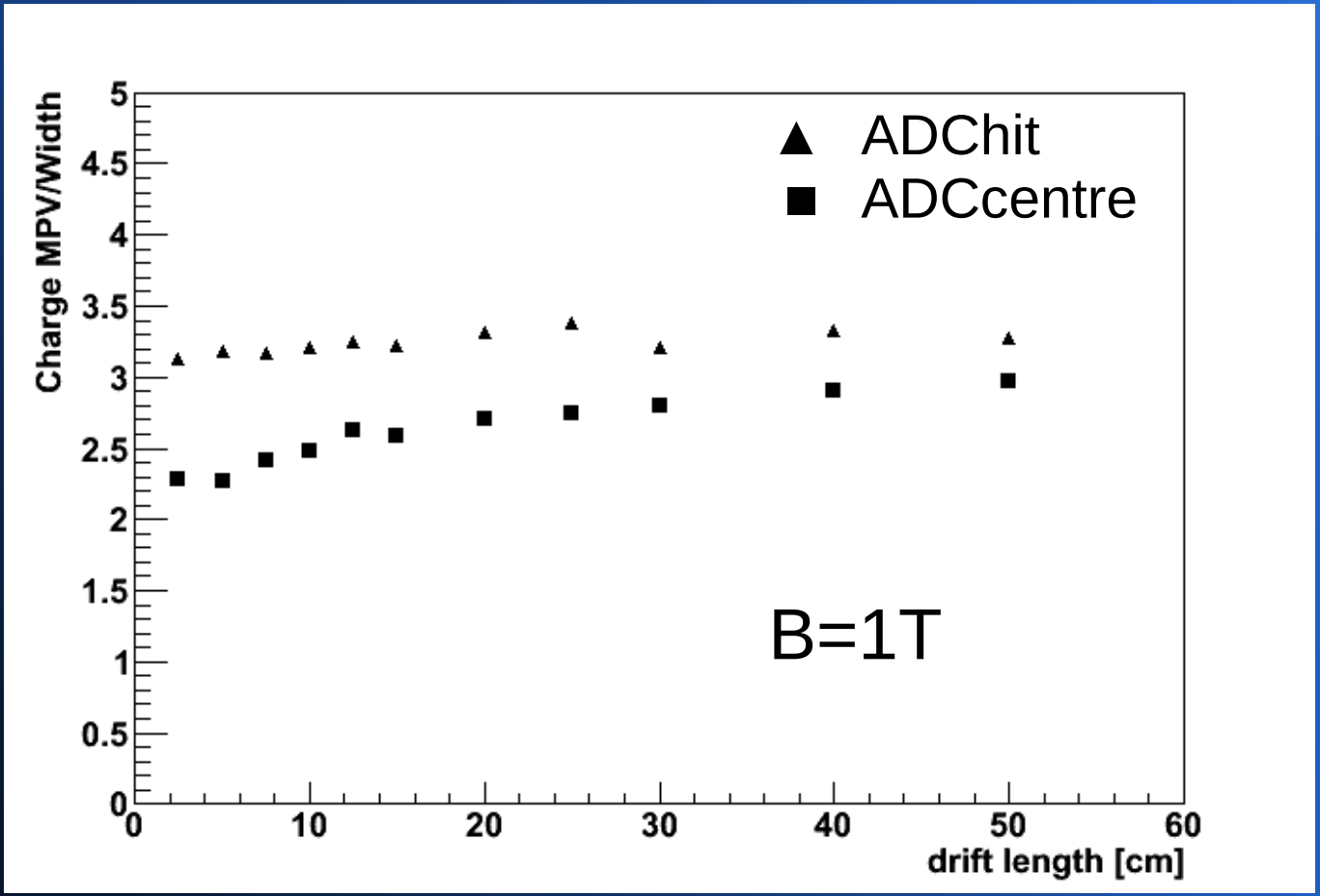
PRF, B=0T


From <ADC/ADCtot>
From MPV(ADC)
σ_{PRF} [mm]
drift length [cm]
$\sigma_{PRF} = \sqrt{\sigma_0^2 + C_D^2 z}$
$C_D = 323.6 \pm 3.0$ μ m$\sqrt{\text{cm}}$
$\sigma_0 = 494.6 \pm 18.5$ μ m
$C_D = 340.5 \pm 0.6$ μ m$\sqrt{\text{cm}}$
$\sigma_0 = 363.1 \pm 7.3$ μ m
0
0.5
1
1.5
2
2.5
3
0
10
20
30
40
50
60

Charge distributions
Landau fits



Landau shape: MPV/Width



Landau shape: MPV/Width