

Drift Chamber Team

DC Team Members

Mississippi St.: Latif Kabir

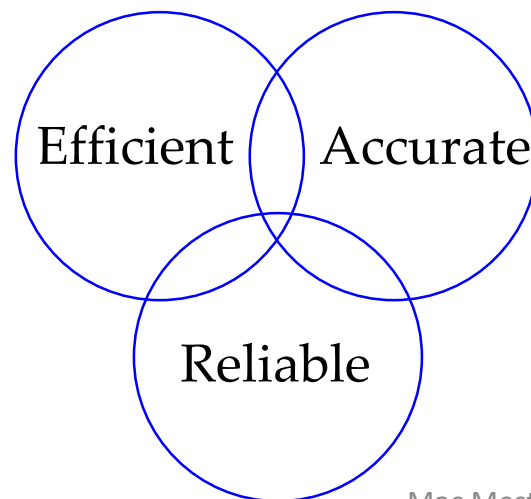
Juelich: Michael Kunkel, Daniel Lersch, Su Schadmand

ODU: Dilini Bullumulla, Torri Roark, Tyler Viducic

Jlab: Morgan Cook

DC Groups

- Operations: **M.C.**, all
- Monitoring: **D.B.**, T.R., T.V.
- Calibration: **L.K.**, D.M.
- Simulation: **M.K.**, **D.L.**
- Geom. Corrections: **T.R.**, **T.V.**
- Documentation: **S.S.**



DC Operational Parameters

- HV & Disc. Settings
 - Time Window
- Efficiency (% Working)

Set HV, Discriminator Threshold

- High voltage \rightarrow gain \rightarrow $Gain \sim G_0 * e^{V/75}$
- Wire efficiency $\sim Gain / Disc.Threshold$
- Do “efficiency plateau”

Set Time Windows

Turn On All Channels

“Knee” of Efficiency Curve → HV & Disc. Settings

HV, Threshold Scans
set threshold (30,45,60)

- scan voltage settings
- measure average hit efficiency

- set at ‘knee’ of curve

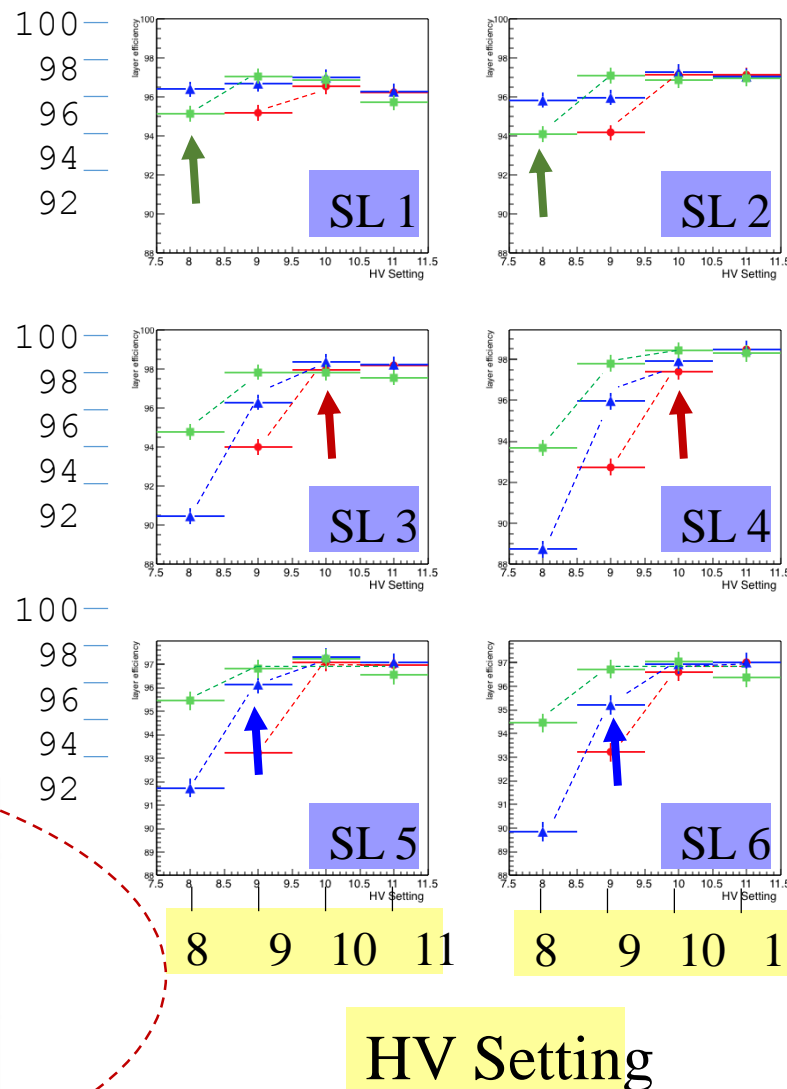
‘Excluded Layer’ Method

- remove layer from segment-finding
- do segment fit with 5 layers
- **does layer fire ?**

Region	HV	Discriminator
1	8	30
2	10	65
3	9	45

Nominal Settings

Layer Eff. %



Disc. Thresholds:

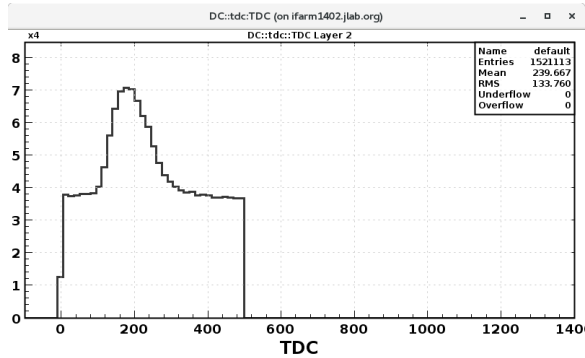
30 mV
45 mV
60 mV

Arrows indicate
HV, Disc Set-point

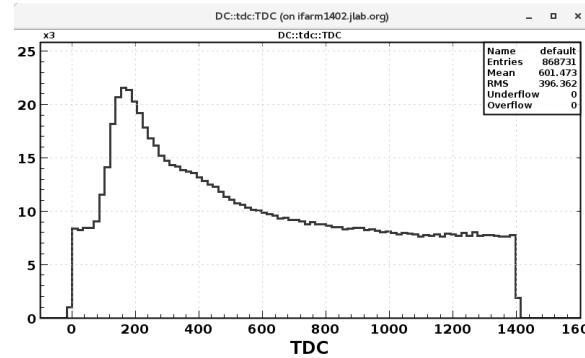
Efficiency ~ 96%

Time Window \rightarrow Contain all hits + margin

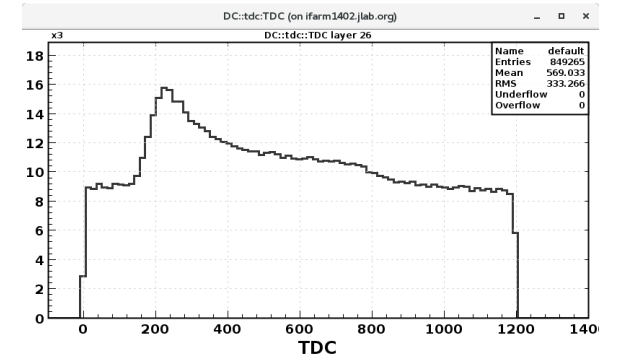
Online TDC



Reg. 1

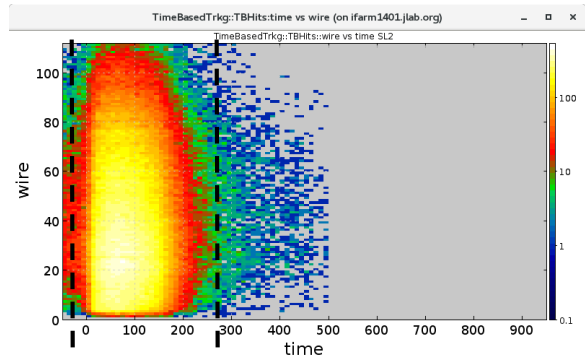


Reg. 2

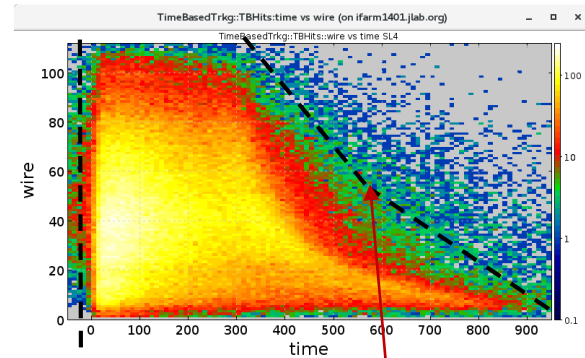


Reg. 3

Offline Time Window



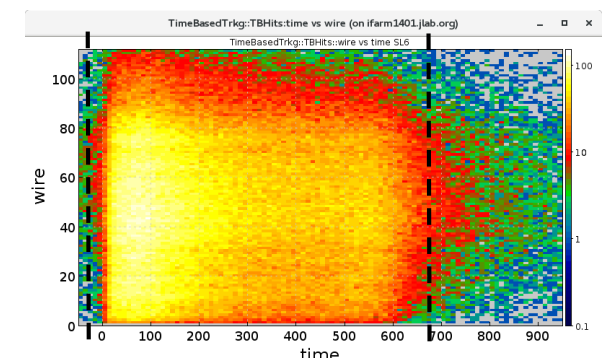
-25ns 275ns



-25ns

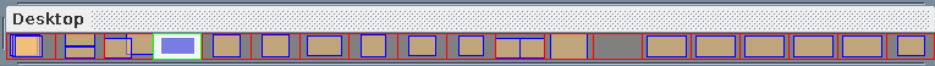
$$lwir < 56: 350 + 200 * (112 - iwir) / 56$$

$$lwir > 56: 550 + 400 * (56 - iwir) / 56$$

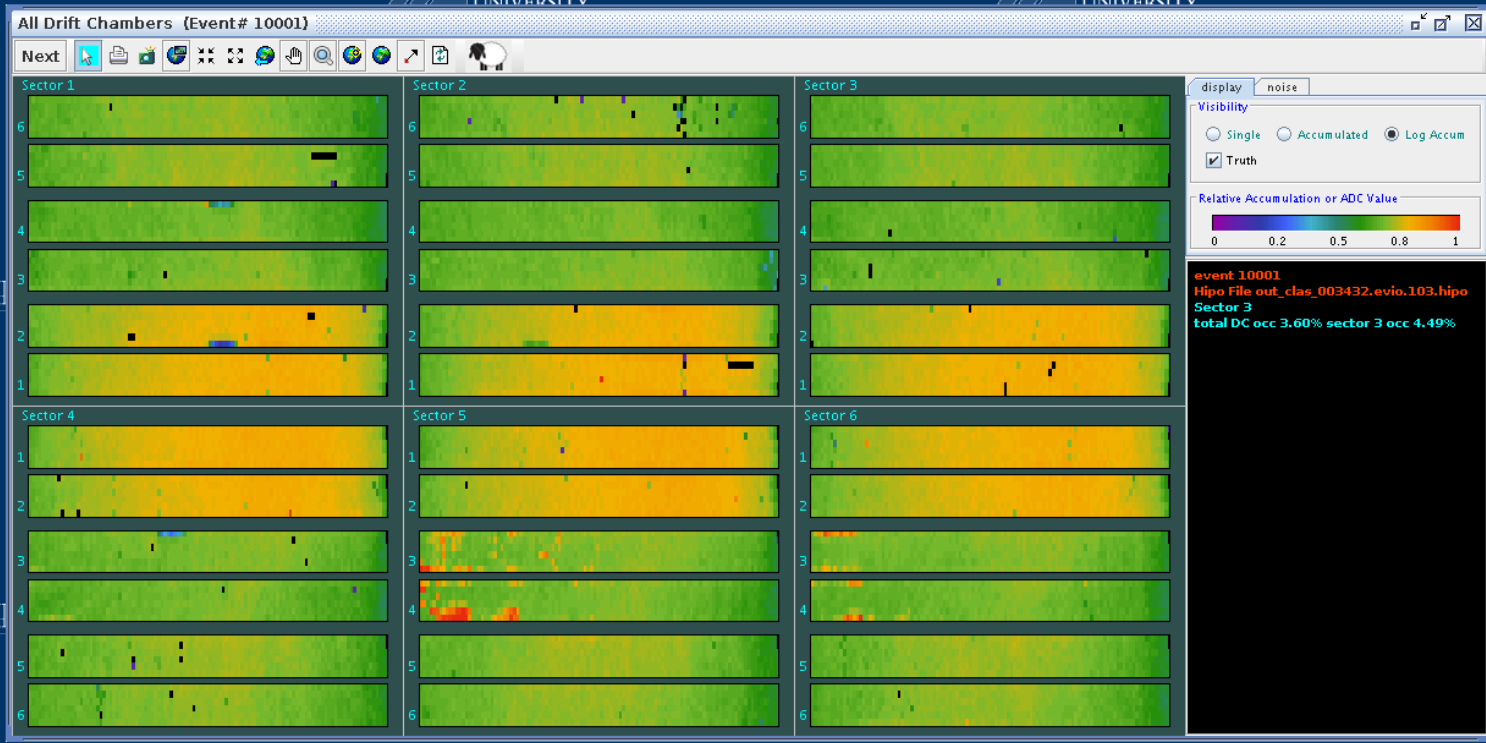


-25 ns

750 ns



Occupancy Plot



4 connector issues

6 HV pin disconnects

2 hot areas

