Cosmic Calibration Update

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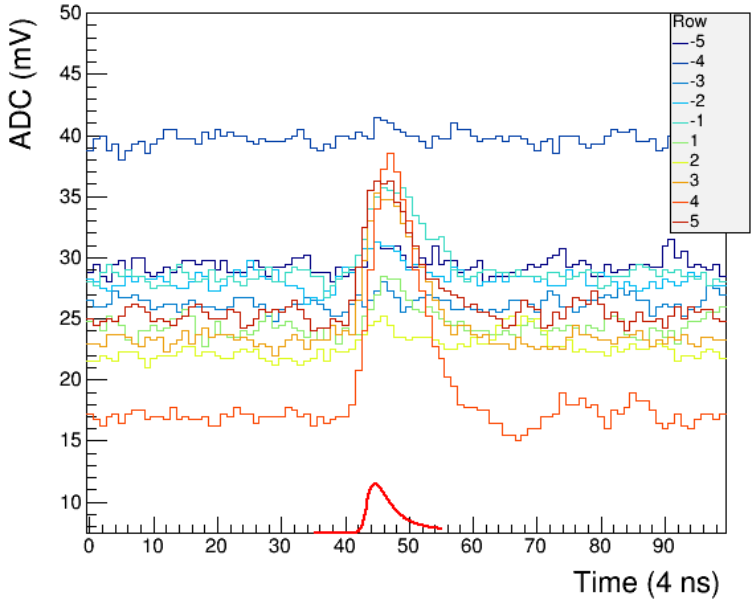
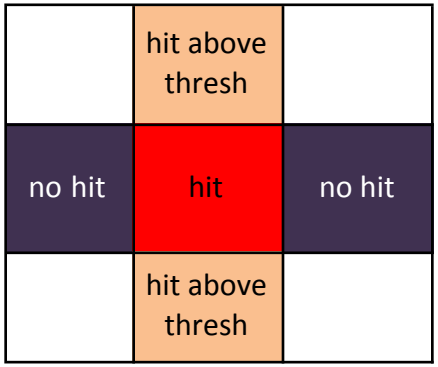
- Data in **raw mode**
- **Integrating** cosmic signals and subtracting out a calculated pedestal (80ns window)
- Landau signal **fit** over polynomial background (only observed in some crystals)
- Crystal **threshold** is 2.5mV (FADC) to count as a MIP event

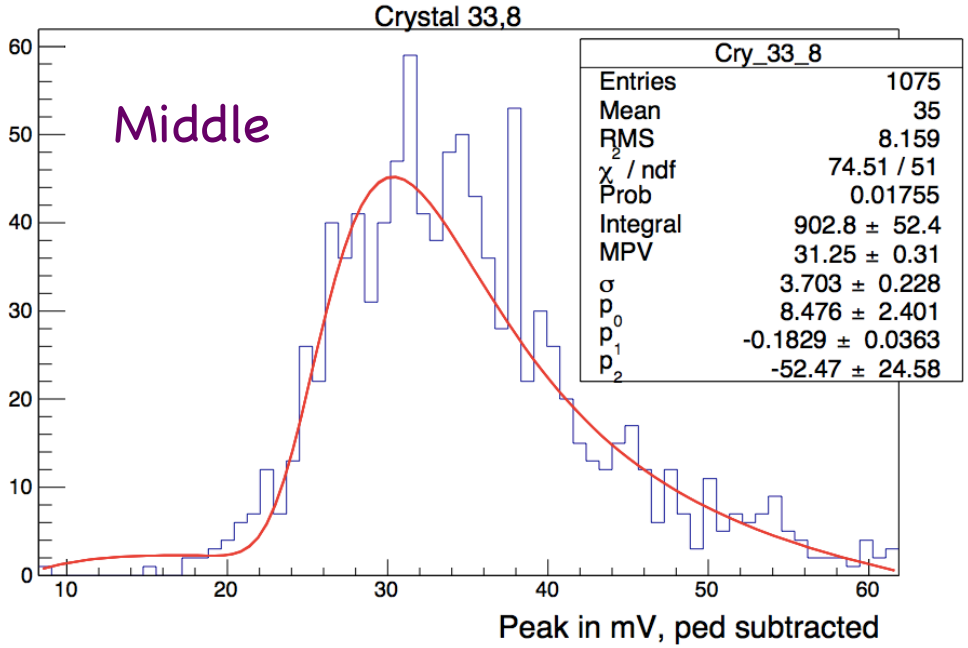


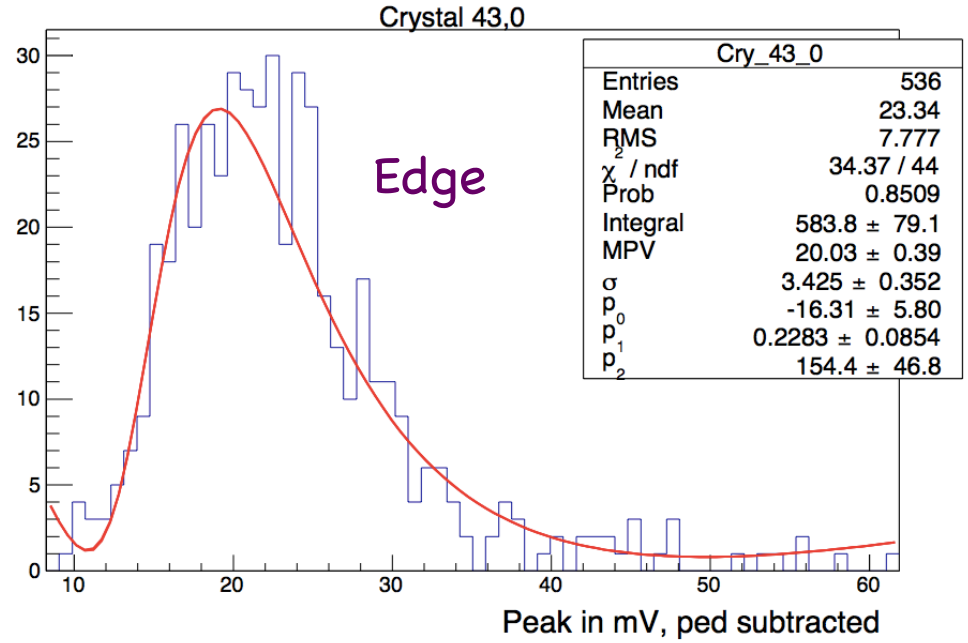
- **Geometric cut**: crystal must not have a hit crossing threshold in adjacent crystals in the same row and must have a hit in crystals directly above and/or below (strict, can be expanded to include diagonal)

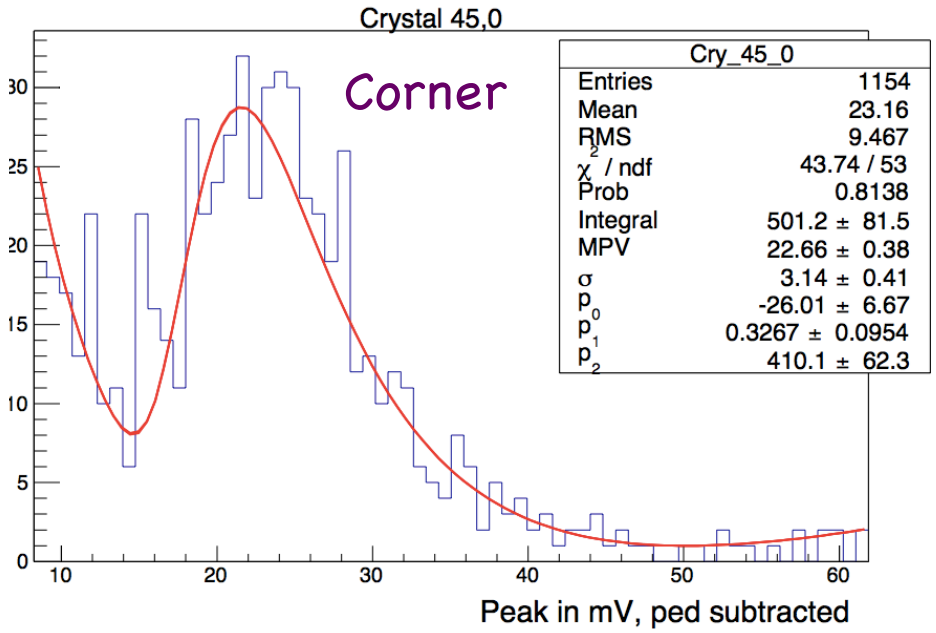


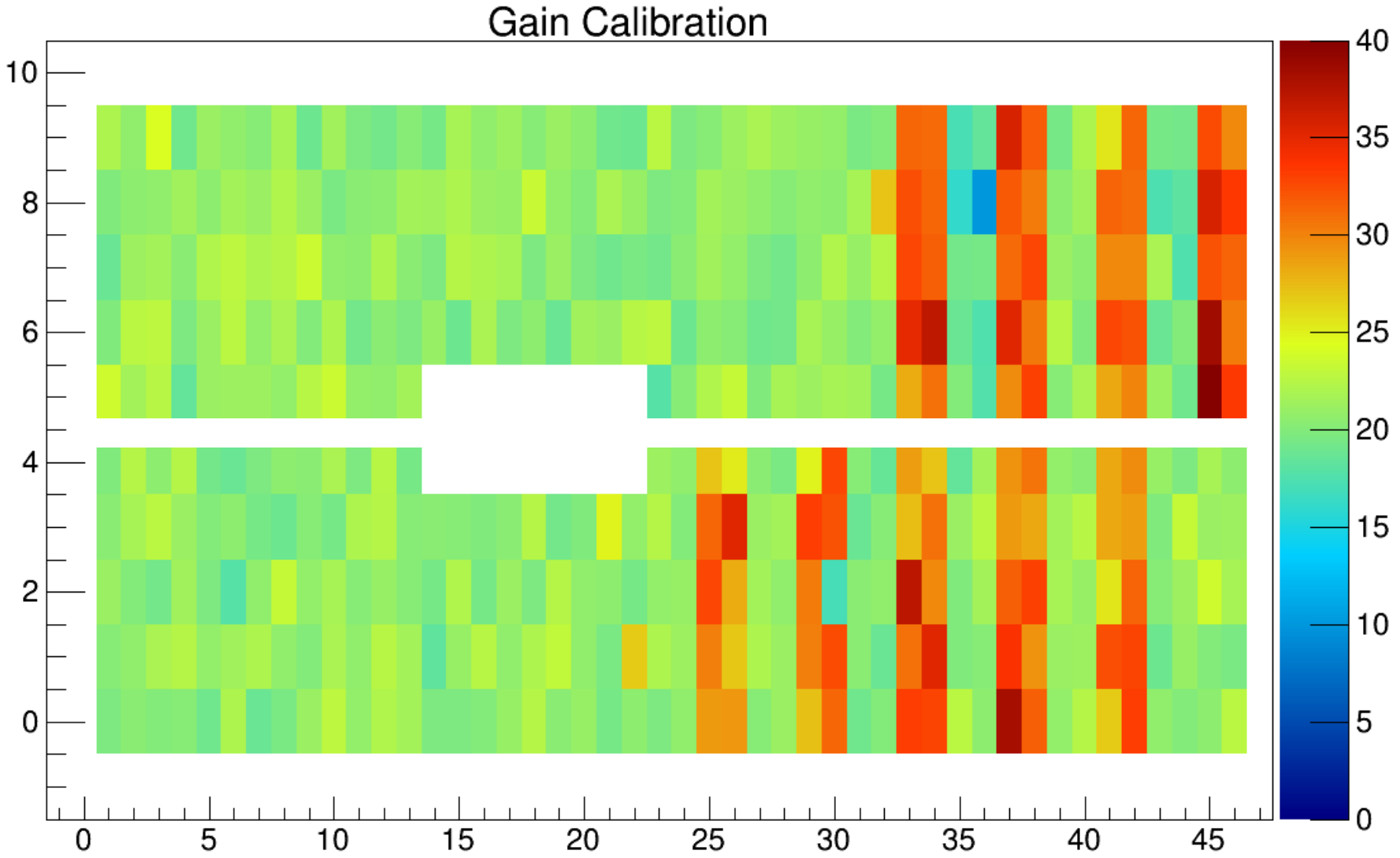
$$A * Landau(x,B,C) + p0 + p1 * x + p2 / x$$

A-Integral
B-MPV, highest peak
C-Sigma
Background fit parameters
-p0, p1, p2

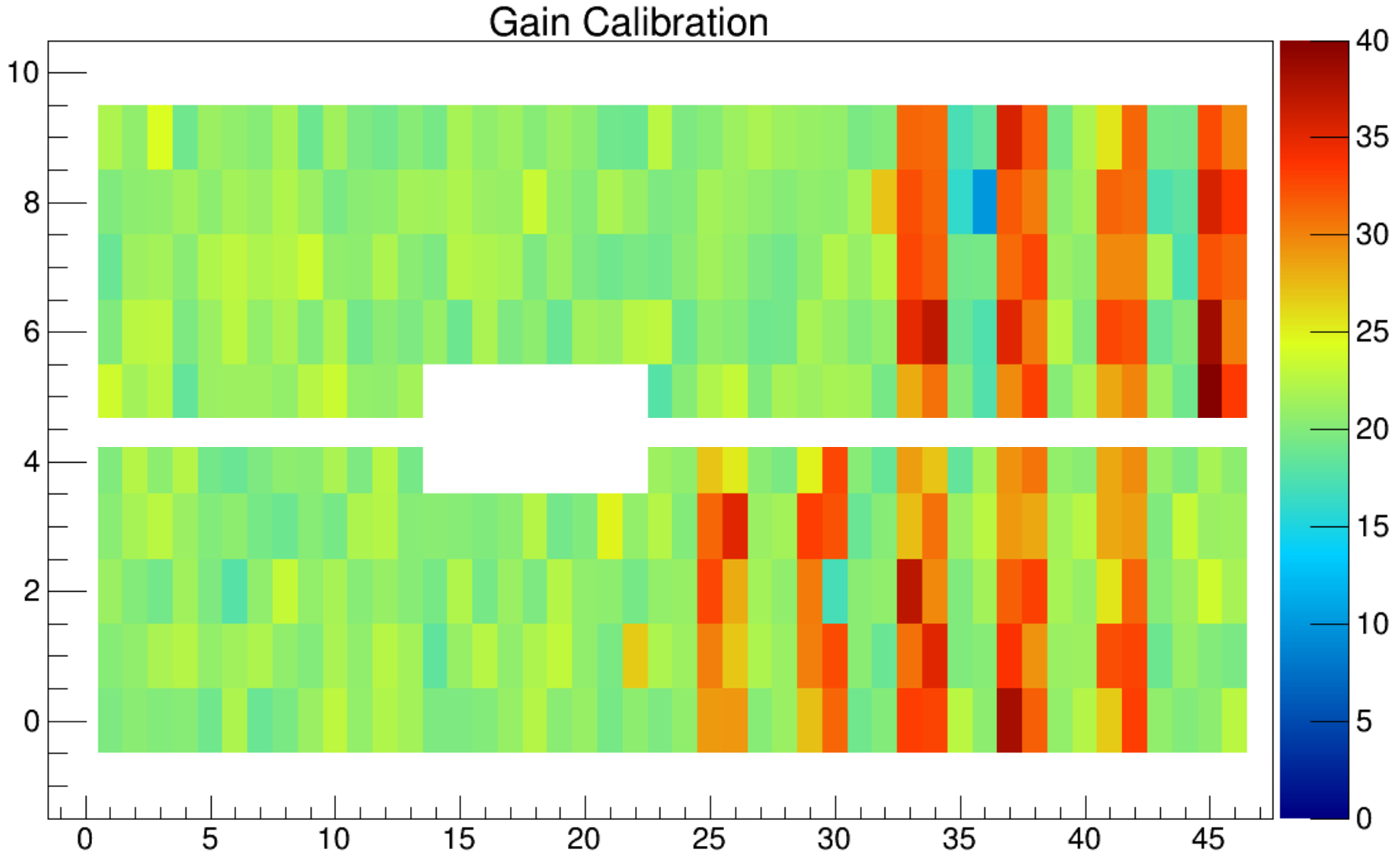




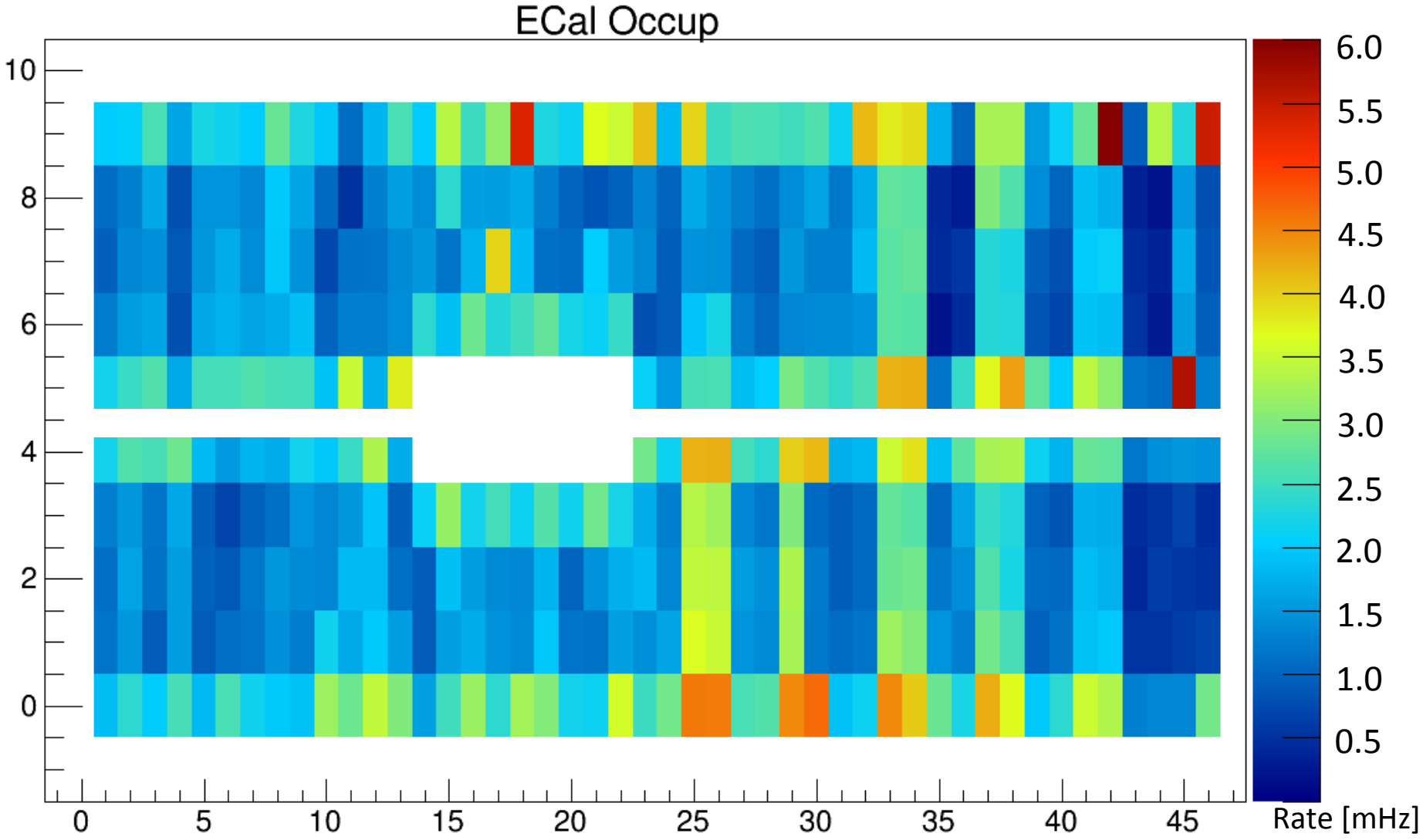




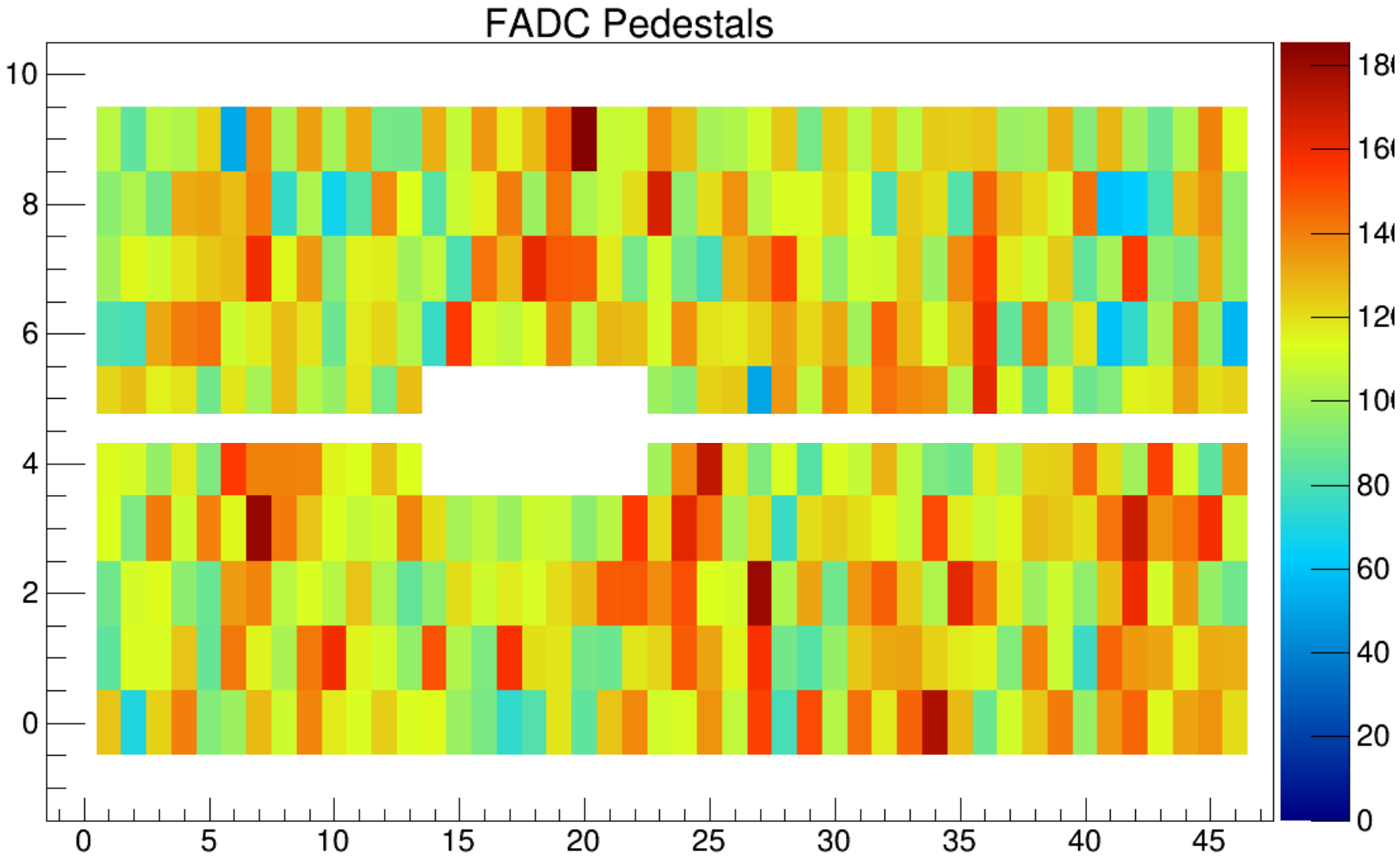
These are the peaks of the Landau fit in units of mV (FADC).
**Red groups are HV groups, outputting higher than nominal voltage, and groups in between output lower than nominal voltage



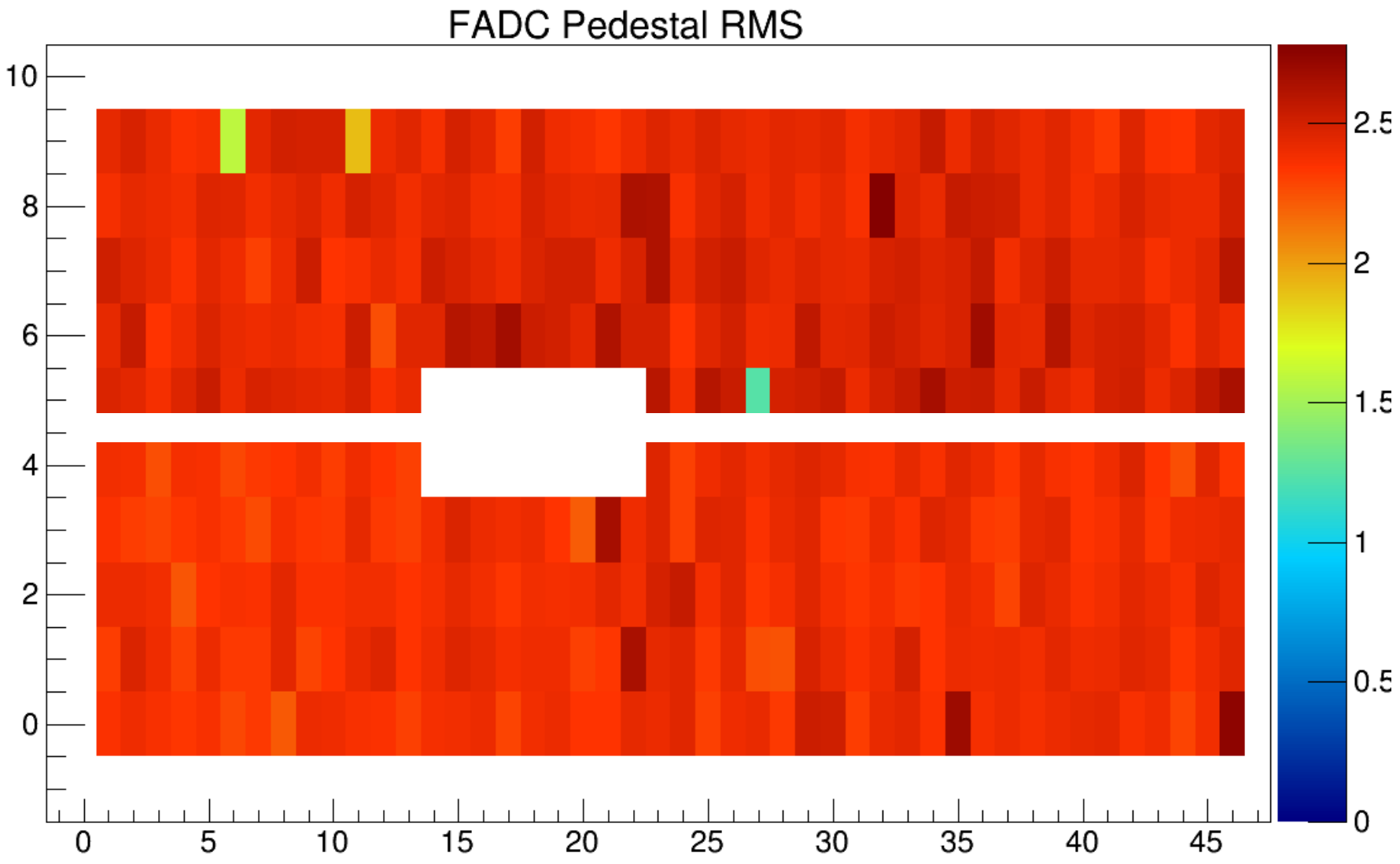
-Red groups correspond to HV groups, outputting higher than nominal voltage
-Groups in between red groups output lower than nominal voltage
-Discrepancy of voltage measured at the back of the mainframe



-Horizontal bands due to geometric cuts
-Triggering scintillators found to be shifted left



Pedestals calculated from the front end of the time window in **units of FADC**



Time variation of the pedestal in **units of FADC**