HCAL tests

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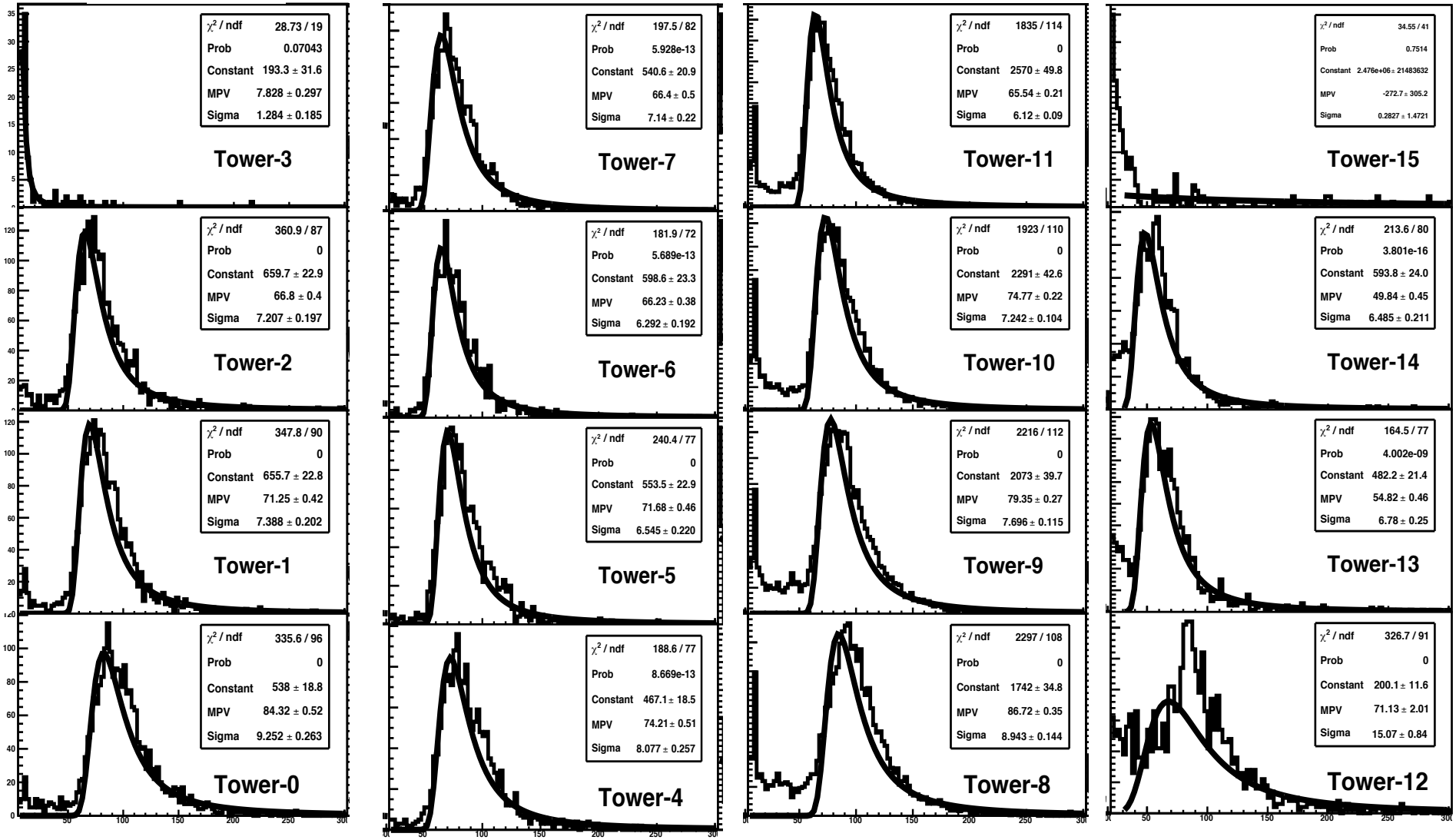
Database logging

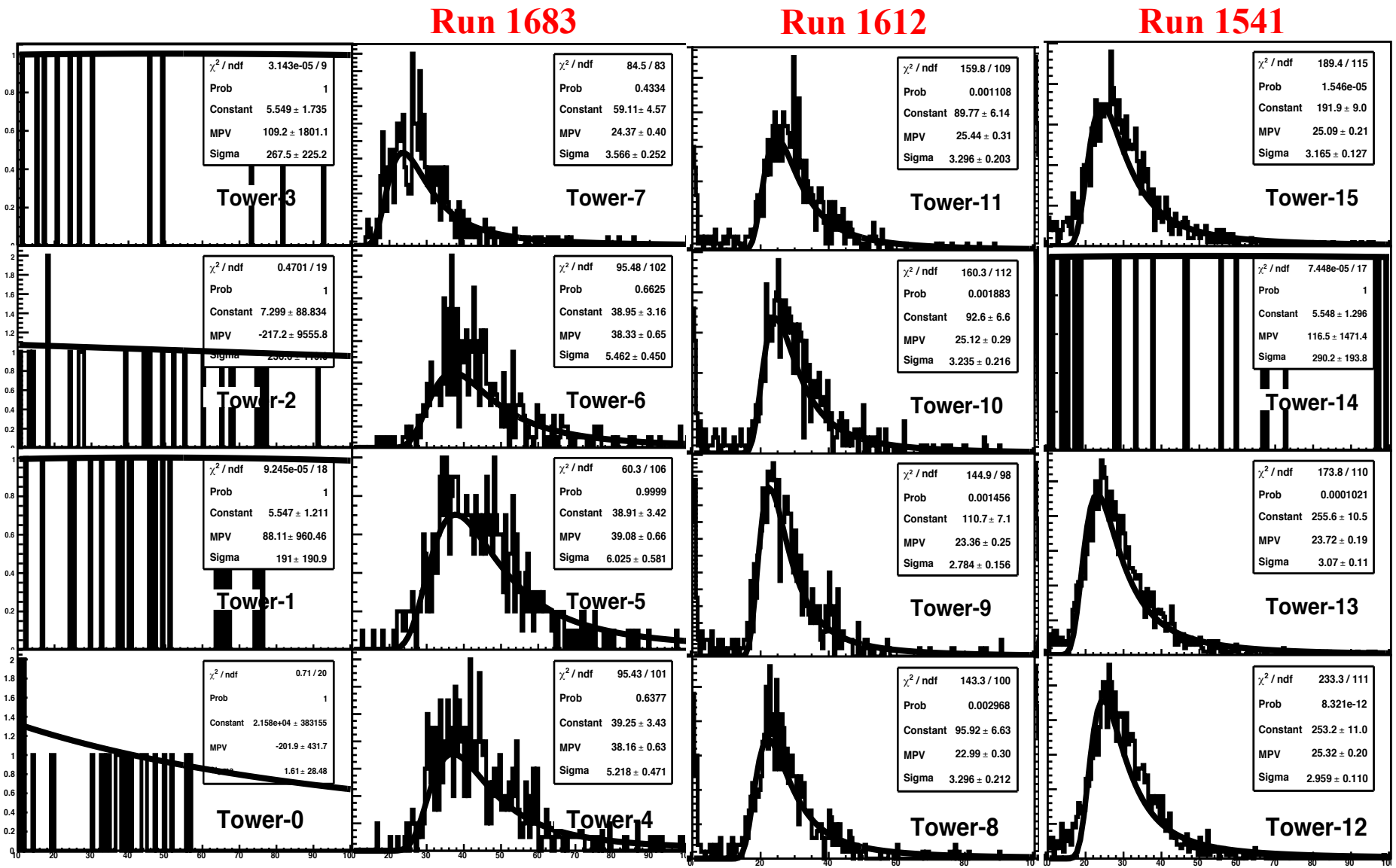
- Logging the controller and keithley information every minute.
- 4 Sqlite3 databases:
  - **HCAL**: creation text, unix time, runnumber, detid, T0, T1, D0, D1, I0, I1.
  - **EMCAL**: creation text, unix time, runnumber, detid, T0, D0, I0
  - **HCAL_KEITHLEY**: creation text, unix time, runnumber, bias_volt, bias_cur,
  - **EMCAL_KEITHLEY**: creation text, unix time, runnumber, bias_volt, bias_cur
- Database file: /homesa/phnxsa/abhisek/controller/hcal/testbeam.db
- Python logger: /homesa/phnxsa/abhisek/controller/hcal/testbeam.log

Cosmic MIP: IHCAL (LG)

Run 1394 | **Run 1428** | **Run 1391** | **Run 1416**

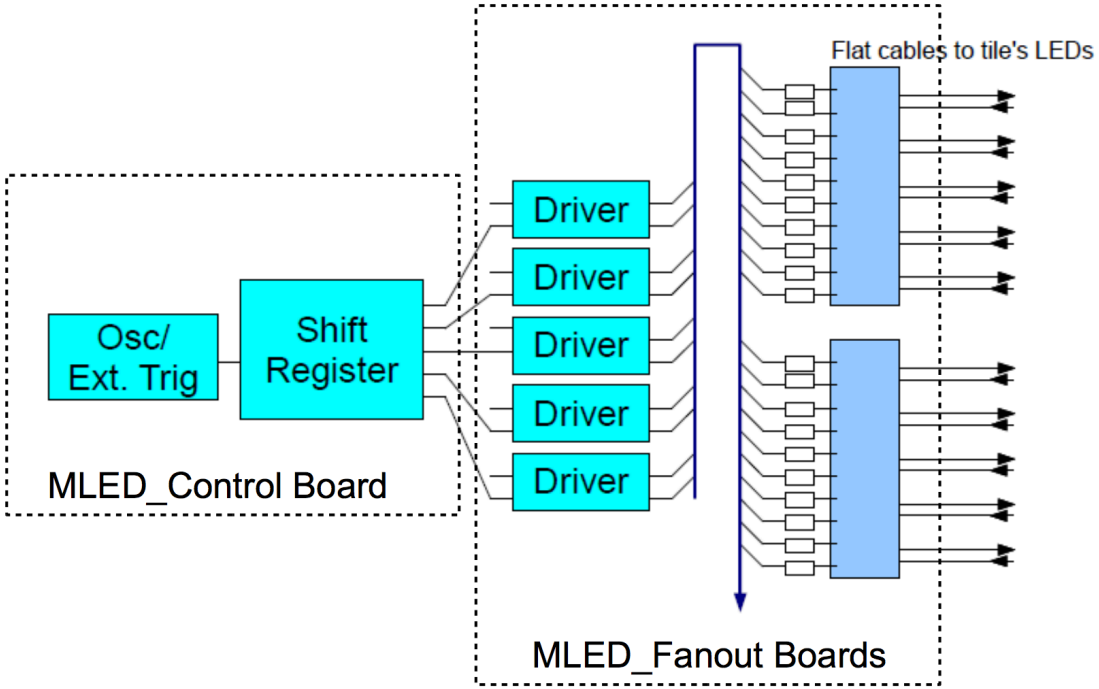


Cosmic MIP: OHCAL (LG)



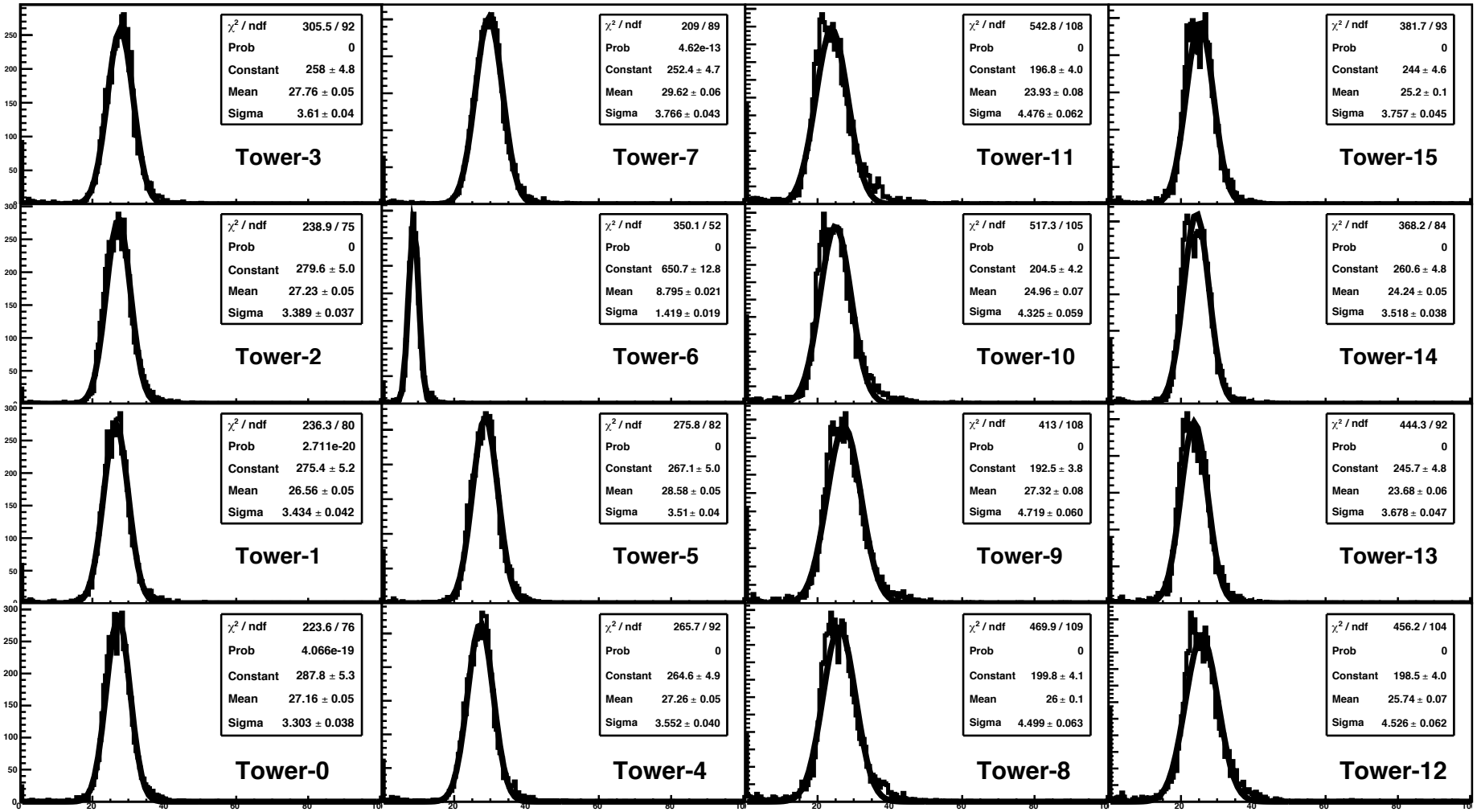
IHCAL LED runs

- MLED Control board drives all the LEDs.
- Controller bias voltage: 4.28V minimum (Saturates the HG at ~4.8V)



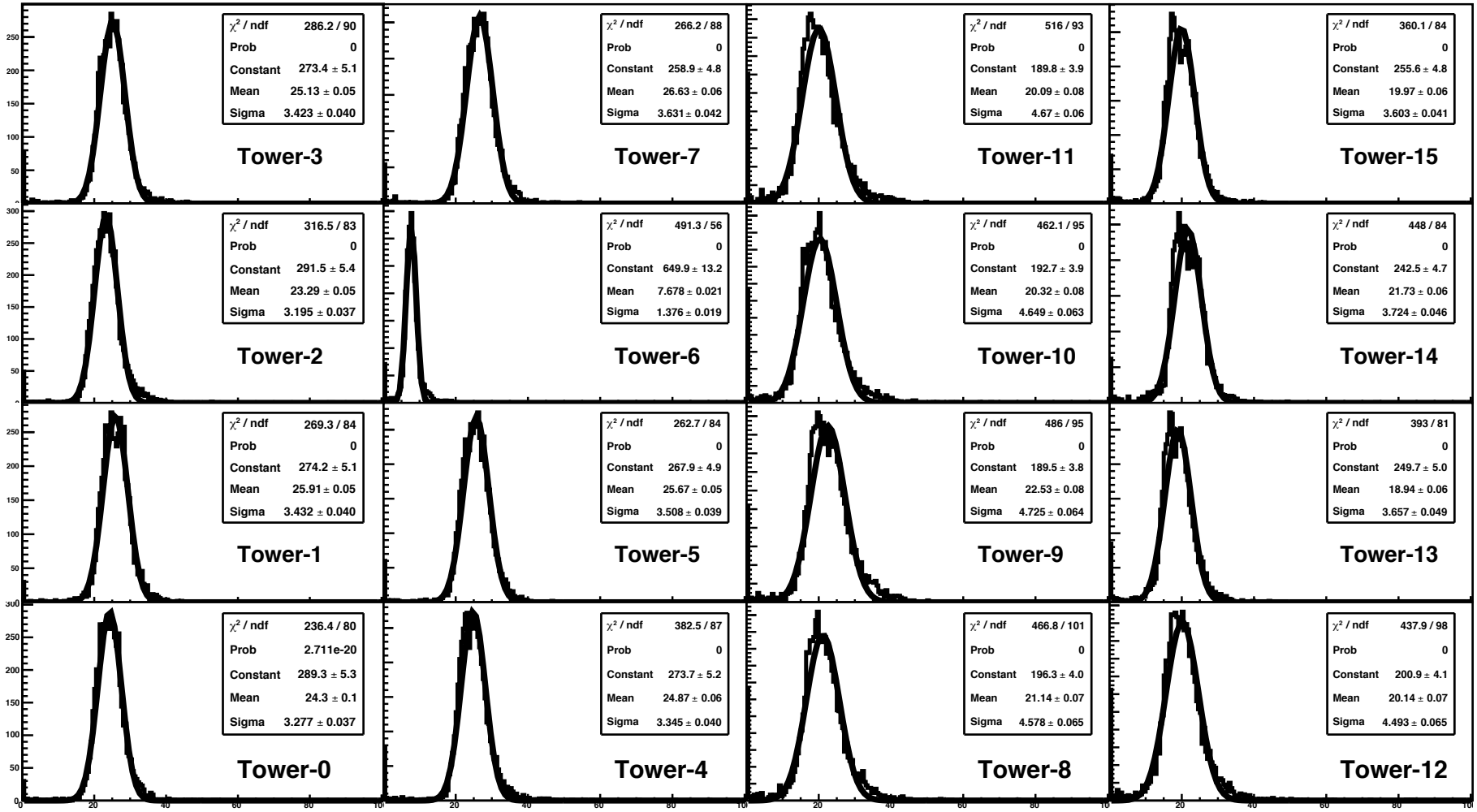
LED SIGNALS:
https://www.phenix.bnl.gov/WWW/publish/abhisek/sphenix/print.gif

Config:00001, 4.28volt

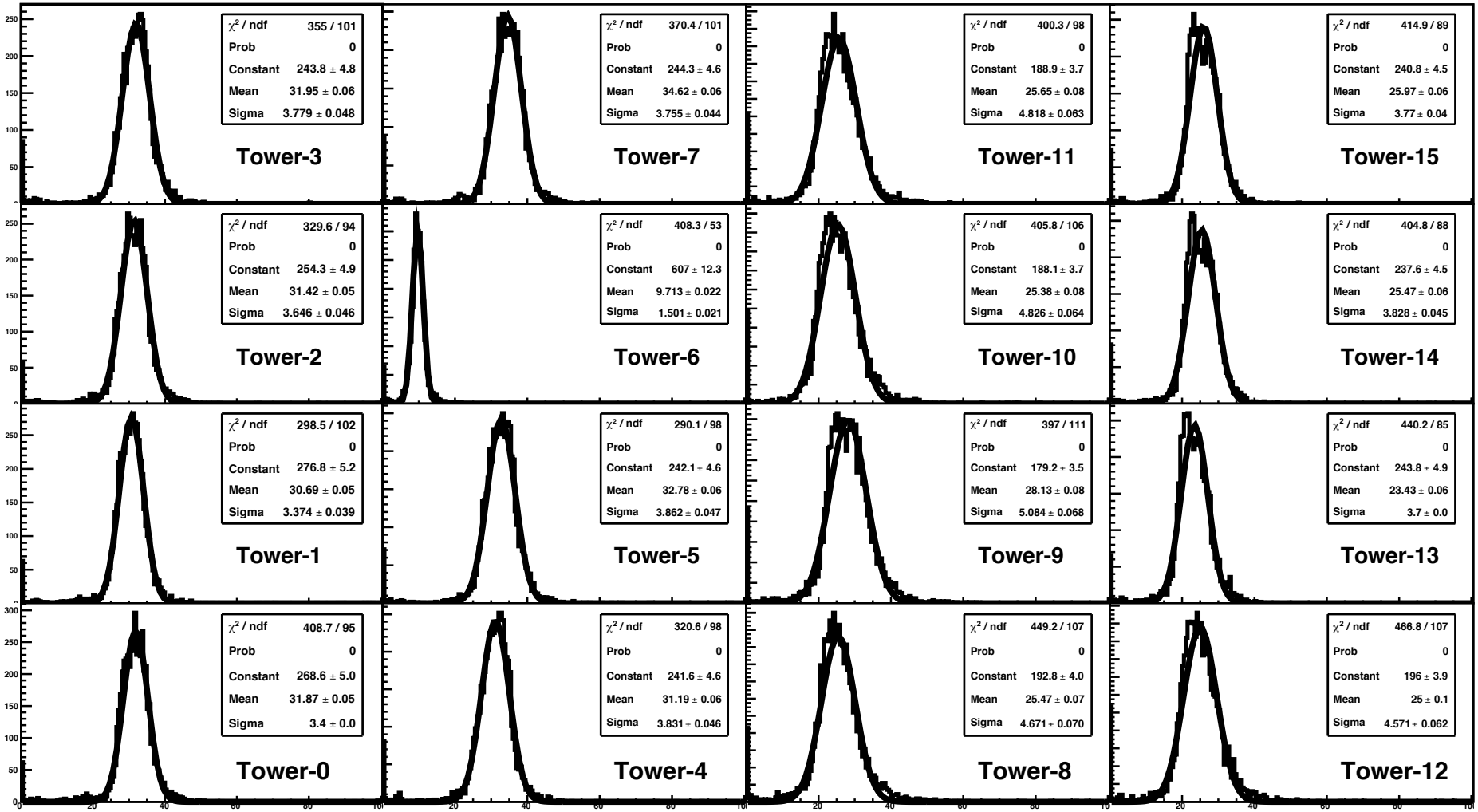


Tower 6 has a special setup: Only one out of the 5 tiles are connected.
Light output from tower 6 remains a mystery!

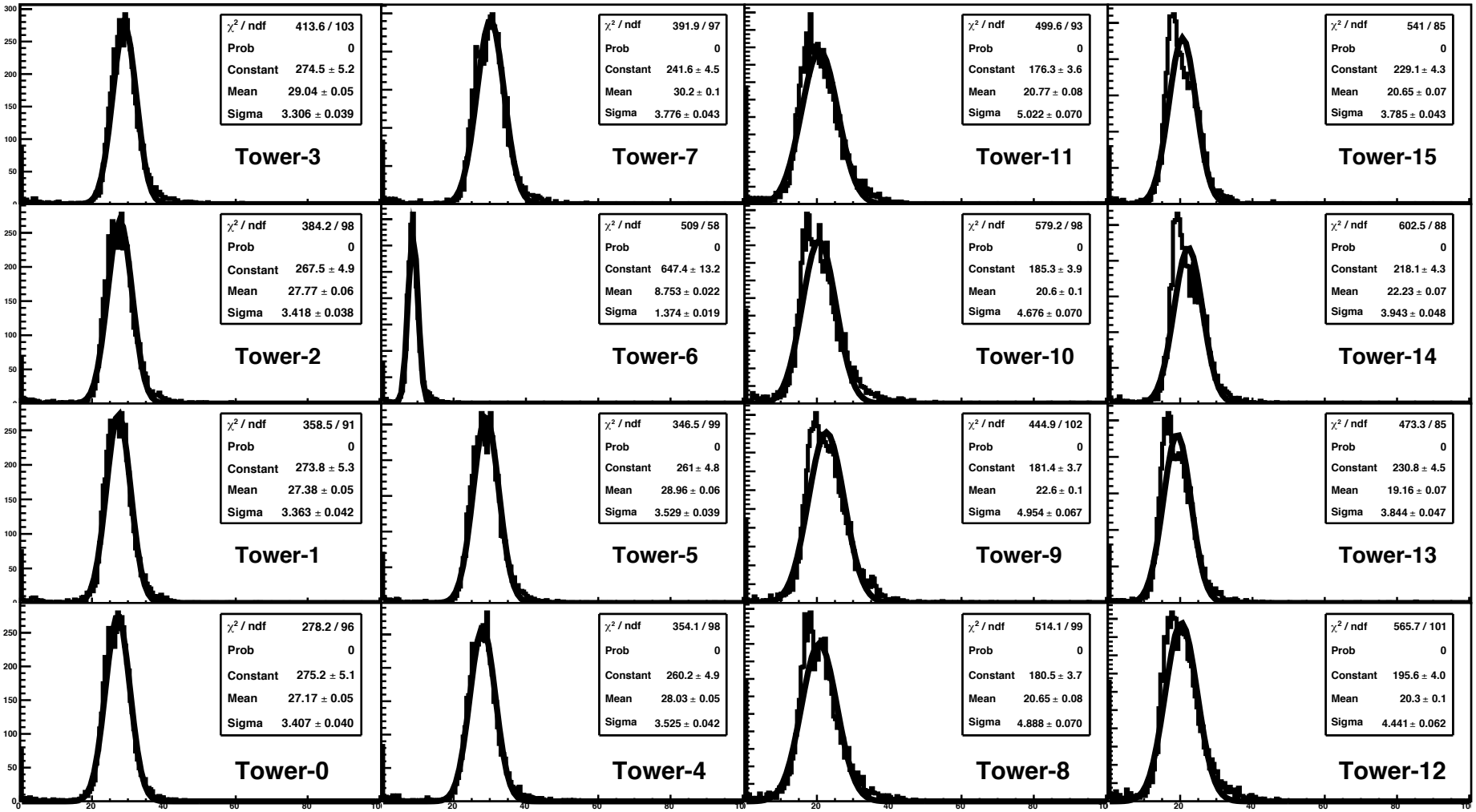
Config:00010, 4.28volt



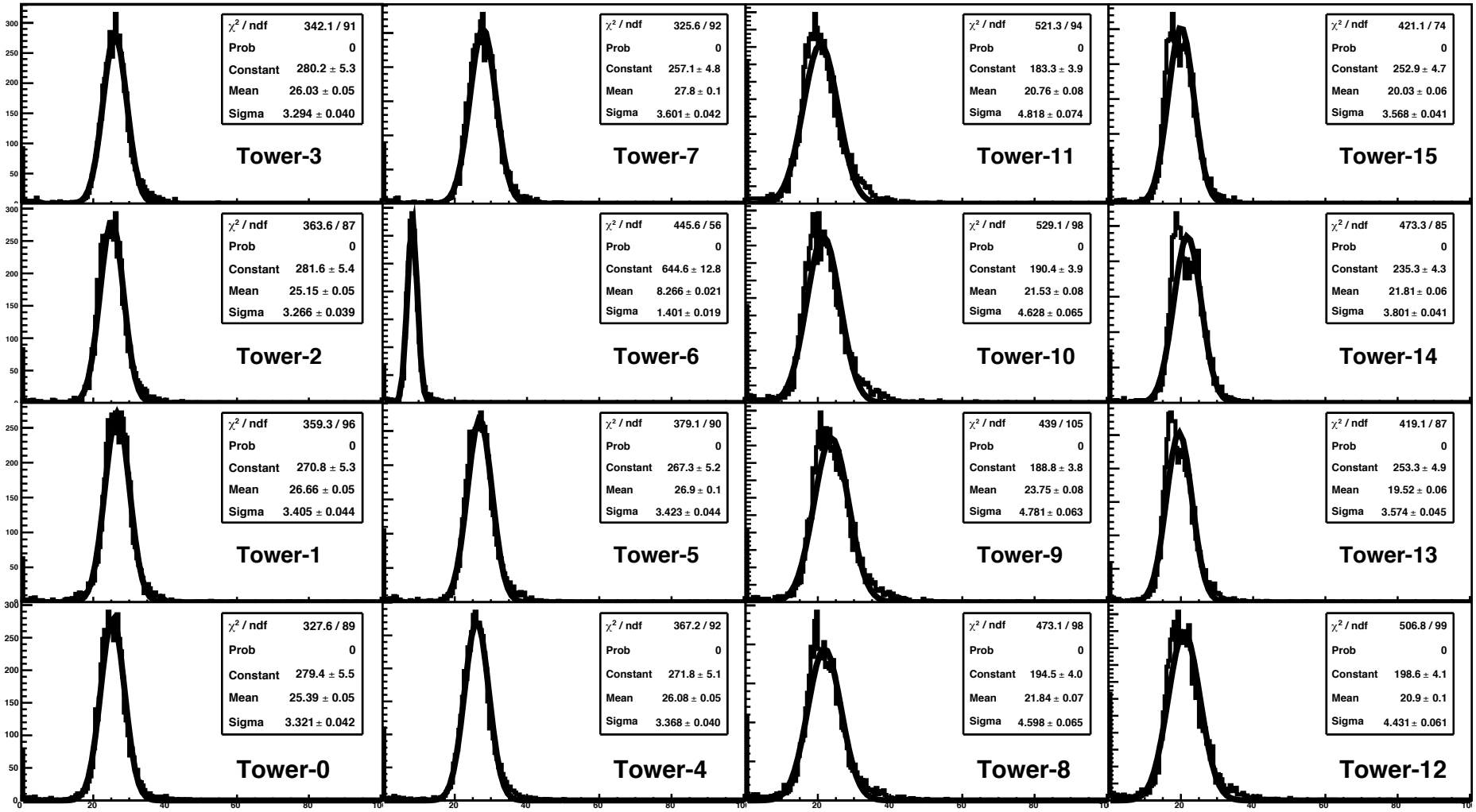
Config:00100, 4.28volt



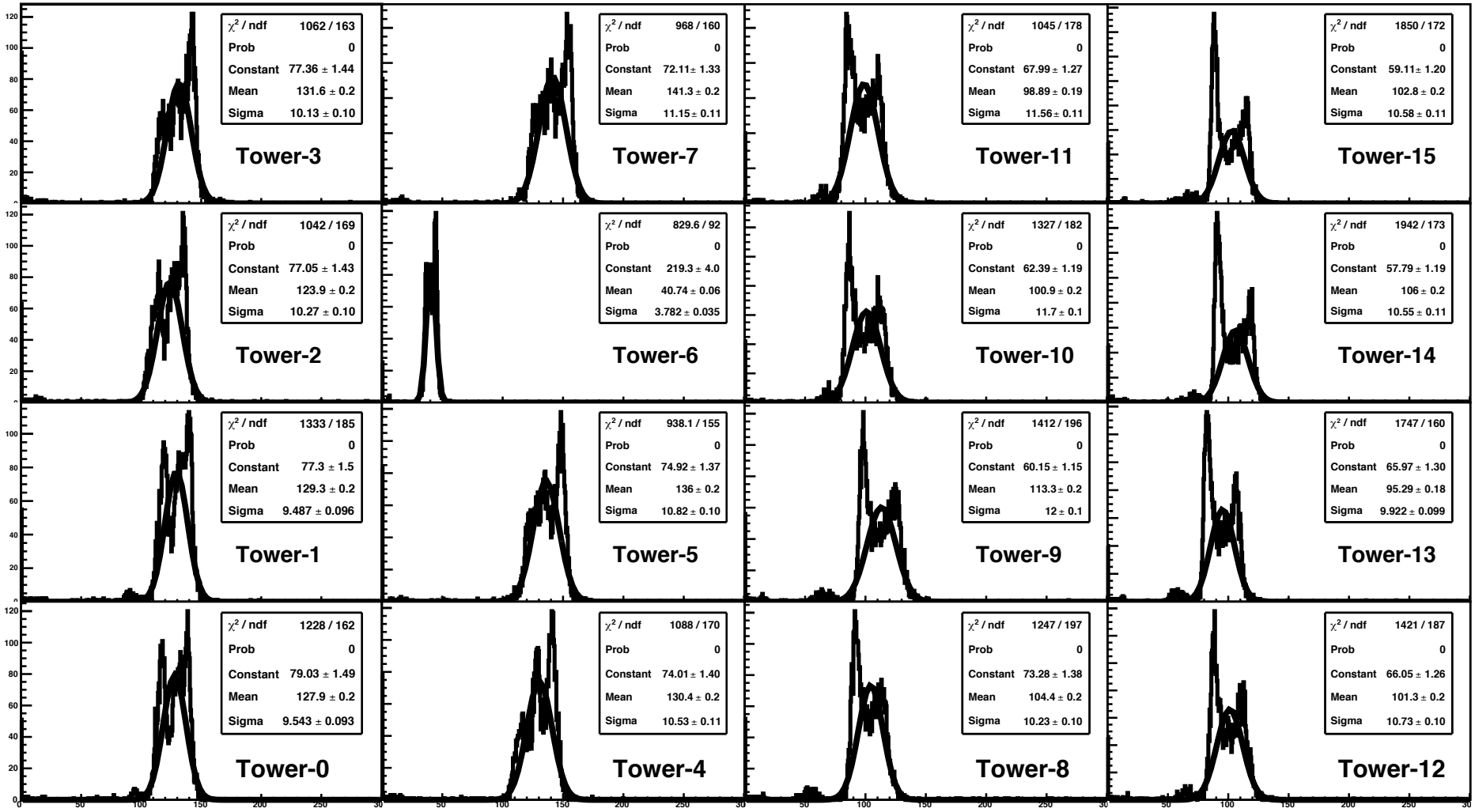
Config:01000, 4.28volt



Config:10000, 4.28volt

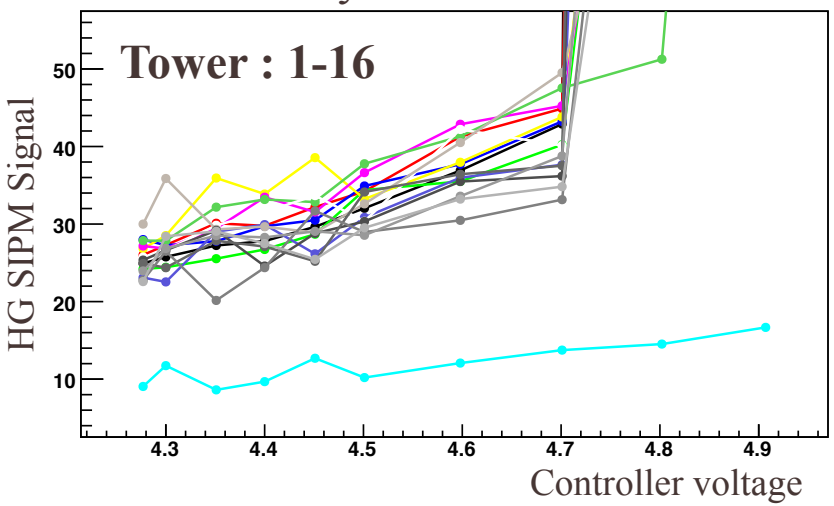


Config:11111, 4.28volt

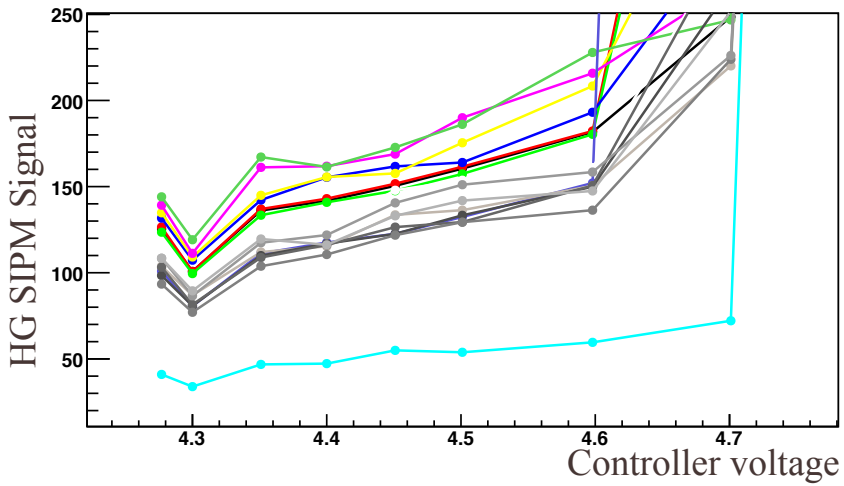


Light output vs voltage

Only 2nd LED ON



All LED ON



HG SIPM signal saturates ~4.8V.

Why the LED brightness increase not smooth between the towers?

The variation between the towers increases at higher bias voltage.