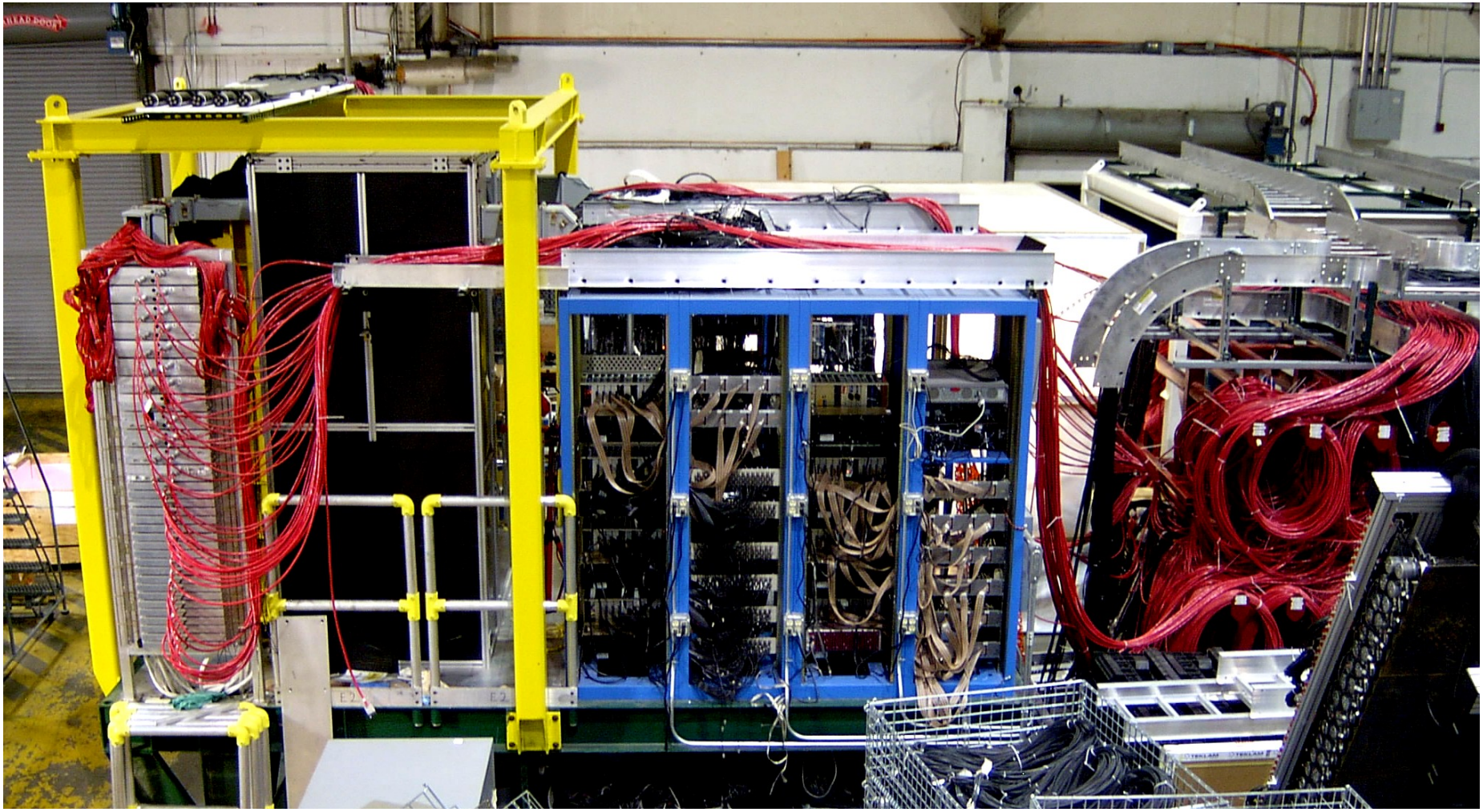
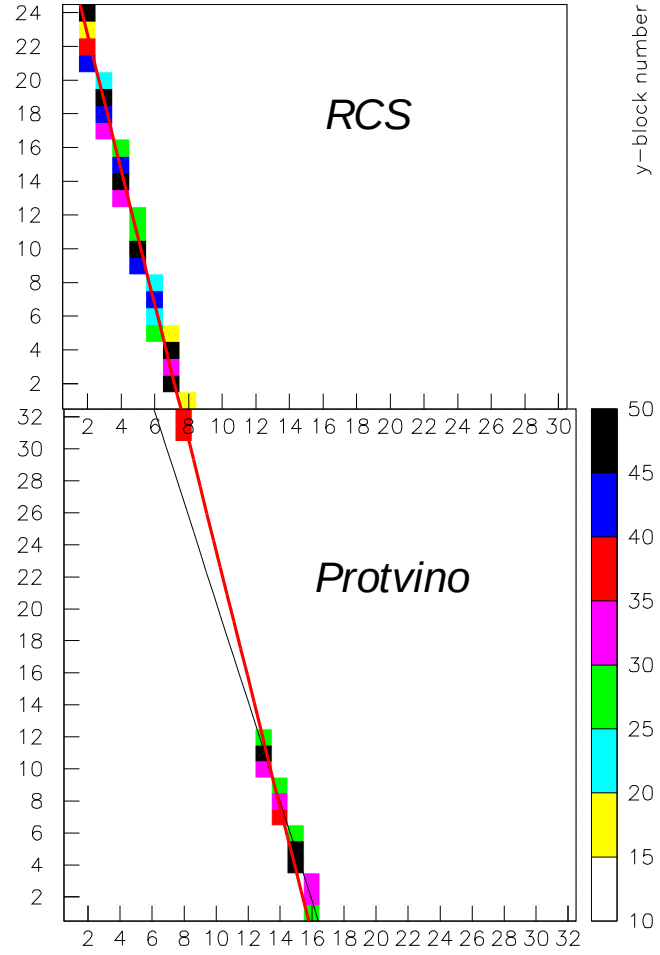
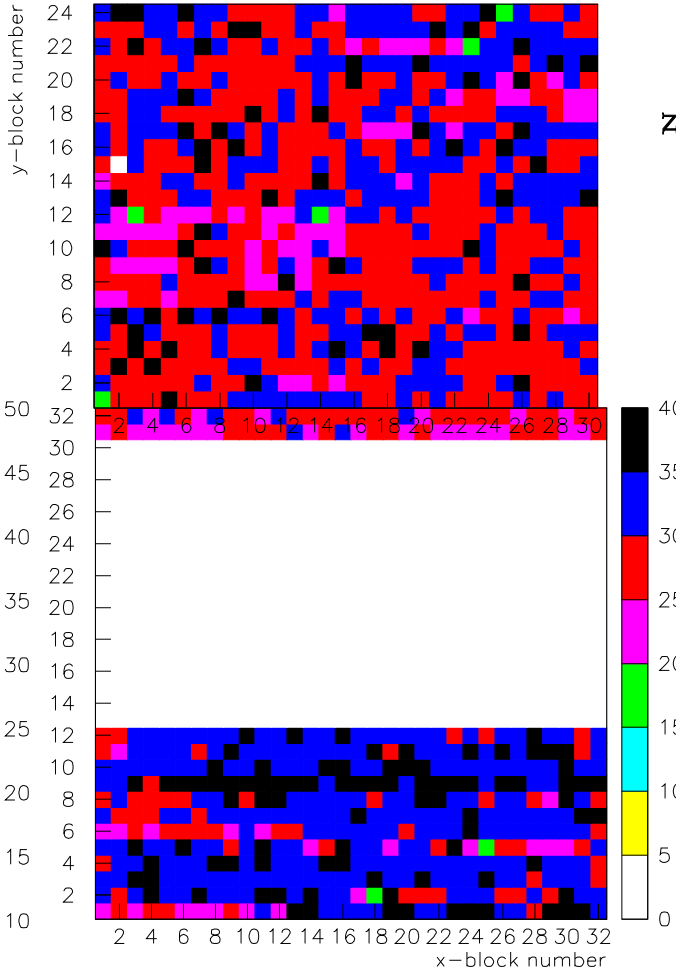
BigCal Status



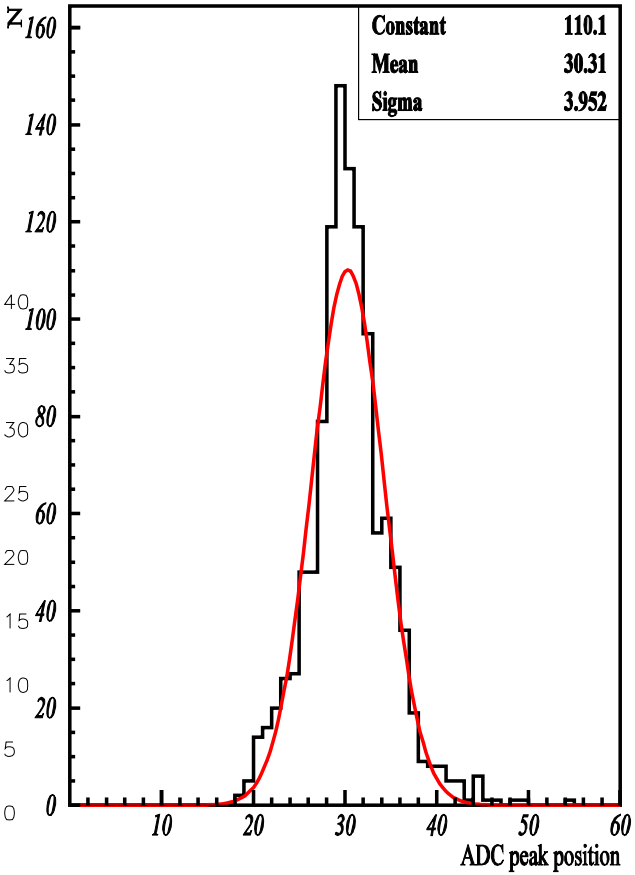
BigCal status: testing with cosmics



one muon track; color: ADC amplitude



color: ADC peak position from one run



Rows from 13 to 32 (640 channels) not powered; in the hall will have HV from G0. Using temporary HV supply for two rows (31,32 at the Fig.) to test successively the missing part

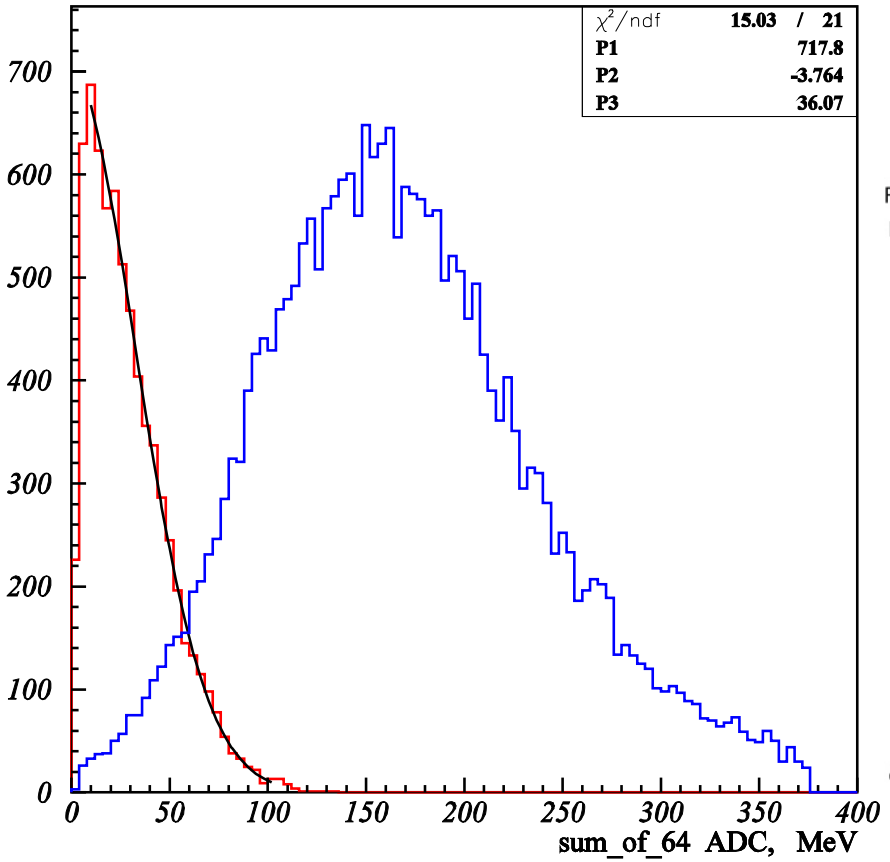
BigCal Status: calorimeter trigger

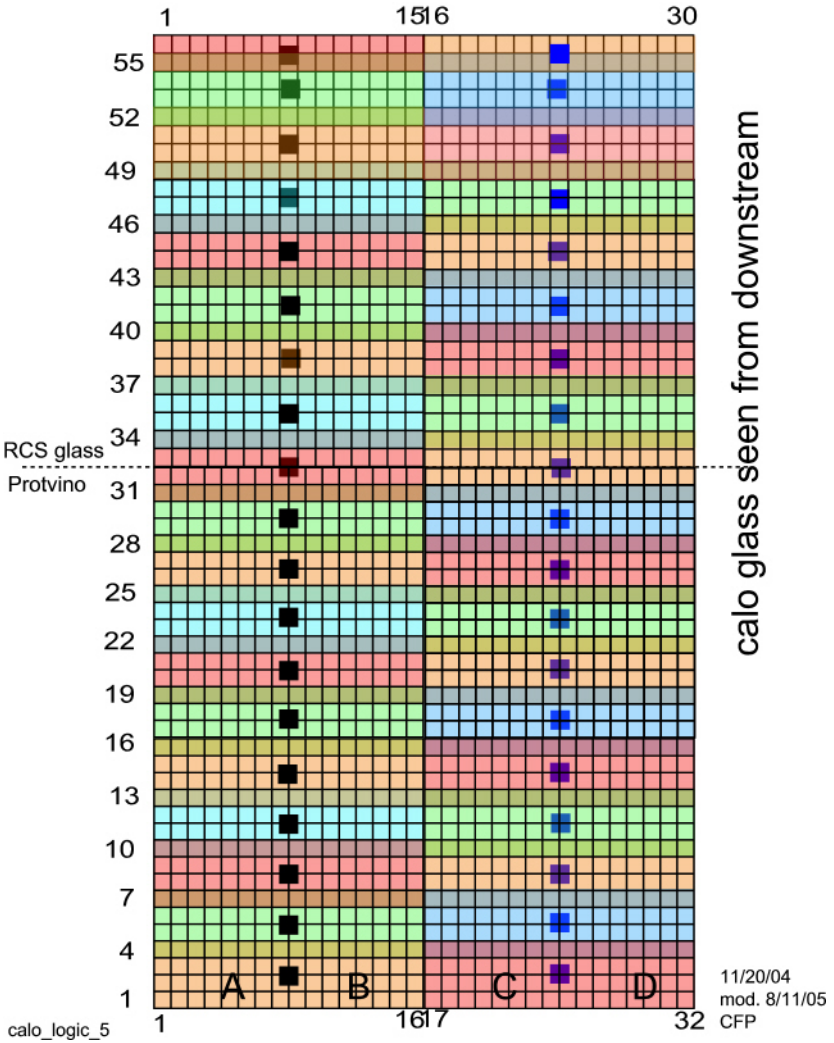
sum of 64 > discr. > OR > trigger

discr. > TDC

sum of 64 > ADC

•Partially tested, some problems fixed:
second trigger pulse



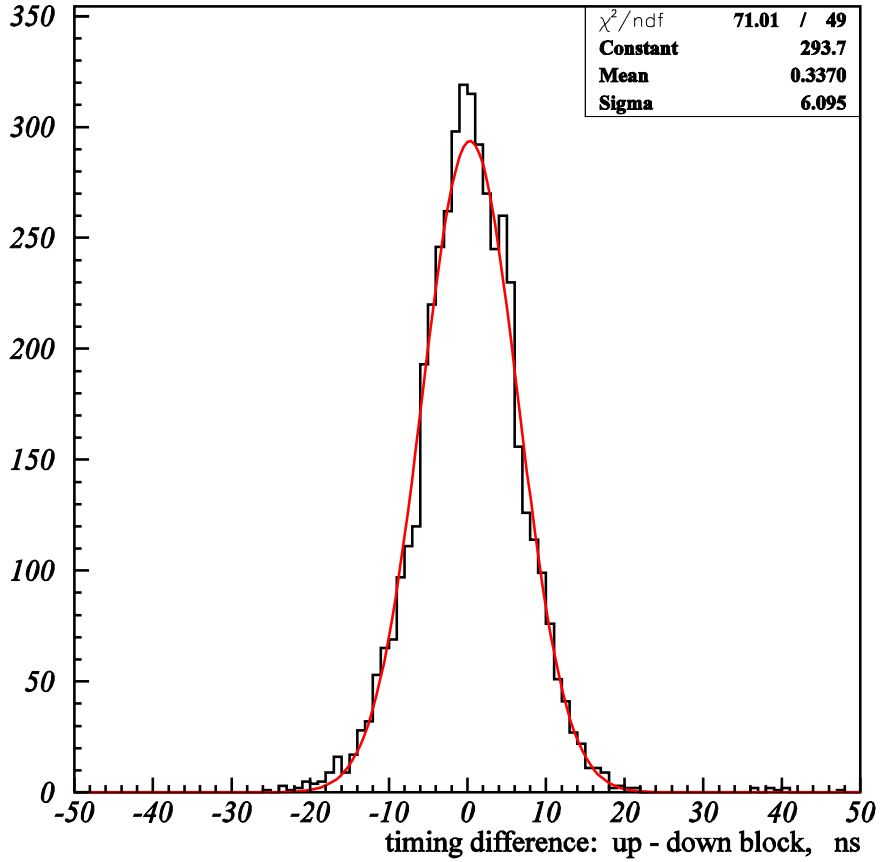


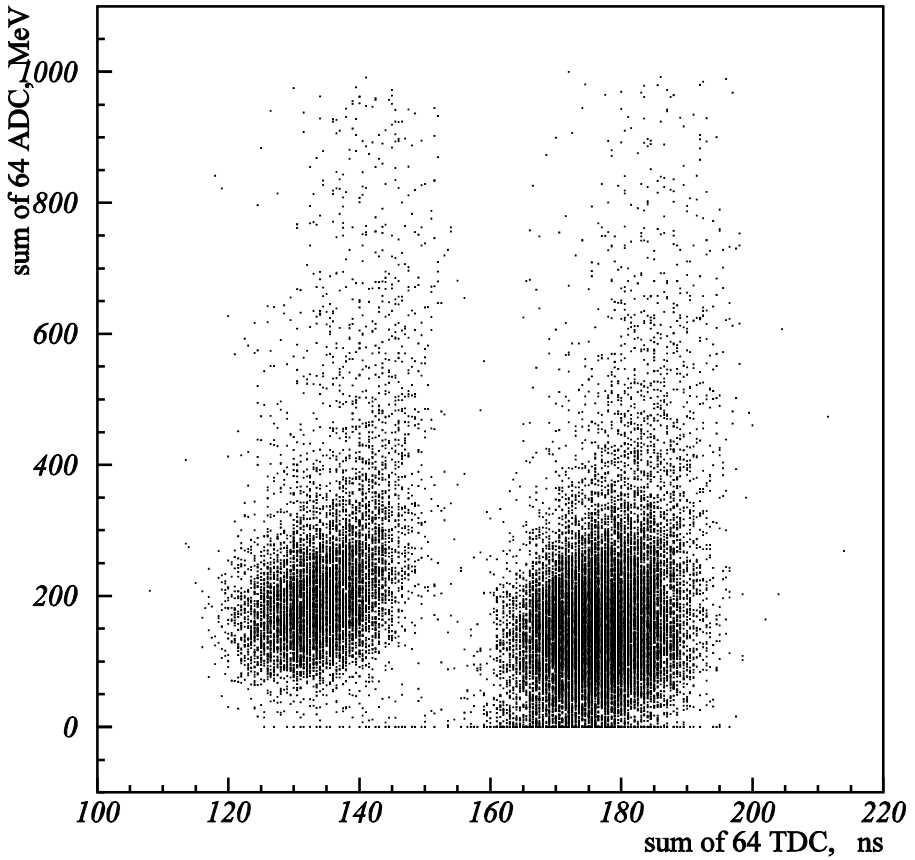
BigCal Status: timing information

sum of 64 > discr. > OR > trigger

discr. > TDC

sum of 64 > ADC





BigCal Status: LED monitoring system

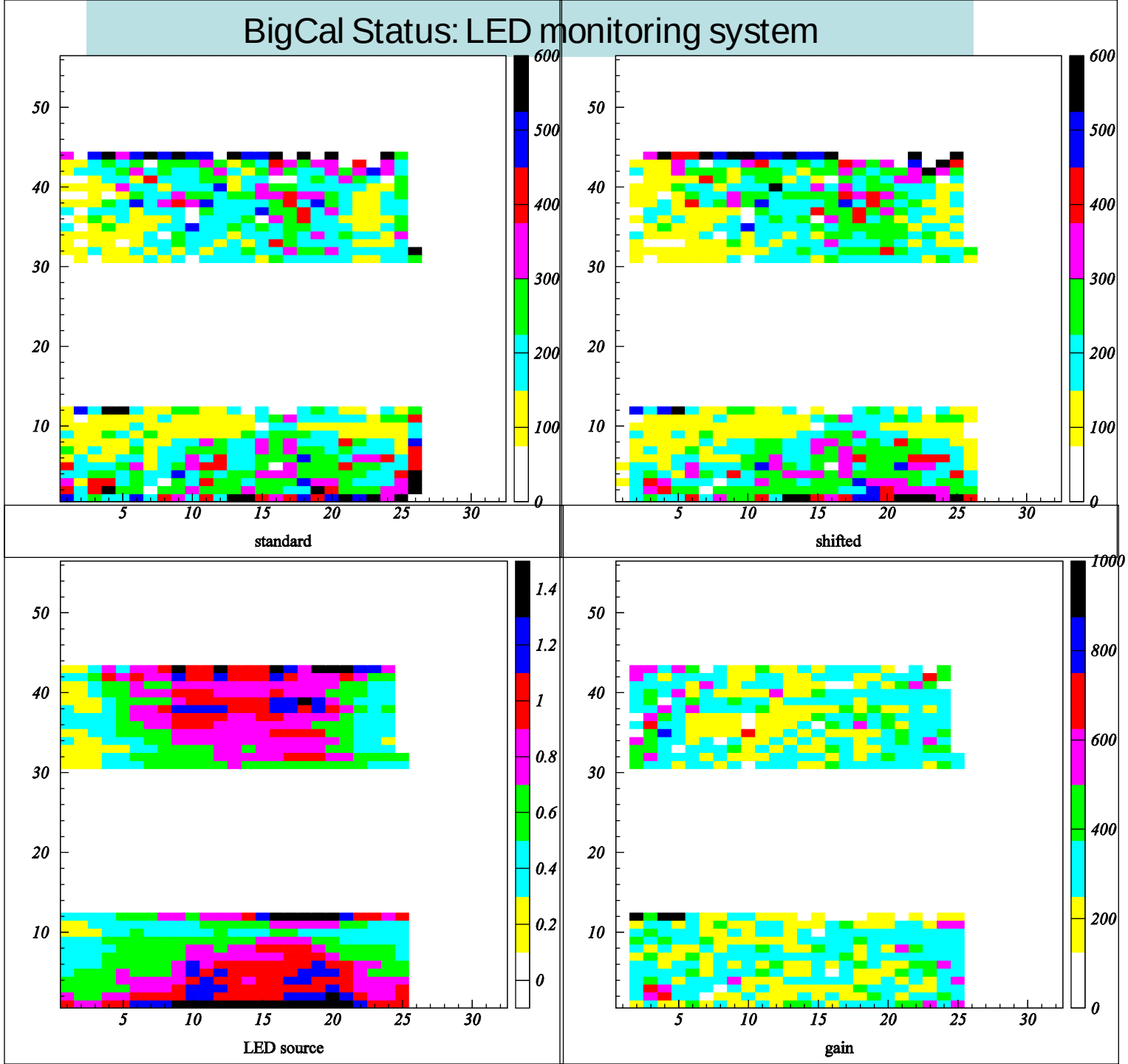
Prototype monitoring system installed:

40 x 70” lucite plate with 24 fibers from LED source on the top

Using HV from cosmics calibration results in non-uniform gain: suspect bad optics in some glasses

Final monitoring system designed (Bert Metzger), planning to use Hamlet’s laser system in the Hall

10 cm Al absorber frame constructed

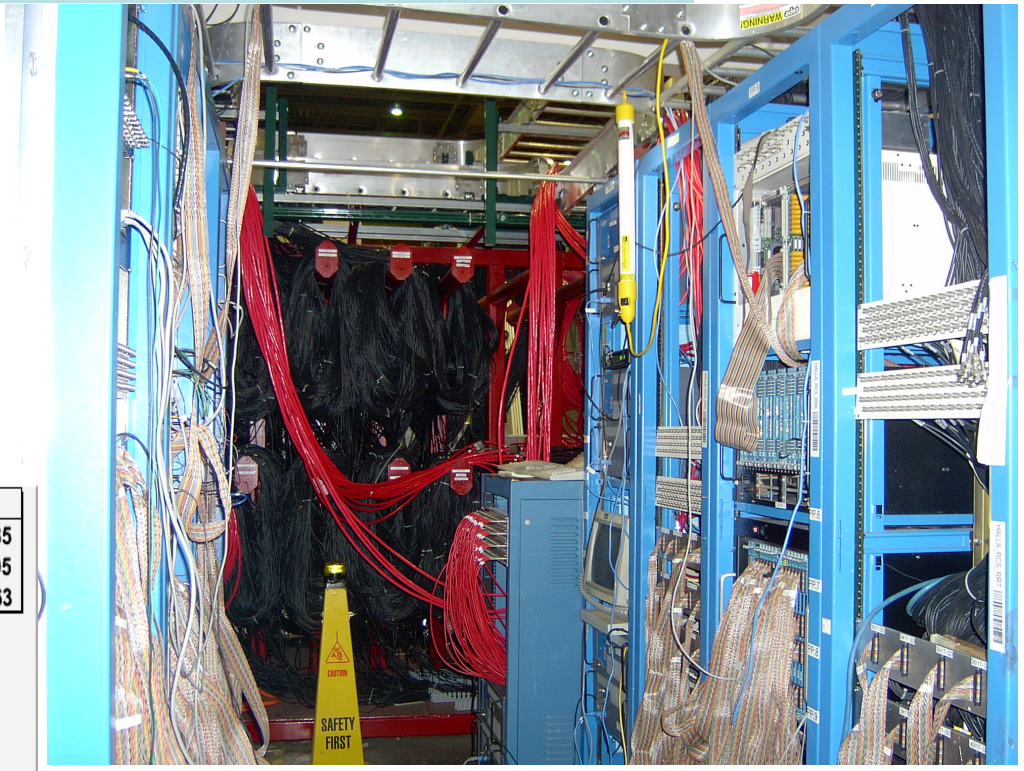


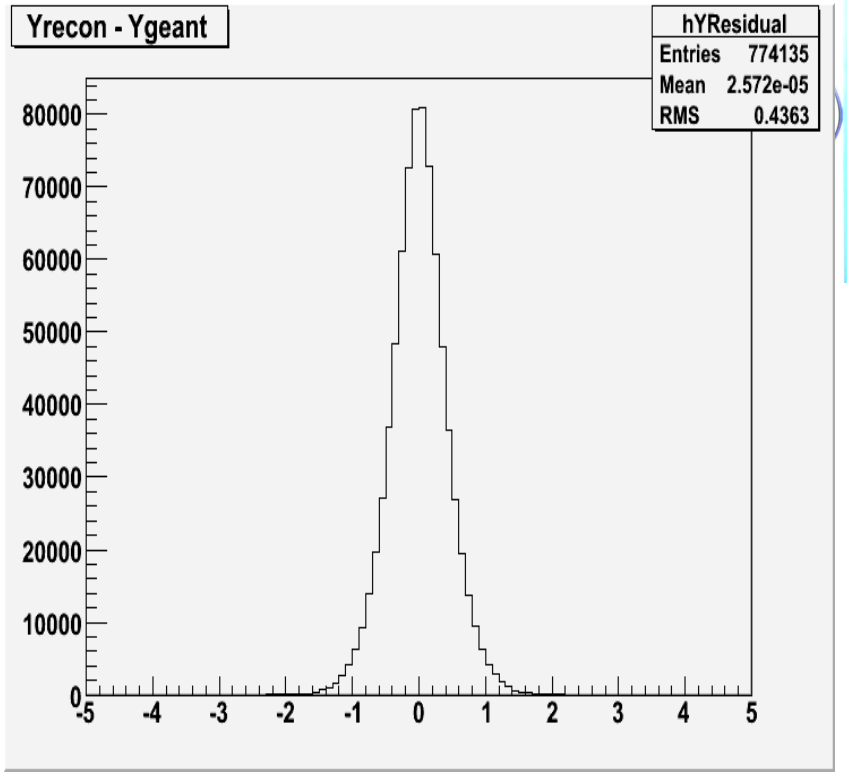
BigCal Status: DAQ, software

•DAQ set up with two FASTBUS/ROCs and TS (Mark Jones, Ed Brash, Andrew Puckett)

•Max. rate of ~2KHz with pedestal subtraction, using generator

•Slow control system to be set up by Roman Pomatsalyuk



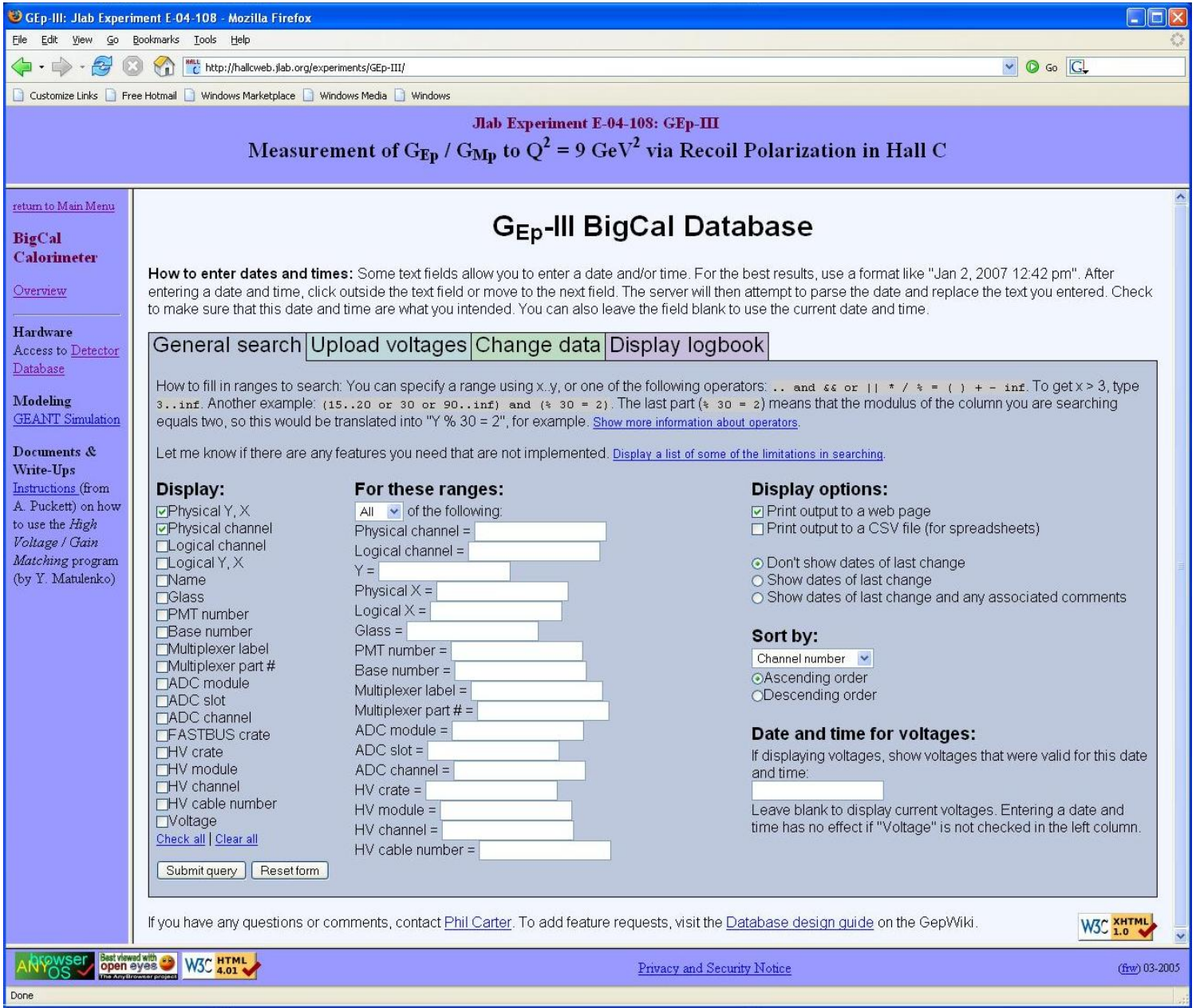


•Off- line software (Andrew Puckett, Vladimir Kravtsov, Amit Awashti, Mark Jones), to be interfaced to ENGINE (Andrew Puckett, Mark Jones)

•Comprehensive GEANT studies by Andrew Puckett: for GEP- III and GEP- 2G coordinate resolution varies depending on energy, absorber thickness, incident angle from 0.4cm to 0.9cm

BigCal Status: data base

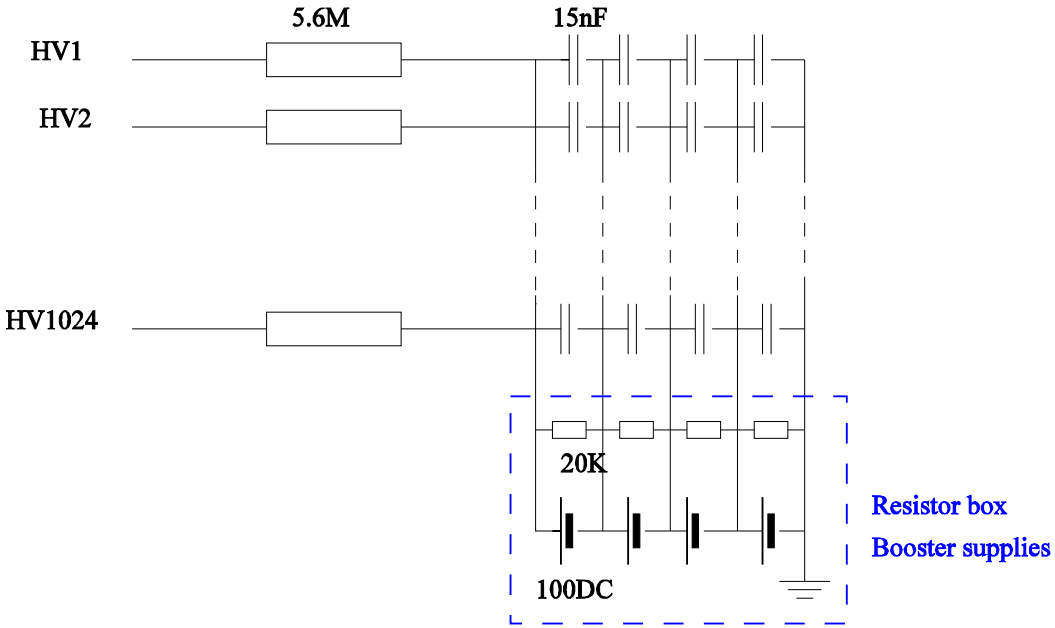
Phil Carter (CNU) http://hallcweb.jlab.org/experiments/GEp- III/bigcal_frames/sql/



BigCal: experience/problems

RCS part:

- Moving the patch boards results in disconnecting the bases from the PMs
- High power (~1 Watt/ channel)
- Bad connectors on the long signal cables
- Fragile connectors on the thick (24 channels) HV cables



Magnetic field gain variations !

- Few Gauss can result in ~10 times gain reduction
- Mu- metal shield doesn't extend beyond catode
- Requires tests

UV bleaching of the glass without removing PMs ?

Plans for tests using UV lamps as in PV4 (Maintz)

Protvino part:

- Booster supply takes most of the current outside the detectors, but:
- Bad tracks on the patch boards for the booster; if disconnected results in burning (usually) one base
- Related to that (maybe): HV crate failure (one of the 24V supply on the crate and 9 HV cards)
- Uncorrelated discharge (~1Hz) on the bases

SUMMARY

BigCal: status

- Detector in testlab fully equipped (except HV supplies for 640 channels from G0)
- Tests with cosmics demonstrate all channels are working
- DAQ with two ROCs, calorimeter trigger, prototype monitoring system were set up

BigCal: plans for the next 2 months in the testlab

- Testing the trigger, possibly monitoring system (if ready)
- Working on the on- line, off- line software, and slow control system

Bottom line

BigCal ready to be disconnected and moved to the Hall at the end of May