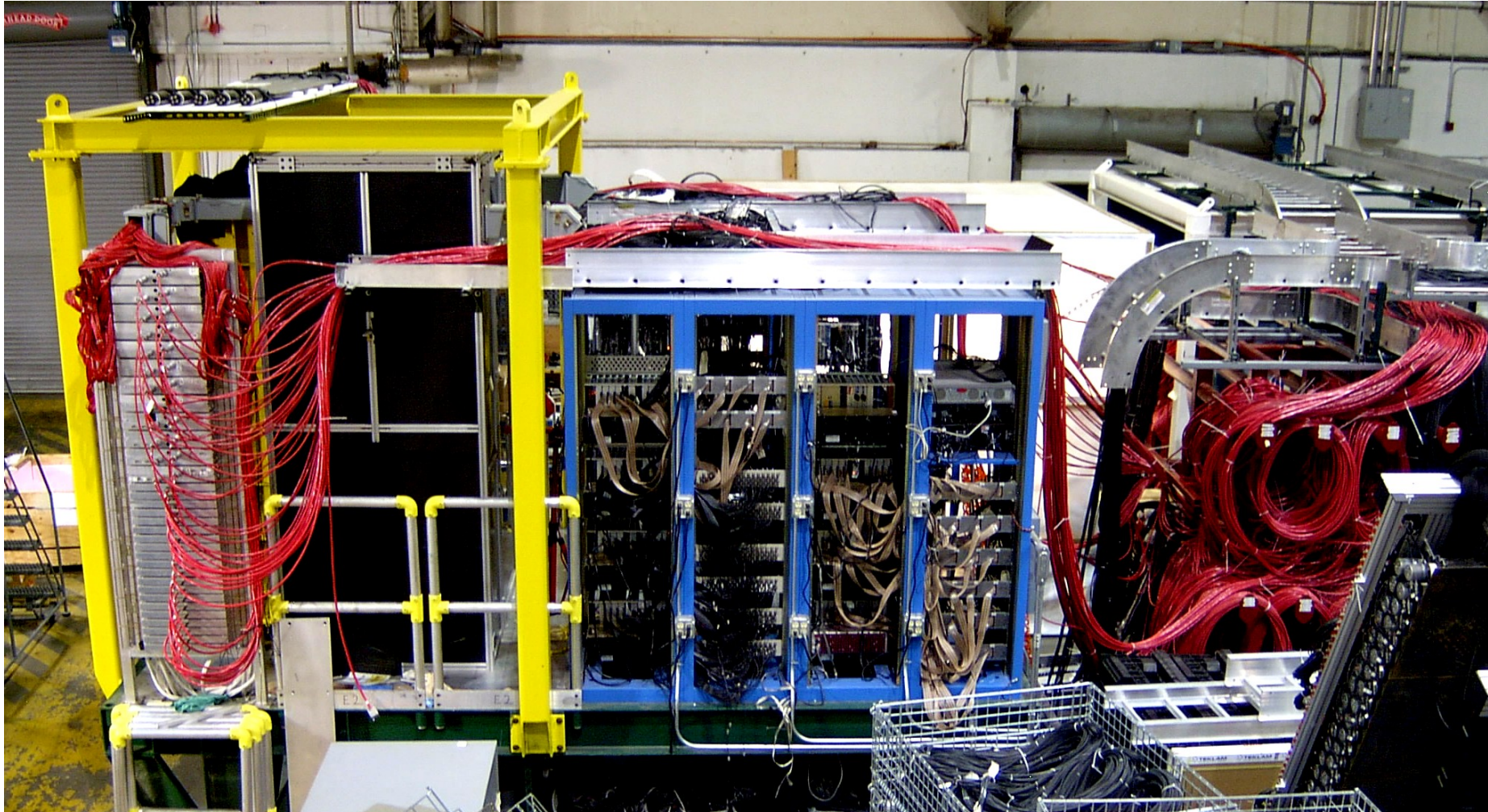
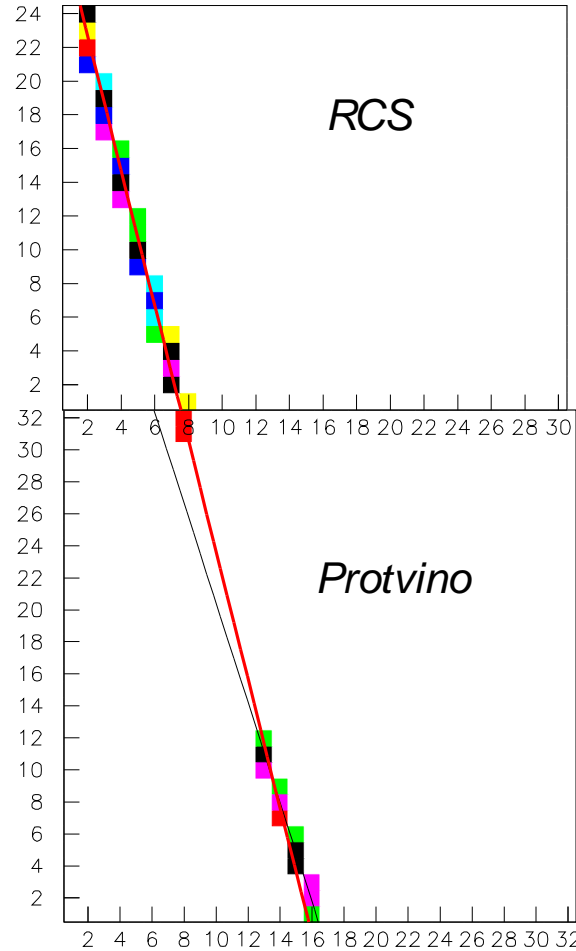


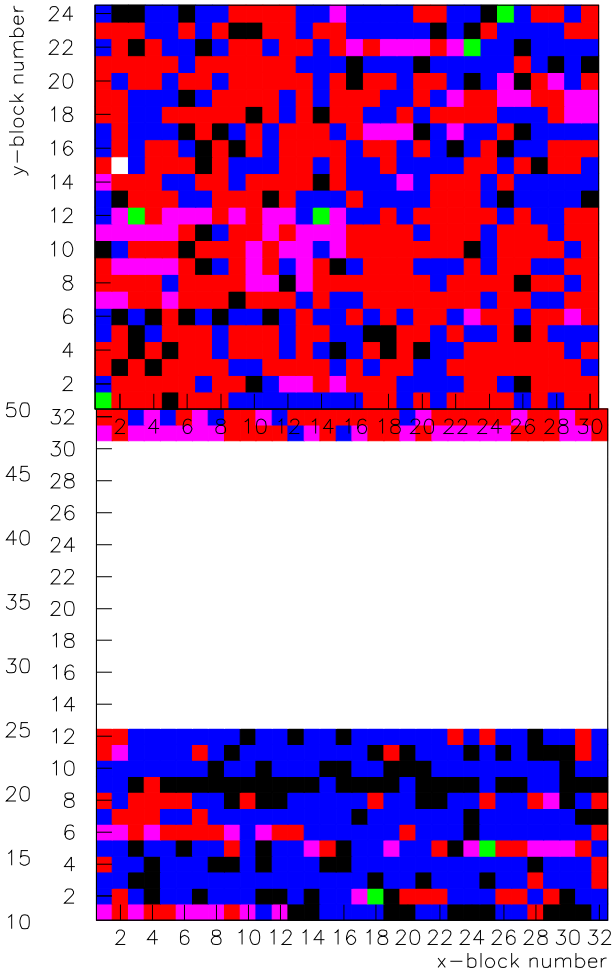
# BigCal Status



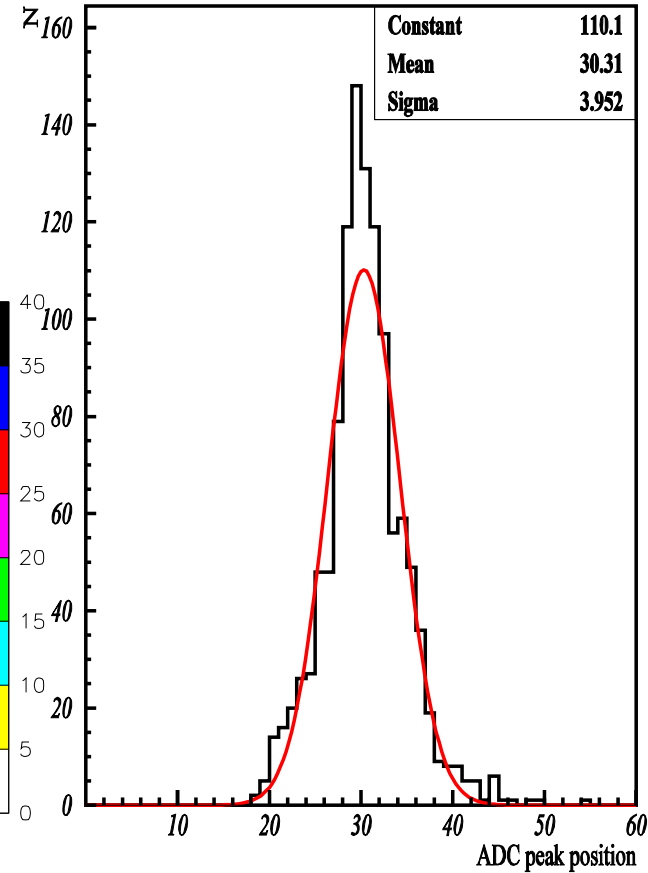
# BigCal status: testing with cosmics



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

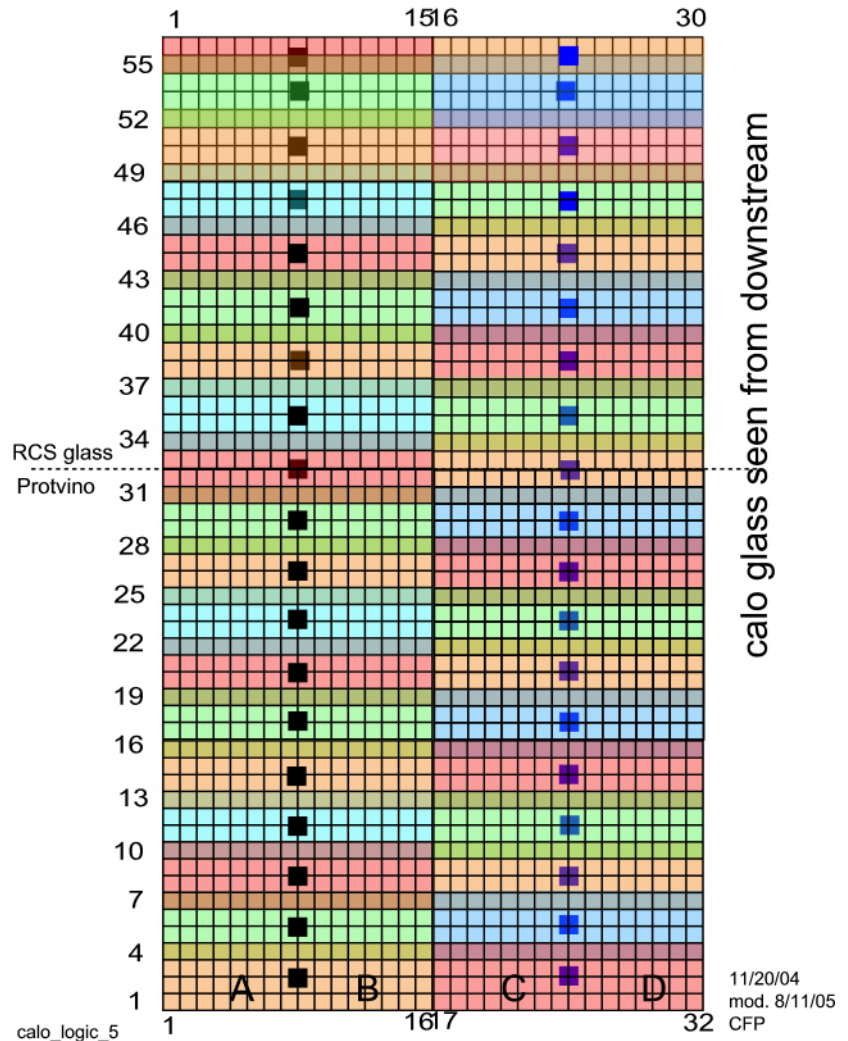
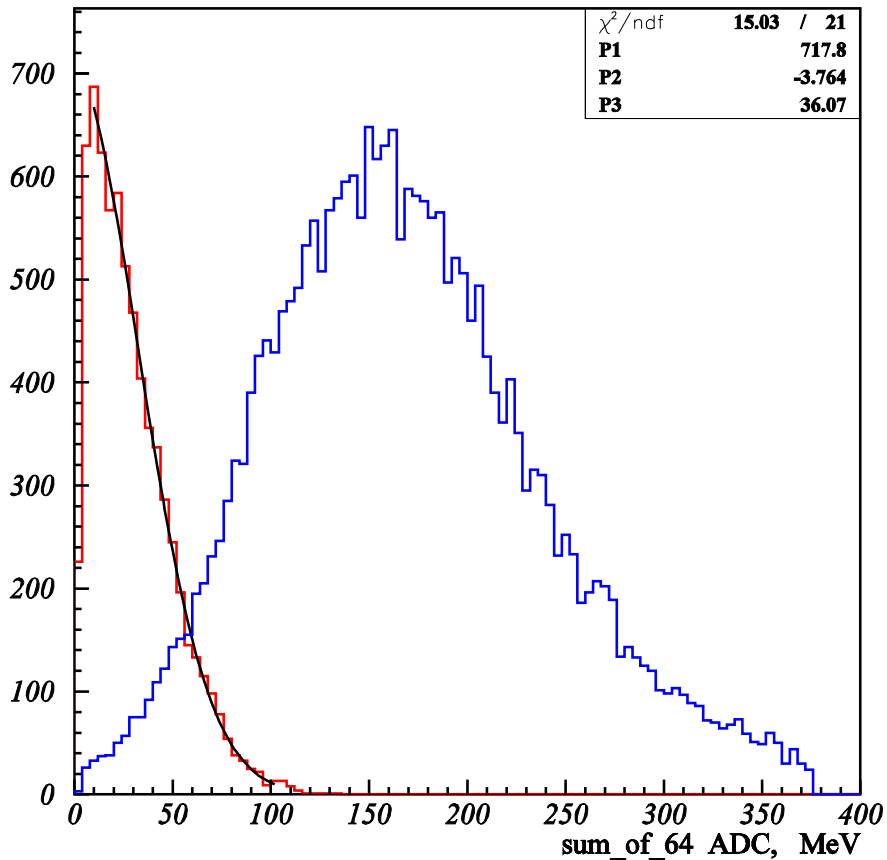
# BigCal Status: calorimeter trigger

sum of 64 > discr. > OR > trigger

discr. > TDC

sum of 64 > ADC

- Partially tested, some problems fixed:  
second trigger pulse

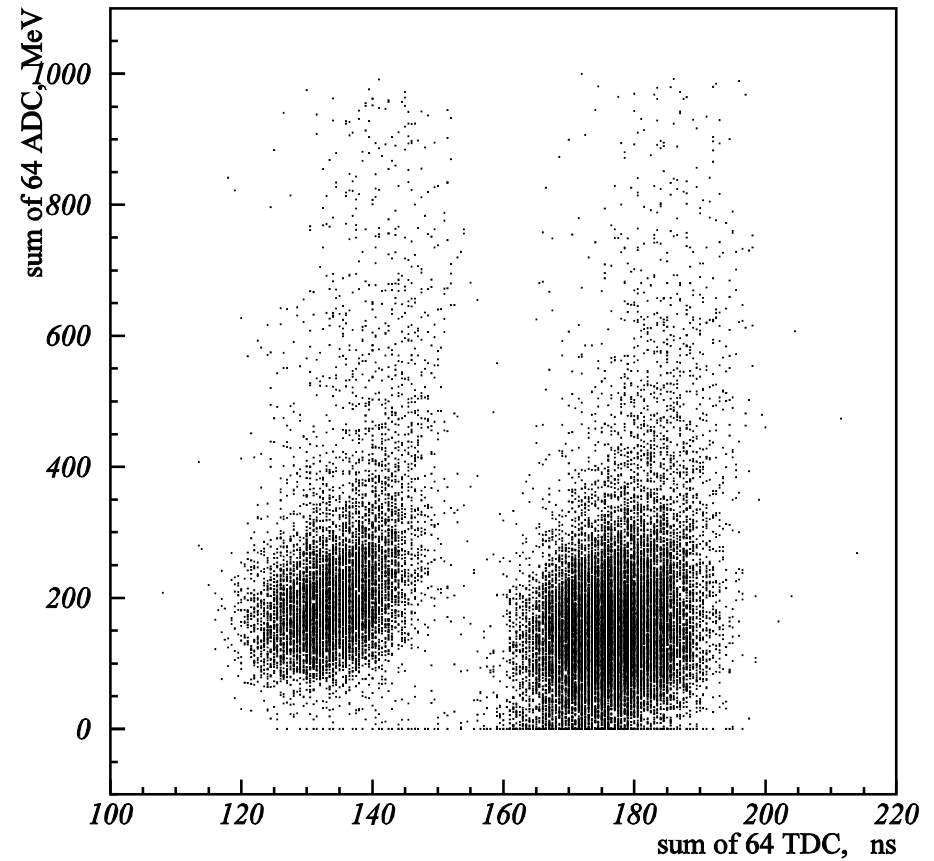
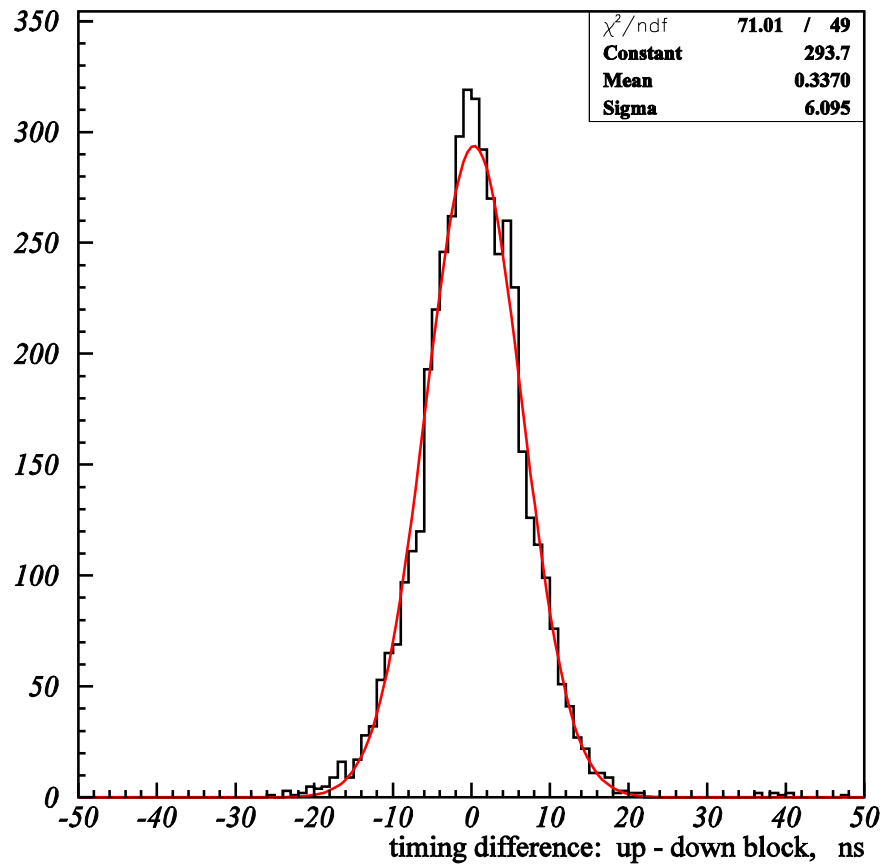


# BigCal Status: timing information

sum of 64 > discr. > OR > trigger

discr. > TDC

sum of 64 > ADC



# BigCal Status: LED monitoring system

Prototype monitoring system installed:

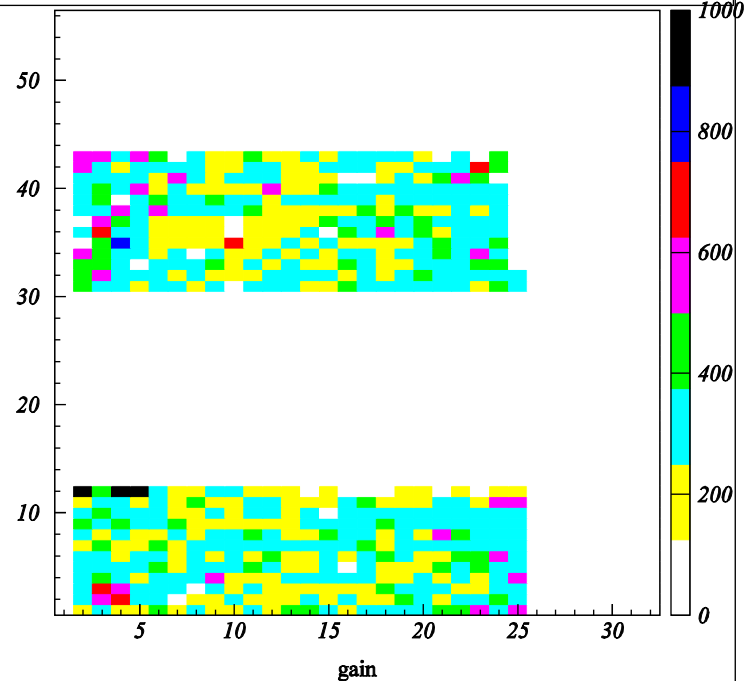
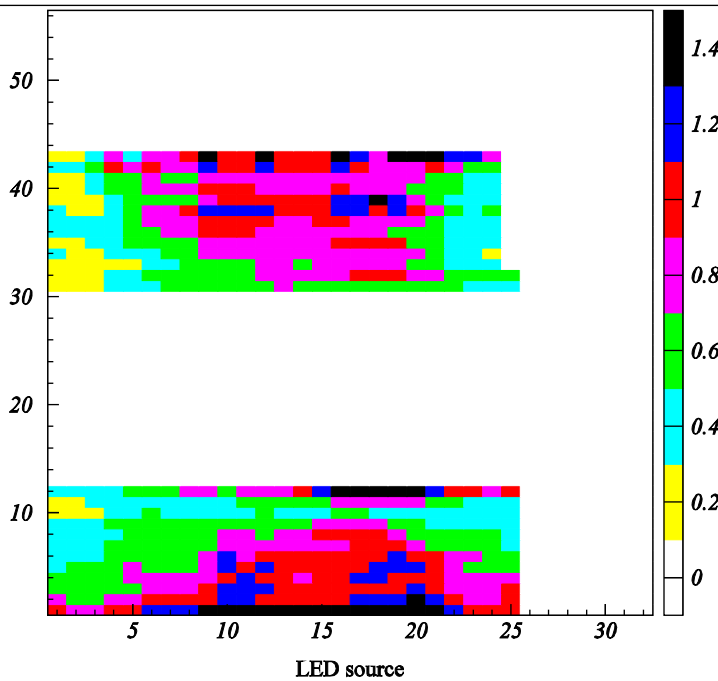
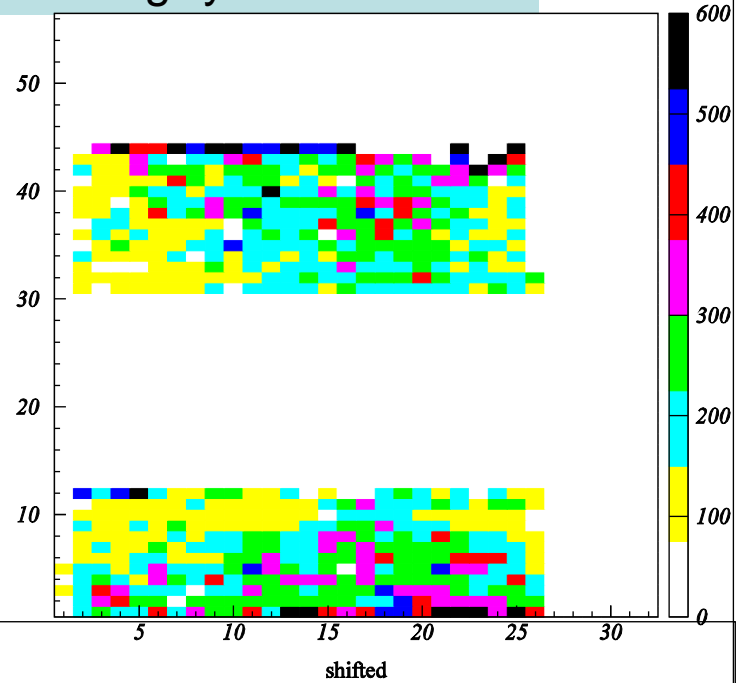
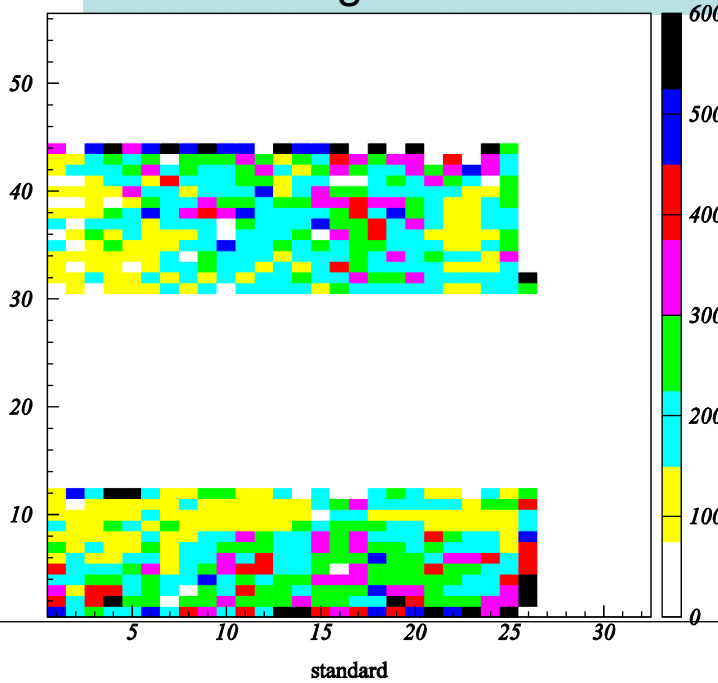
40 x 70" Lucite plate with 24 fibers from LED source on the top

Using HV from cosmics calibration results in non-uniform gain:

suspect bad optics in some glasses

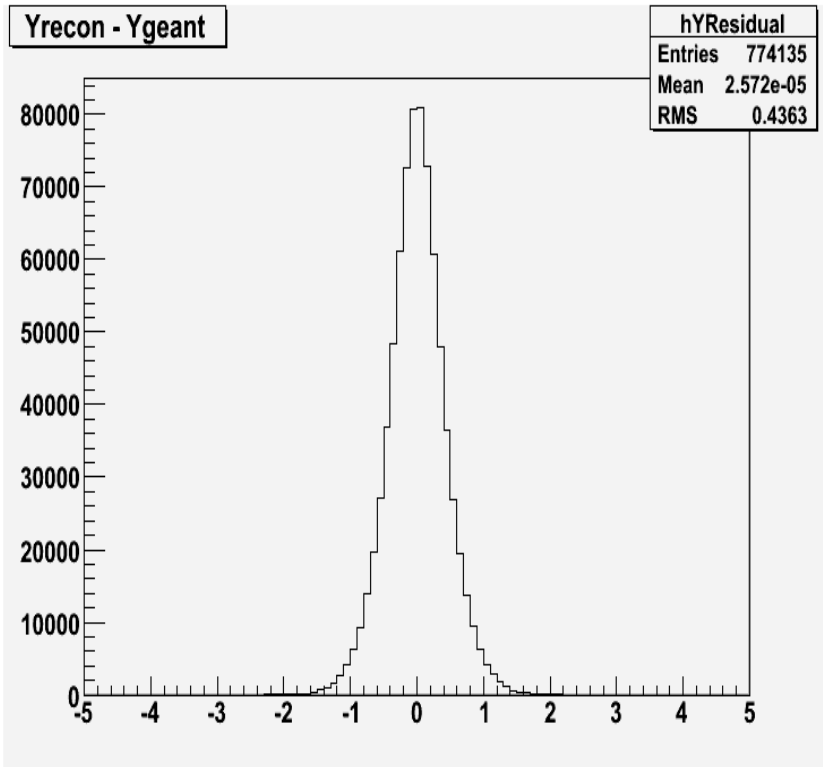
Final monitoring system designed (Bert Metzger), planning to use Hamlet's laser system in the Hall

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/](http://hallcweb.jlab.org/experiments/GEp-III/bigcal_frames/sql/)

GEp-III: Jlab Experiment E-04-108 - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://hallcweb.jlab.org/experiments/GEp-III/

Customize Links Free Hotmail Windows Marketplace Windows Media Windows

**Jlab Experiment E-04-108: GEp-III**

**Measurement of  $G_{EP} / G_{MP}$  to  $Q^2 = 9 \text{ GeV}^2$  via Recoil Polarization in Hall C**

[return to Main Menu](#)

**BigCal Calorimeter**

[Overview](#)

**Hardware**  
[Access to Detector Database](#)

**Modeling**  
[GEANT Simulation](#)

**Documents & Write-Ups**  
[Instructions](#) (from A. Puckett) on how to use the *High Voltage / Gain Matching* program (by Y. Matulenko)

## GEp-III BigCal Database

**How to enter dates and times:** Some text fields allow you to enter a date and/or time. For the best results, use a format like "Jan 2, 2007 12:42 pm". After entering a date and time, click outside the text field or move to the next field. The server will then attempt to parse the date and replace the text you entered. Check to make sure that this date and time are what you intended. You can also leave the field blank to use the current date and time.

[General search](#) [Upload voltages](#) [Change data](#) [Display logbook](#)

How to fill in ranges to search: You can specify a range using x..y, or one of the following operators: .. and && or || \* / % = ( ) + - inf. To get  $x > 3$ , type 3..inf. Another example: (15..20 or 30 or 90..inf) and (% 30 = 2). The last part (% 30 = 2) means that the modulus of the column you are searching equals two, so this would be translated into "Y % 30 = 2", for example. [Show more information about operators.](#)

Let me know if there are any features you need that are not implemented. [Display a list of some of the limitations in searching.](#)

**Display:**

- Physical Y, X
- Physical channel
- Logical channel
- Logical Y, X
- Name
- Glass
- PMT number
- Base number
- Multiplexer label
- Multiplexer part #
- ADC module
- ADC slot
- ADC channel
- FASTBUS crate
- HV crate
- HV module
- HV channel
- HV cable number
- Voltage

[Check all](#) | [Clear all](#)

**For these ranges:**

All of the following:

Physical channel =

Logical channel =

Y =

Physical X =

Logical X =

Glass =

PMT number =

Base number =

Multiplexer label =

Multiplexer part # =

ADC module =

ADC slot =

ADC channel =

HV crate =

HV module =

HV channel =

HV cable number =

**Display options:**

- Print output to a web page
- Print output to a CSV file (for spreadsheets)
- Don't show dates of last change
- Show dates of last change
- Show dates of last change and any associated comments

**Sort by:**

Channel number

- Ascending order
- Descending order

**Date and time for voltages:**

If displaying voltages, show voltages that were valid for this date and time:

Leave blank to display current voltages. Entering a date and time has no effect if "Voltage" is not checked in the left column.

If you have any questions or comments, contact [Phil Carter](#). To add feature requests, visit the [Database design guide](#) on the GepWiki.

W3C XHTML 1.0

Best viewed with [open eyes](#)

W3C HTML 4.01

Privacy and Security Notice

(frr) 03-2005

Done

# BigCal: experience/problems

## RCS part:

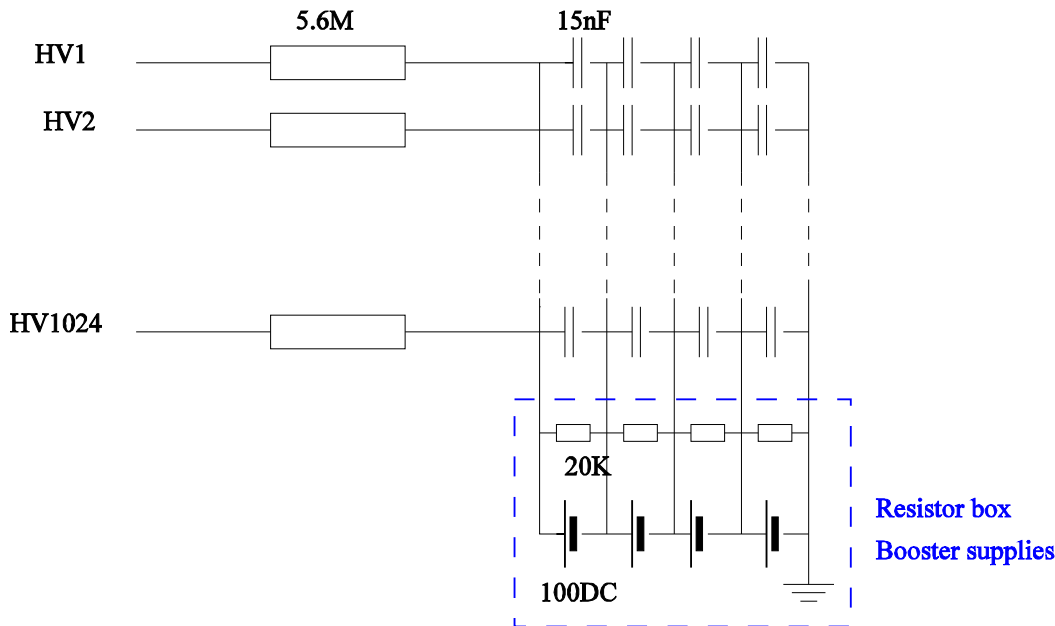
- Moving the patch boards results in disconnecting the bases from the PMs
- High power (~1 Watt/ channel)
- Bad connectors on the long signal cables
- Fragile connectors on the thick (24 channels) HV cables

## Magnetic field gain variations !

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