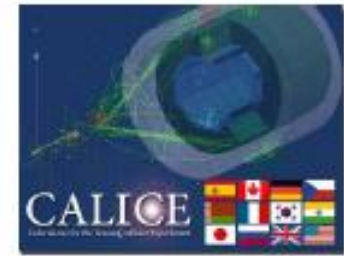


CALICE Test Beam Installation at FNAL



Niels Meyer, DESY
ECFA 2008, Warsaw
10. June 2008



Installation – Operation – Remote control

Recent CALICE Campaigns

CALICE Testbeam Program 2006

- ▶ • DESY, 22 May - 31 May 2006
: **ECAL(W/Si)** testbeam with electrons at 1-6 GeV
- ▶ • CERN, 24 Aug - 3 Sep 2006
: **ECAL(W/Si)** testbeam with electrons at higher energy
: **AHCAL, TCMT** commissioning
: **AHCAL** technical run with electrons/pions
- ▶ • CERN, 12 Oct - 24 Oct 2006
: combined (**ECAL+AHCAL+TCMT**) physics run with electrons/pions

CALICE Testbeam Program 2007

- ▶ • DESY, 2 Mar - 26 Mar 2007
: **ECAL(W/scint.strip)** testbeam with electrons at 1-6 GeV
- ▶ • CERN, Jul - Aug 2007
: combined (**Si ECAL+AHCAL+TCMT**) physics run with electrons/pions
- ▶ • FNAL, Jul 2007
: **RPC-DHCAL** "slice test" with positrons/pions at 1-16 GeV

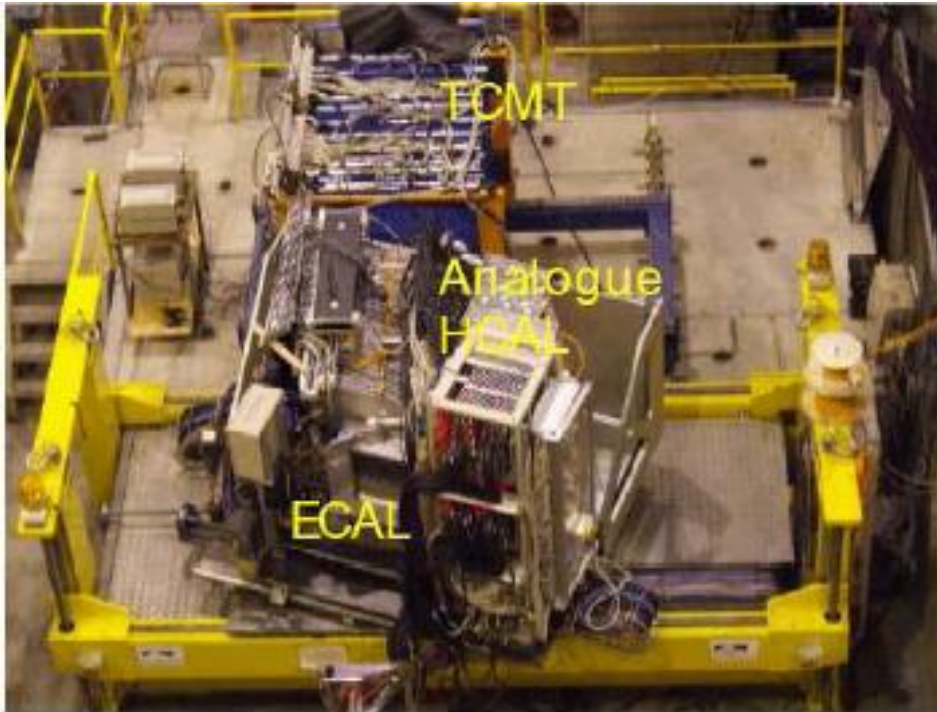
Next is the New World

CALICE Testbeam Program for 2008

- ▶ • the "center-of-gravity" of our program is moved to FNAL
 - : May 7-27, combined test of Si/W ECAL + scint HCAL + TailCatcher
 - : Jul 7-29. combined test of Si/W ECAL + scint HCAL + TailCatcher
 - : Sep 1-26, combined test with scint.strip ECAL

- ▶ • main goals
 - : data collection with complete instrumentation
 - : scans with incidence angle variation
 - : increase statistics at low energies (around 10 GeV)
 - : extension of the energy range towards smaller energies (down to ~ 2 GeV)
 - : (2009+) direct comparison with gaseous HCALs under identical beam conditions

Next is the New World



CERN ...

Next is the New World



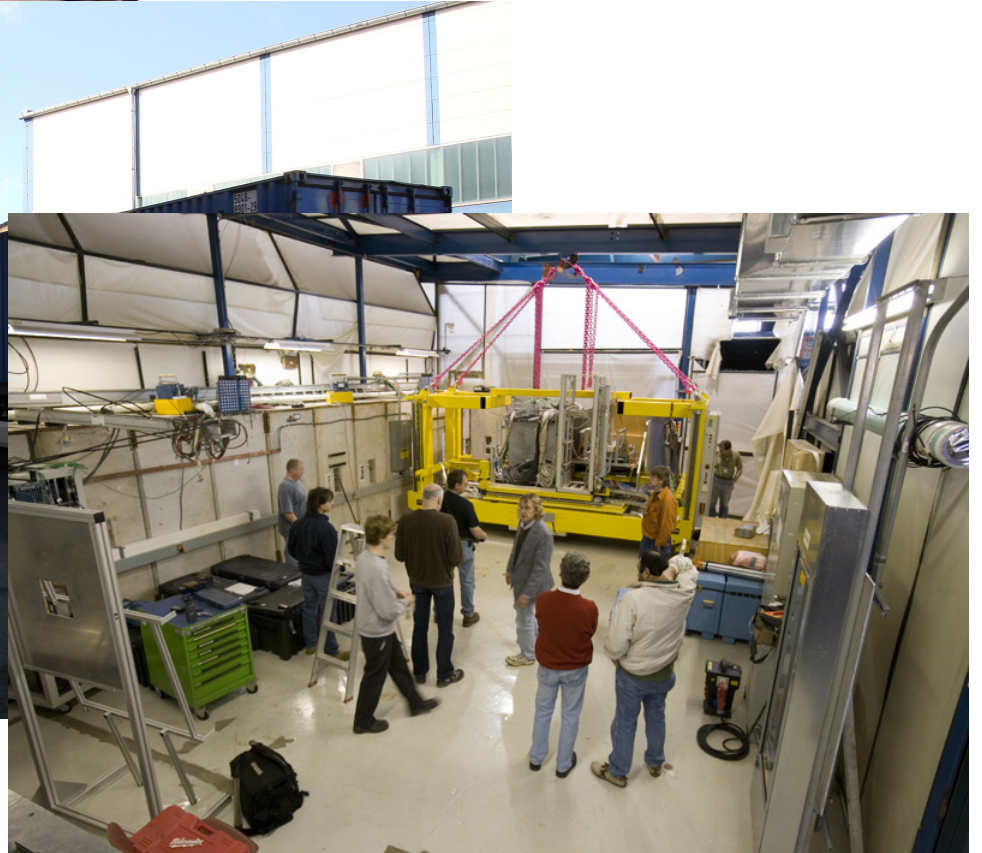
... via DESY ...



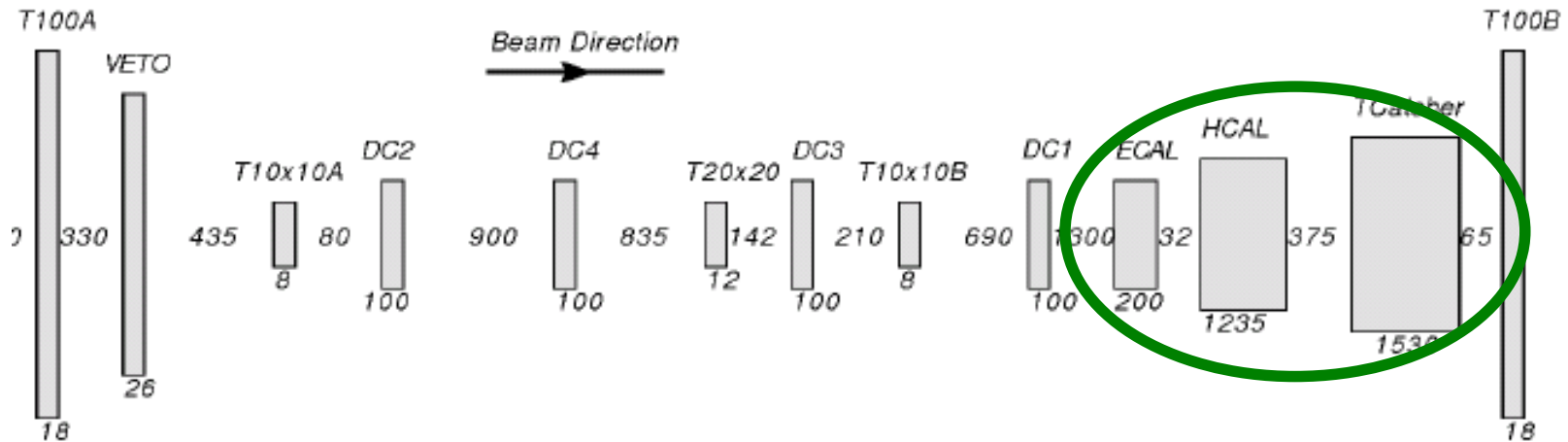
Next is the New World



... to FNAL

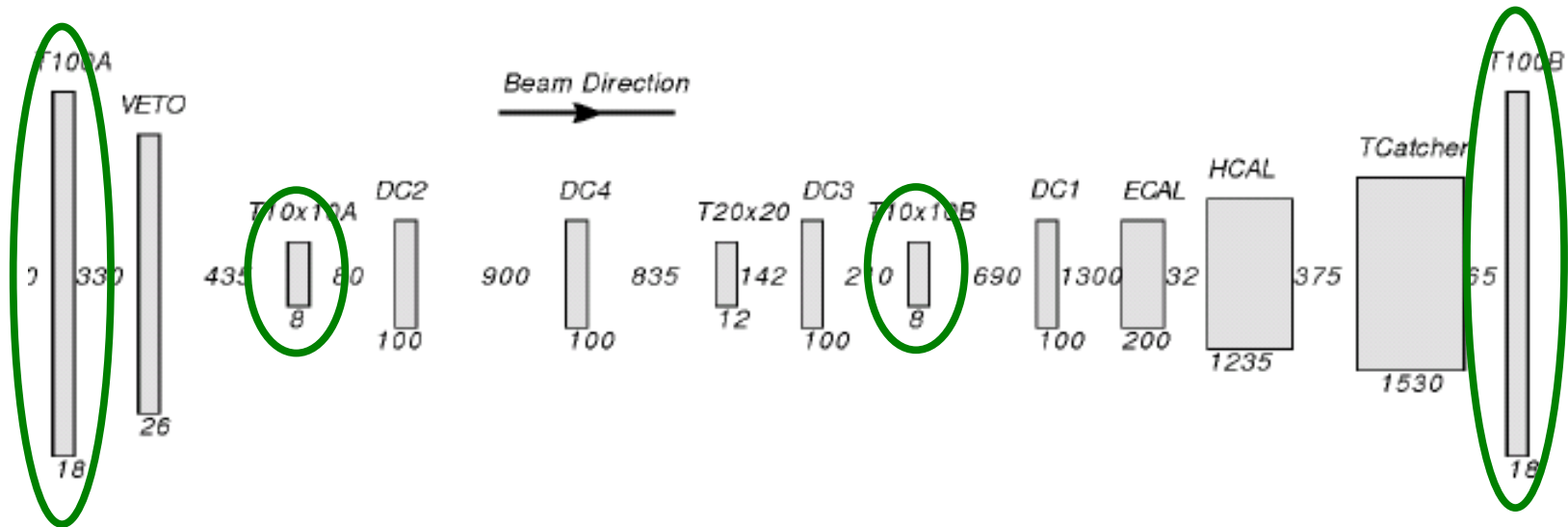


Current Setup



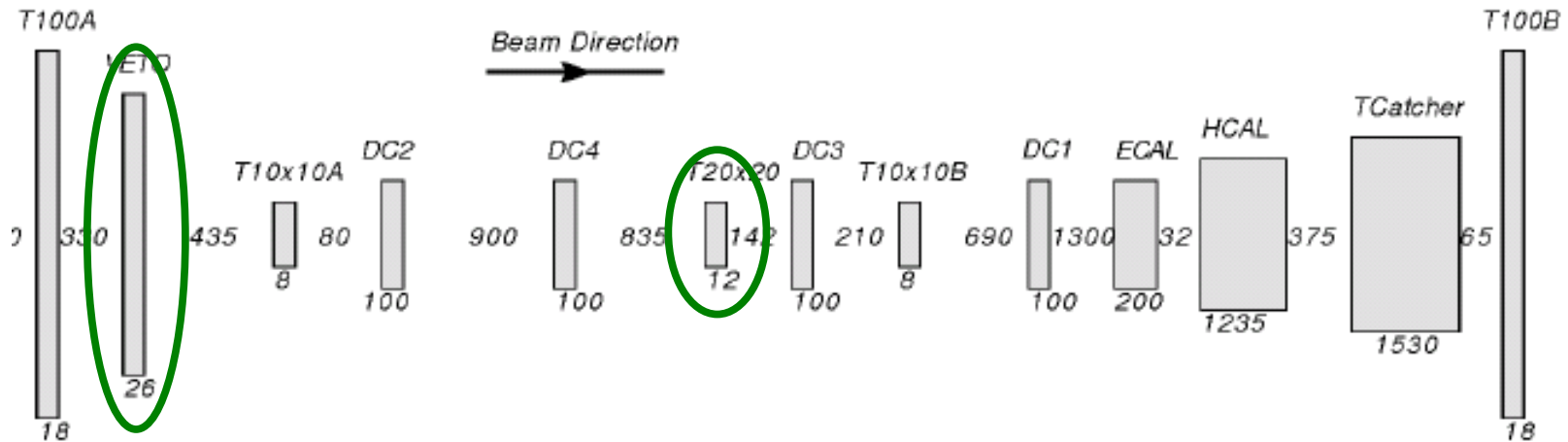
The core detectors: SiW ECAL + tile HCAL + TCMT

Current Setup



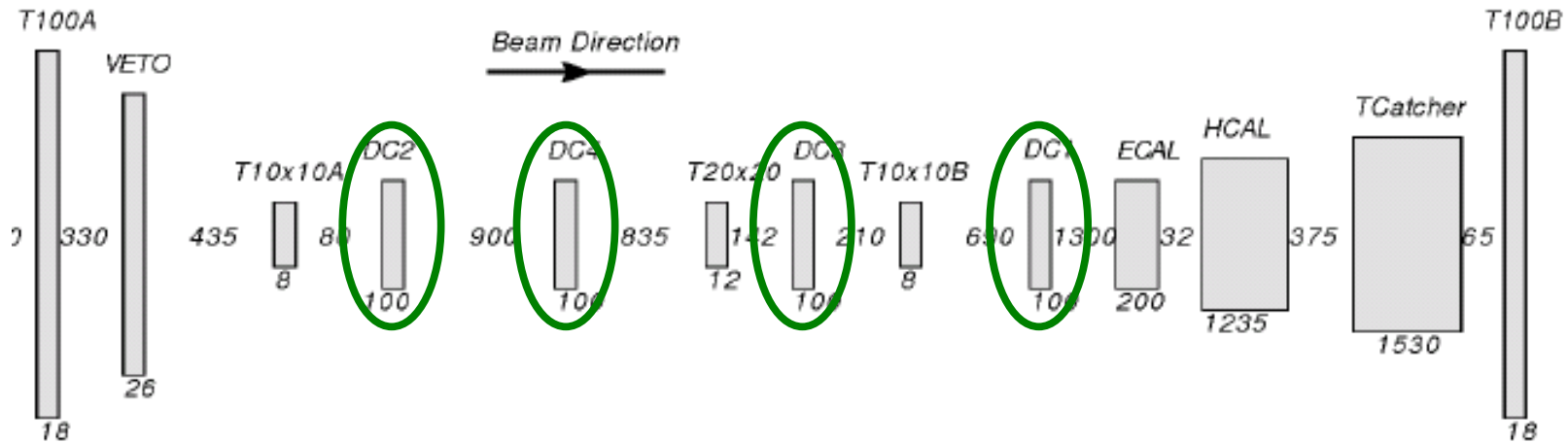
The core detectors: SiW ECAL + tile HCAL + TCMT
10x10 cm 'beam' plus 100x100 cm 'muon' scintillator triggers

Current Setup



The core detectors: SiW ECAL + tile HCAL + TCMT
10x10 cm 'beam' plus 100x100 cm 'muon' scintillator triggers
Pre-shower 'veto wall' plus double particle 'veto'

Current Setup

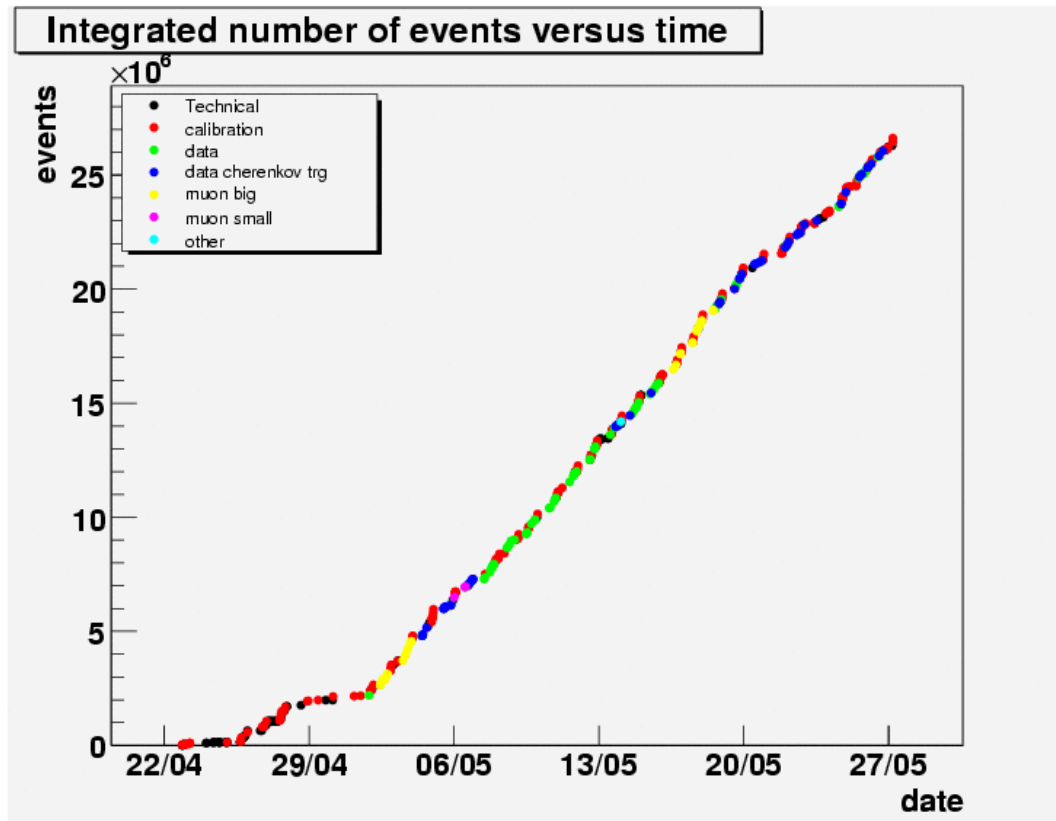


The core detectors: SiW ECAL + tile HCAL + TCMT
10x10 cm 'beam' plus 100x100 cm 'muon' scintillator triggers
Pre-shower 'veto wall' plus double particle 'veto'
Tracking chambers (different devices as CERN)
Upstream: Cerenkov threshold counter (FNAL equipment)

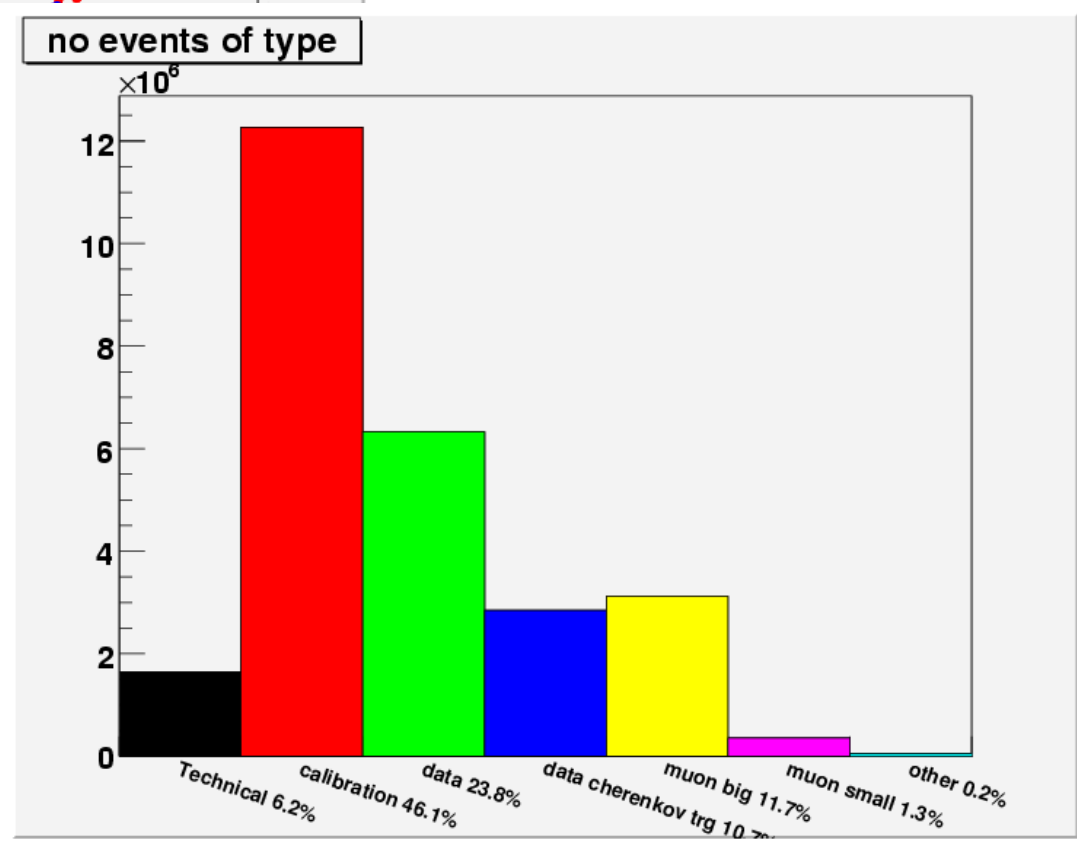
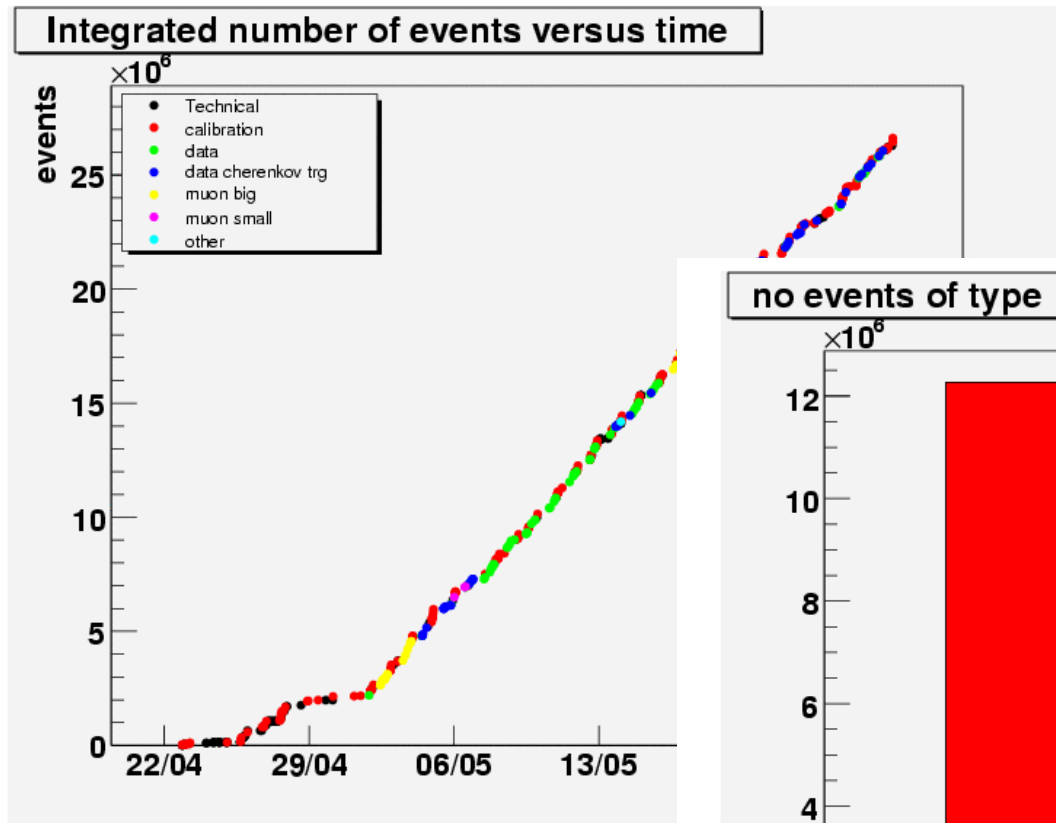
Current Setup



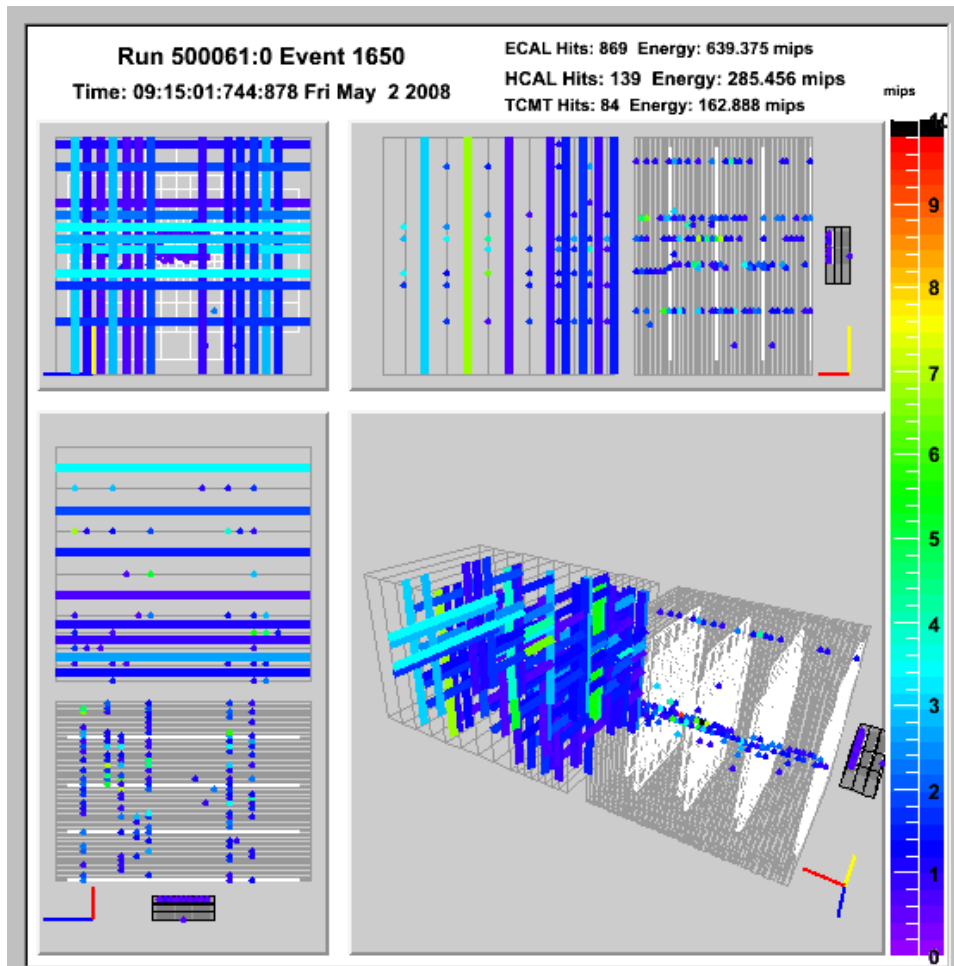
Up and Running



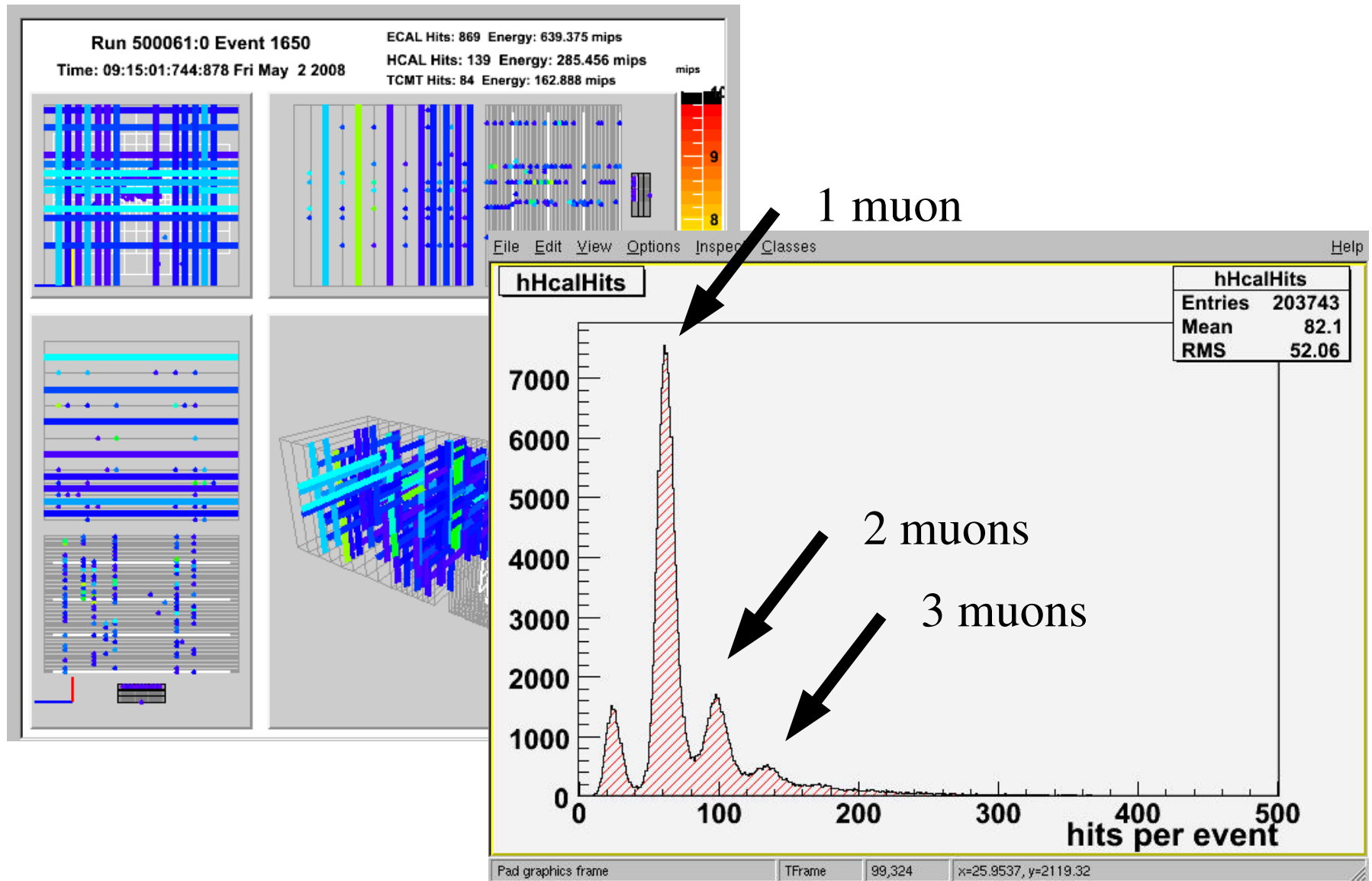
Up and Running



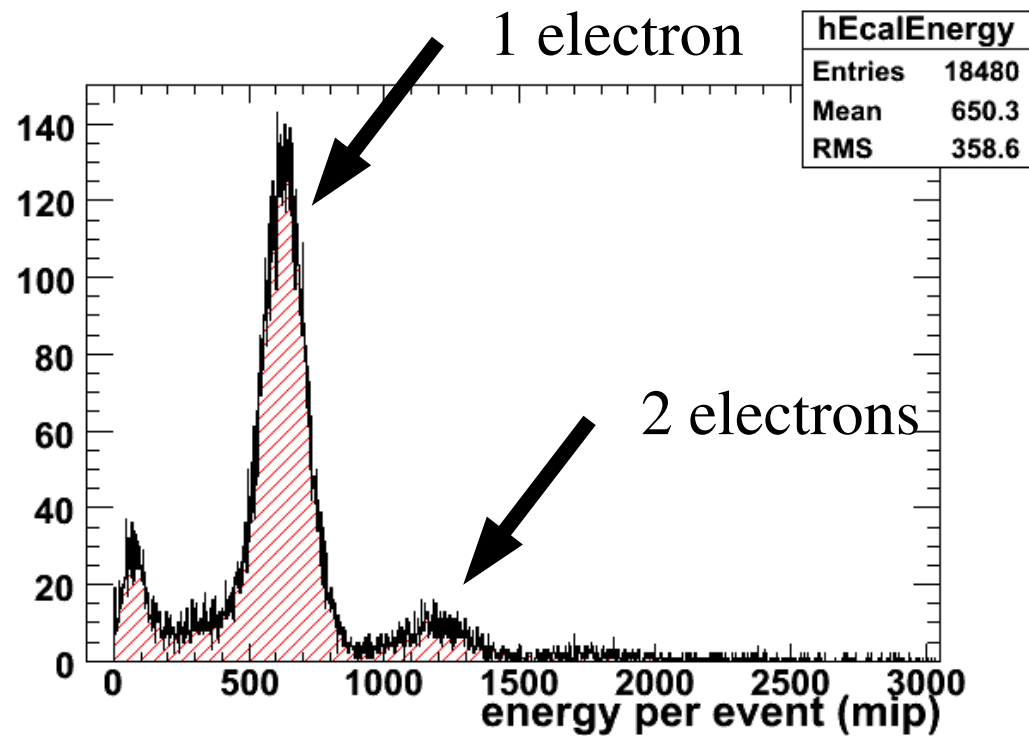
Muons for Calibration



Muons for Calibration



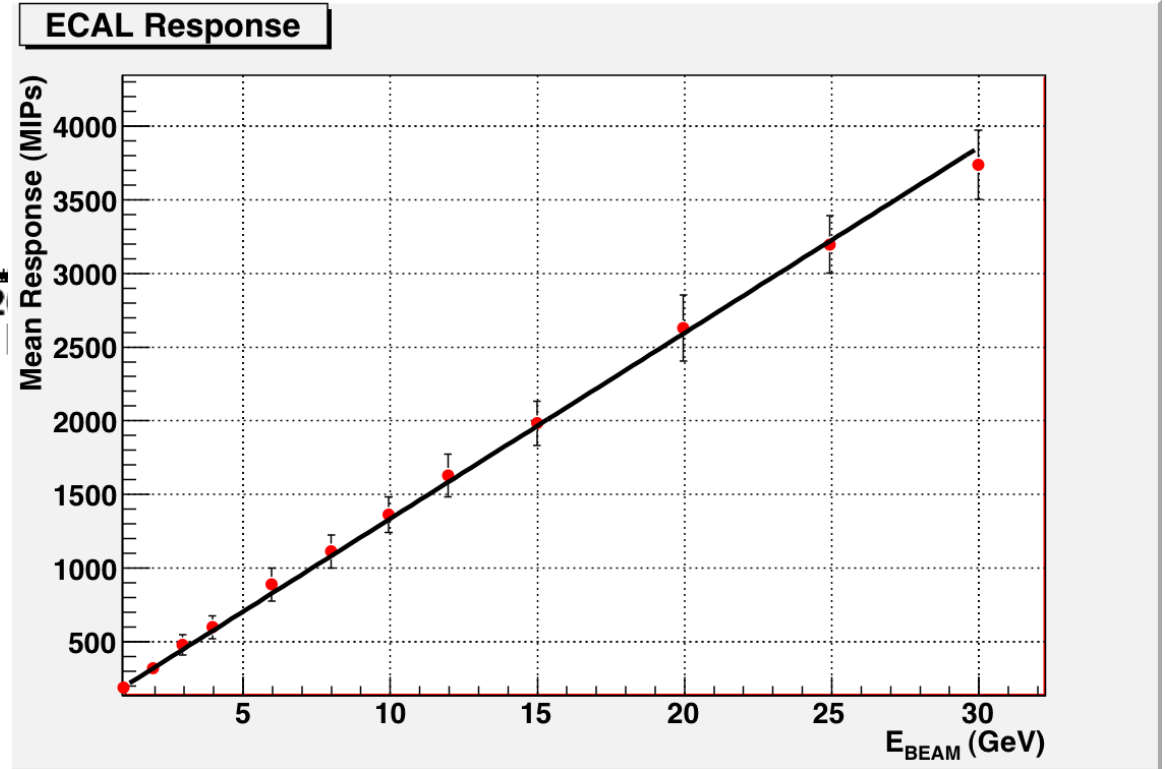
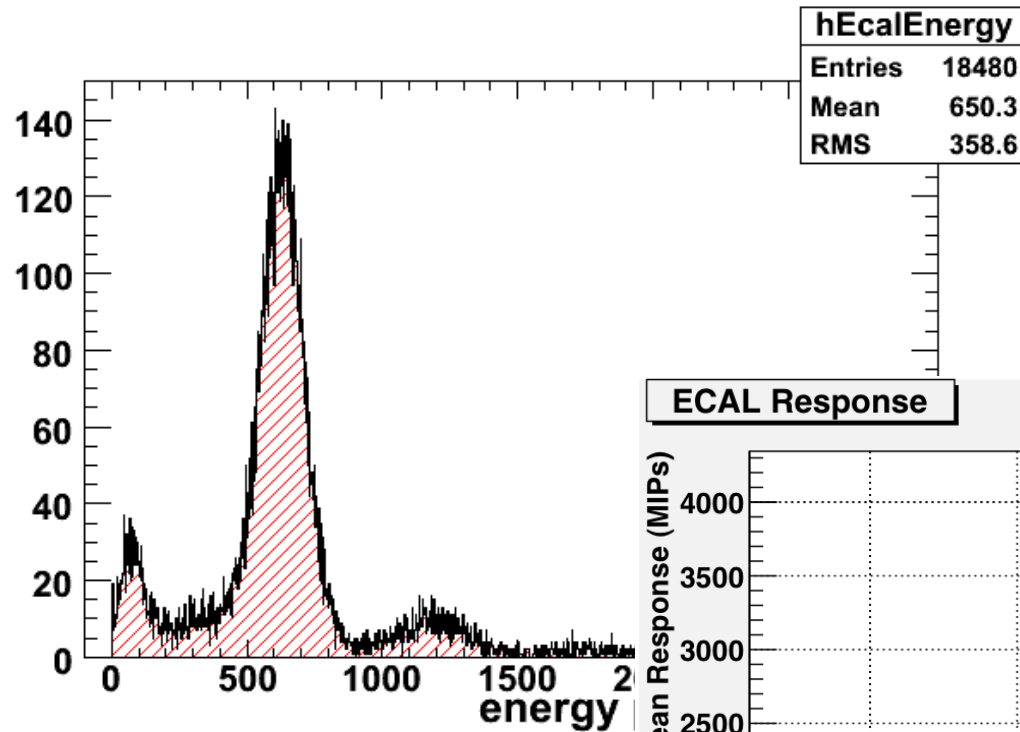
ECal Response to Electrons



Online only – no analysis

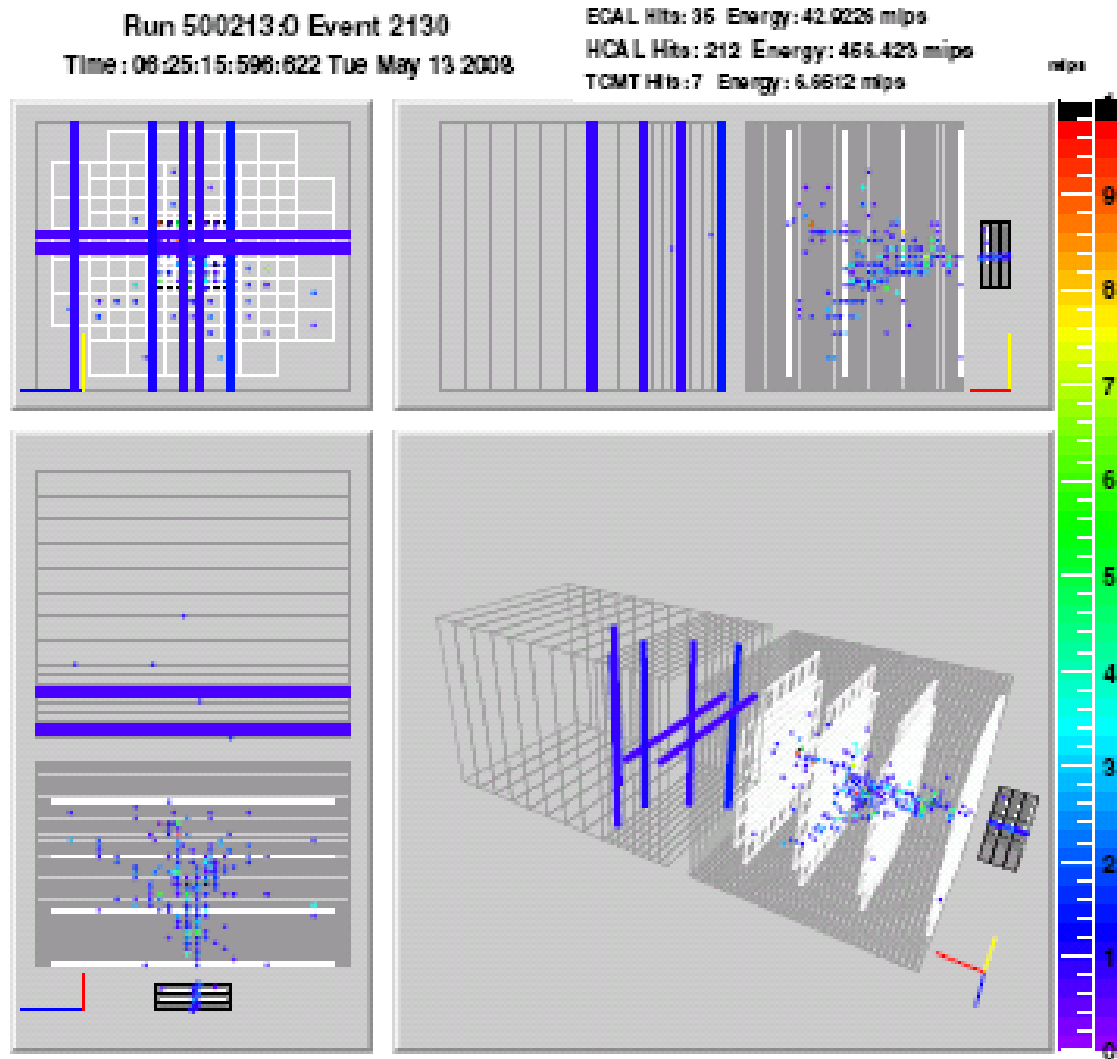
All hits above 0.5 MIP

ECal Response to Electrons

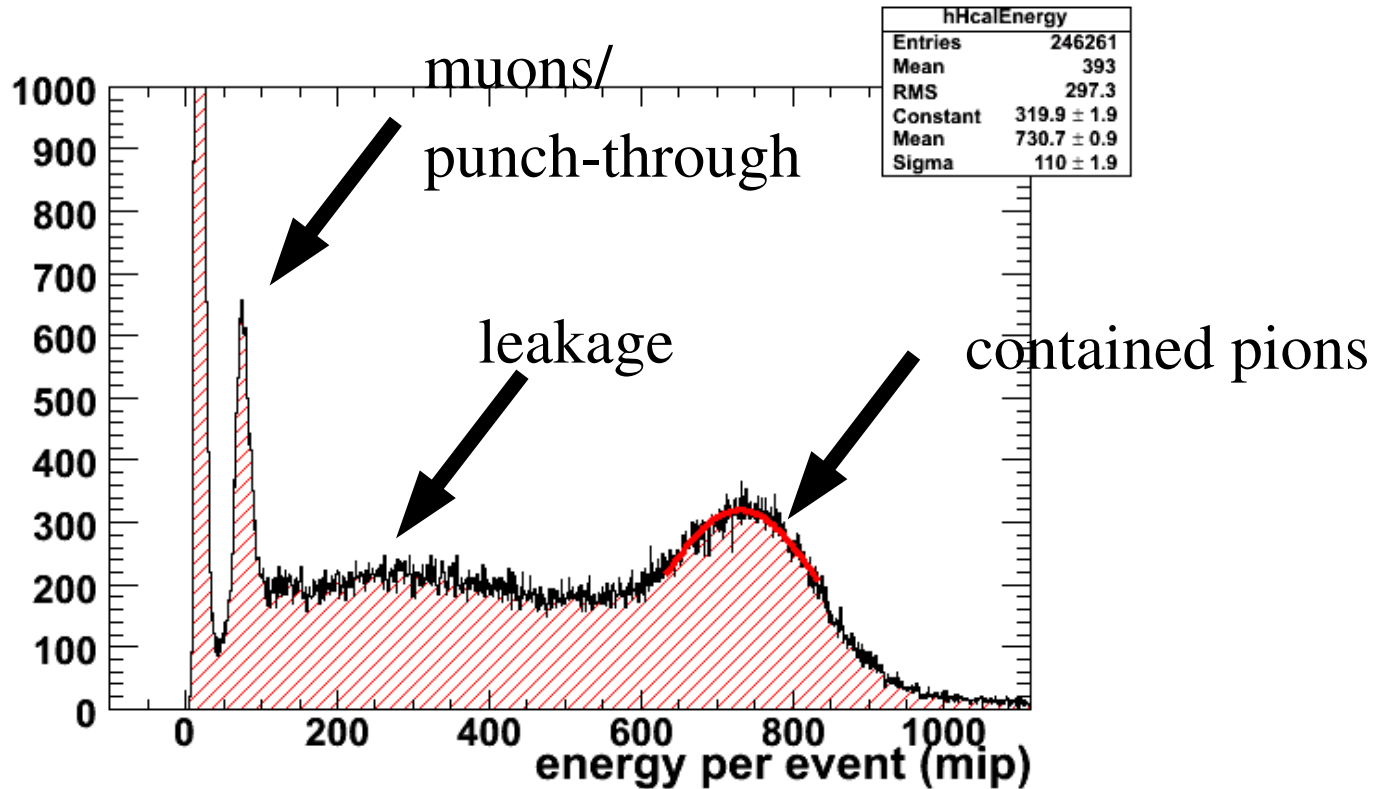


Online only – no analysis
All hits above 0.5 MIP

Response to Pions



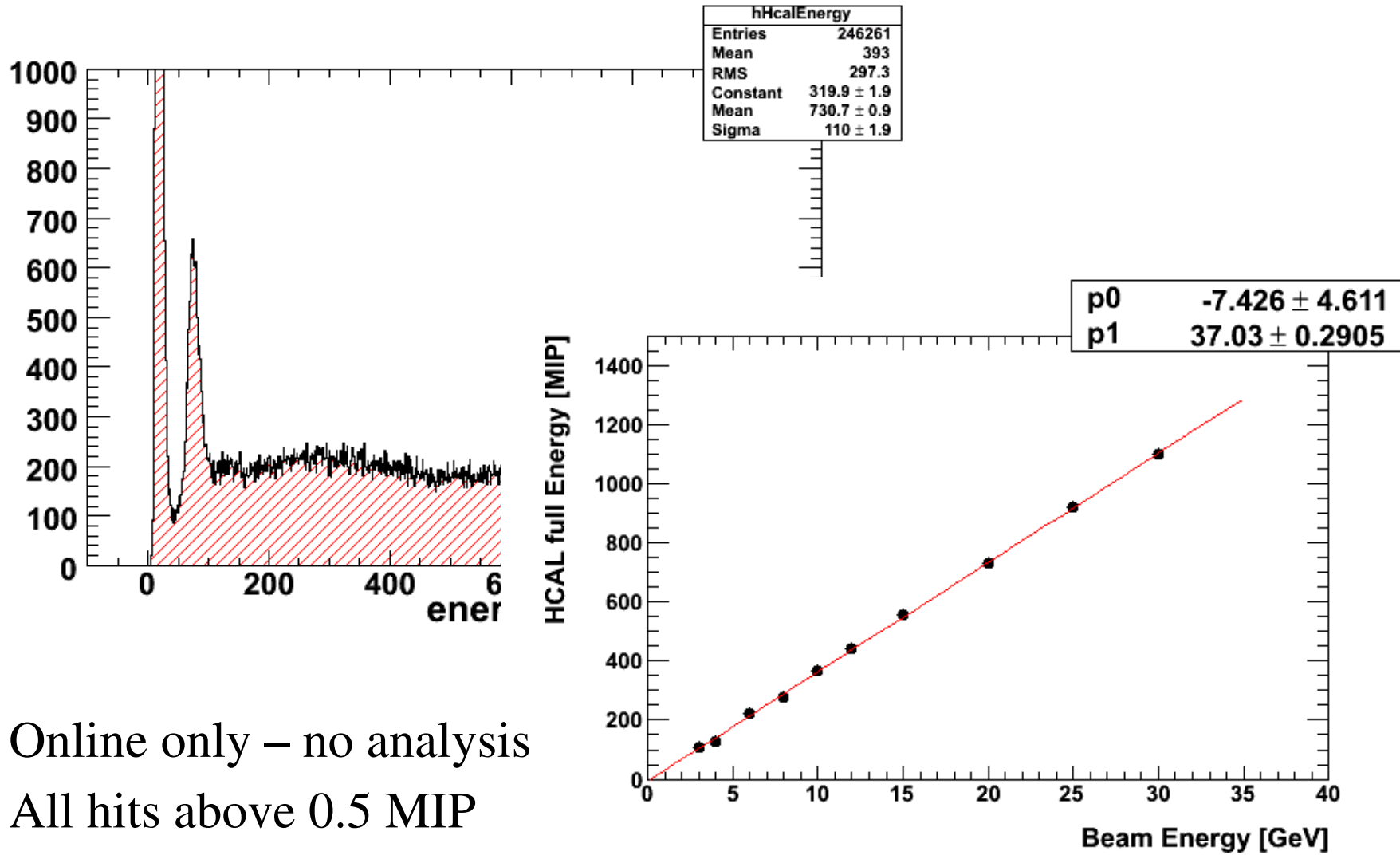
HCal Response to Pions



Online only – no analysis

All hits above 0.5 MIP

HCal Response to Pions

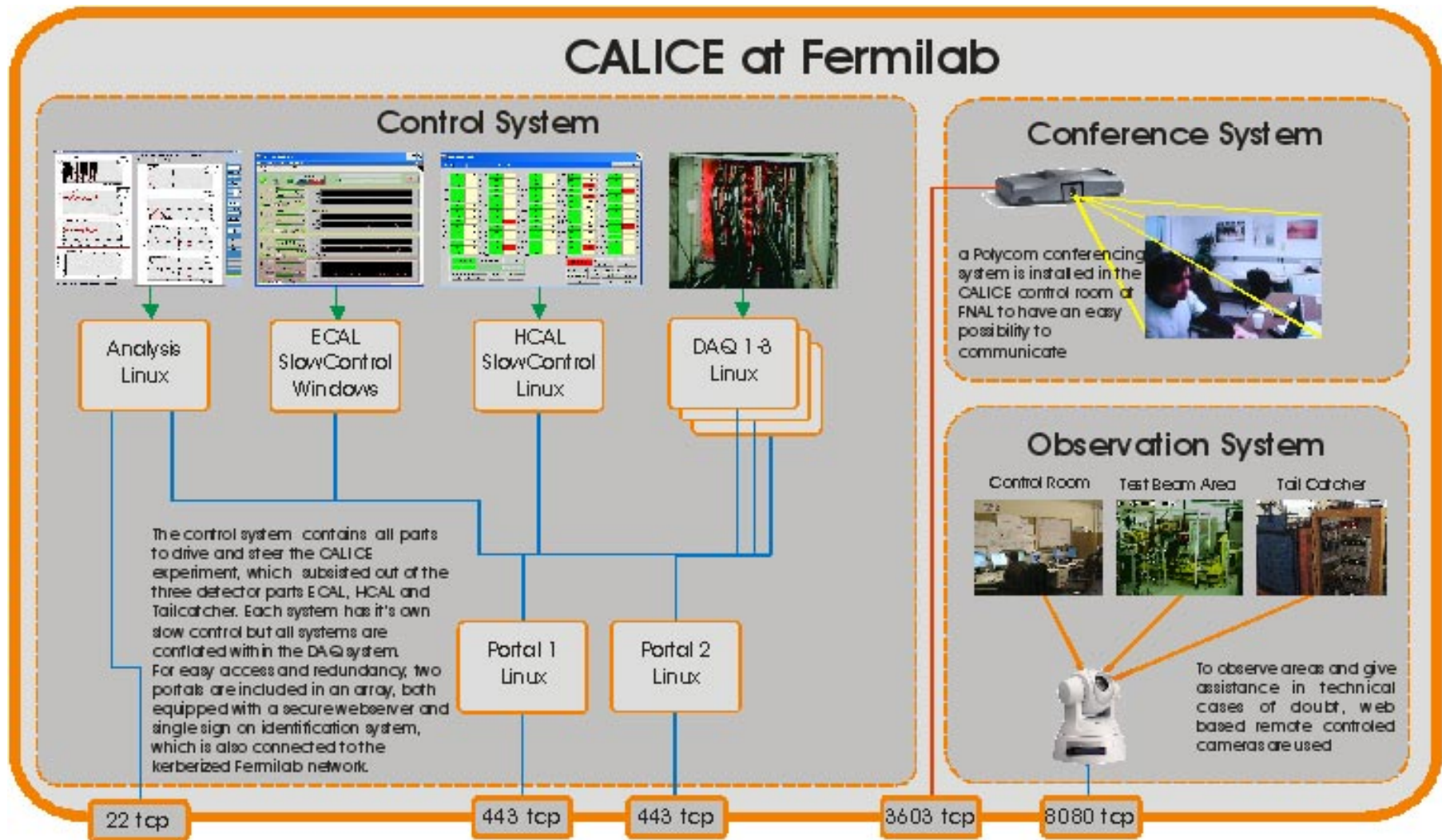


Online only – no analysis
All hits above 0.5 MIP

Local Control



Control Connectivity



Remote Control

CALICE Control Room at DESY

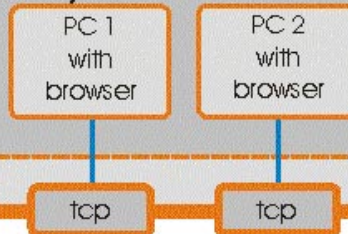
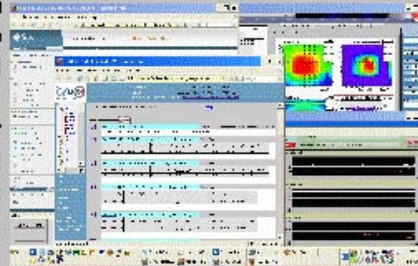
Control Console



Two DESY standard computers on the client site, each with 4 Monitors and a Java enabled browser - that's all.

The idea behind this simple structure is also simple: we integrated all intelligence and communication hard and software on the Fermilab site. No special knowledge is necessary, apart from how to install a computer and use it, to make a connection to the CALICE control system at Fermilab.

This does also mean, if an other person or institute want to get control of the CALICE experiment, a single https connection is necessary.



Conference System



The counterpart of the Fermilab conference system comprise out of a wide TV screen, one camera and a computer system including the software

Control Room



To give the shift crew the possibility to do good work, a pleasant area has been created. The room was equipped with well formed furniture, blue carpets, chairs, a proper blue wall as well as a sliding door which gives the feeling of expanse.