Status of the IE

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FOCUS E831 Group Meeting

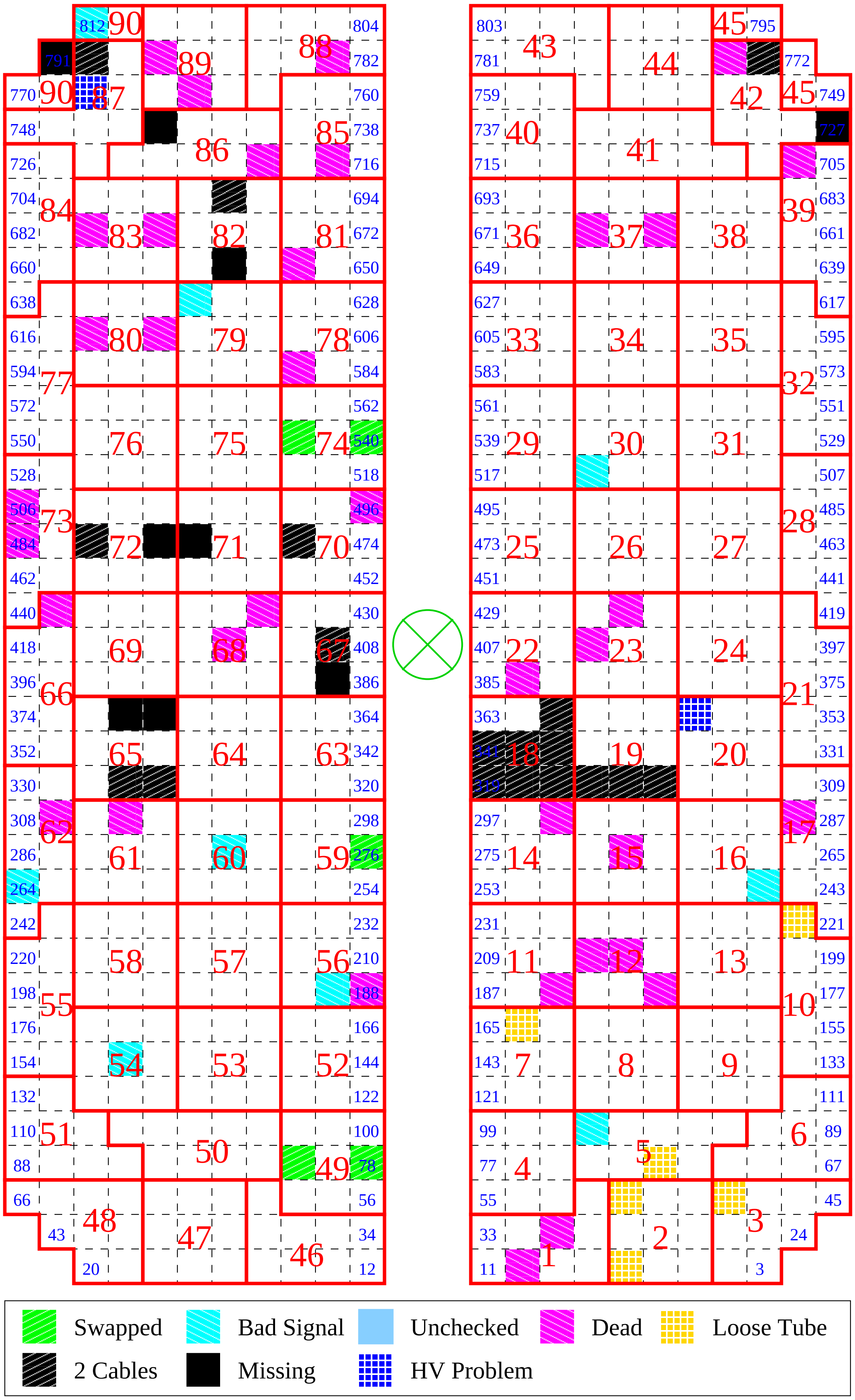
May 31, 1996

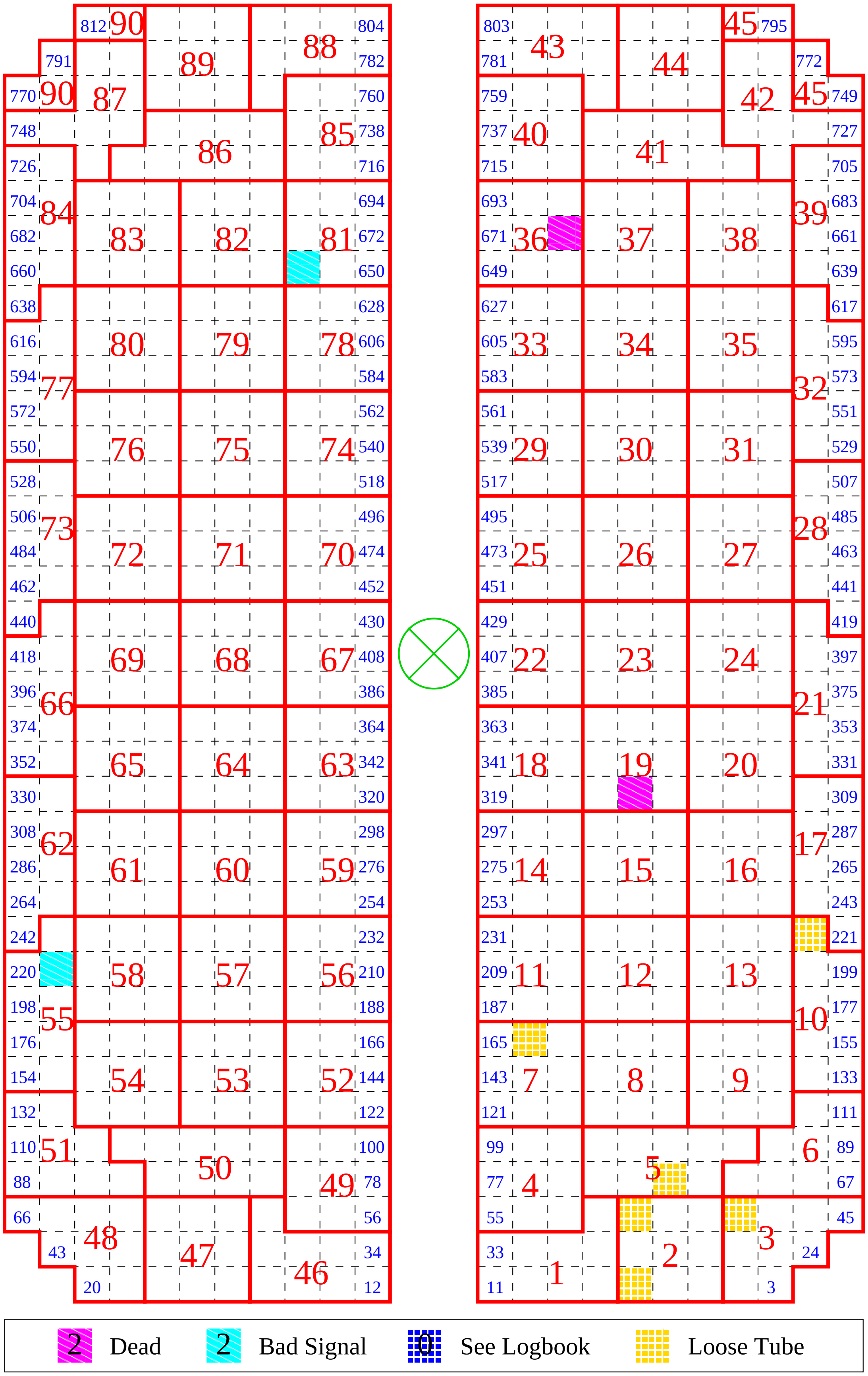
Jobs completed

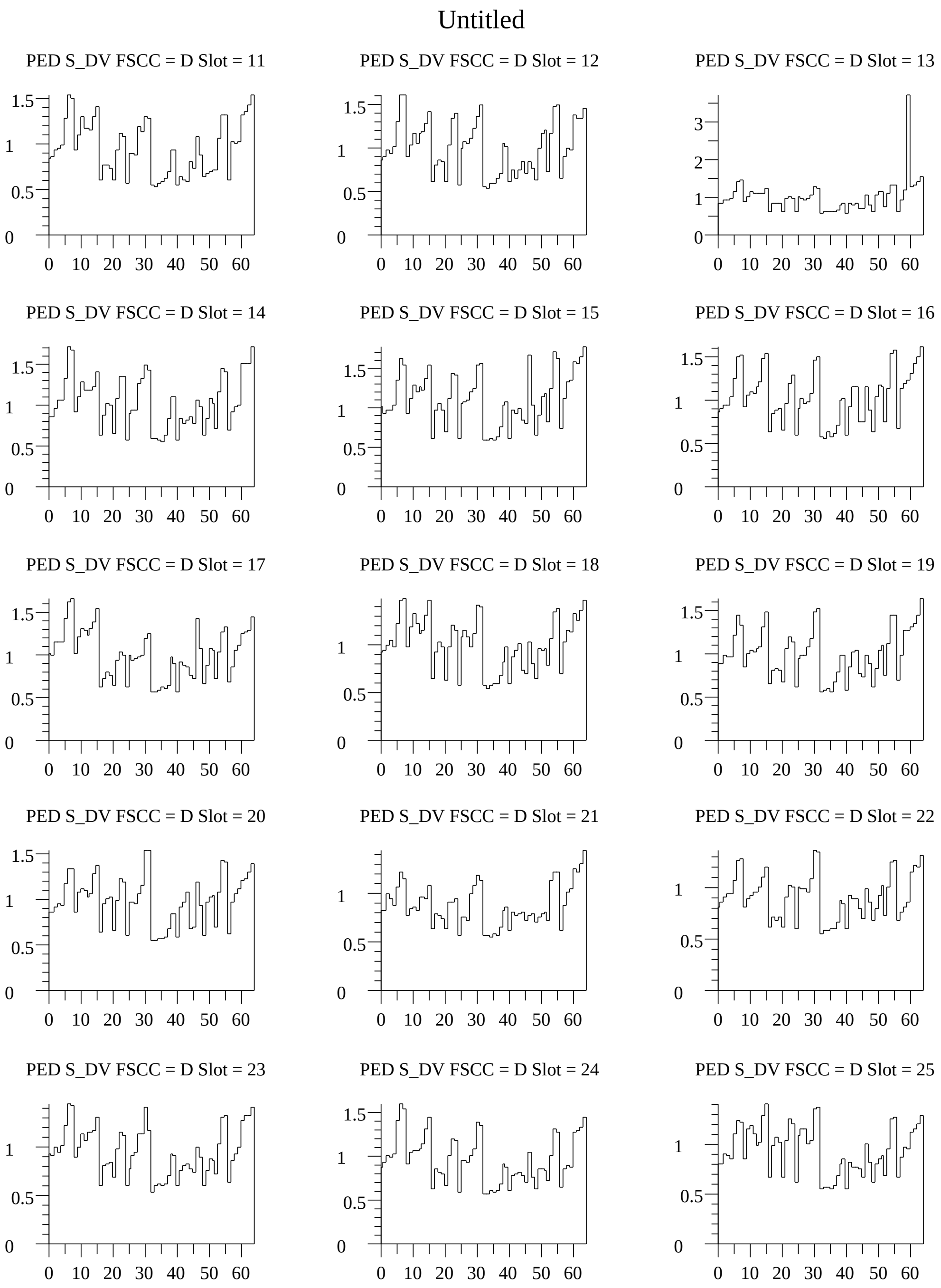
- Flasher system installed, fine tuning needed
- Summer cables installed
- All channels have been checked twice
- 1st round of repairs done, 4 tubes replaced
- 2nd round:
  - A few more cable repairs
  - Four tubes may be removed
  - Send tubes to CU for repair
- Interspill monitoring in good shape
  - All FSCC code done
  - Pedestal monitoring code done
  - Minor changes needed for flasher code
- ADC progress
  - All ADCs seem OK
  - External gate fixed previous problems
  - ECO applied to all ADCs

Jobs remaining

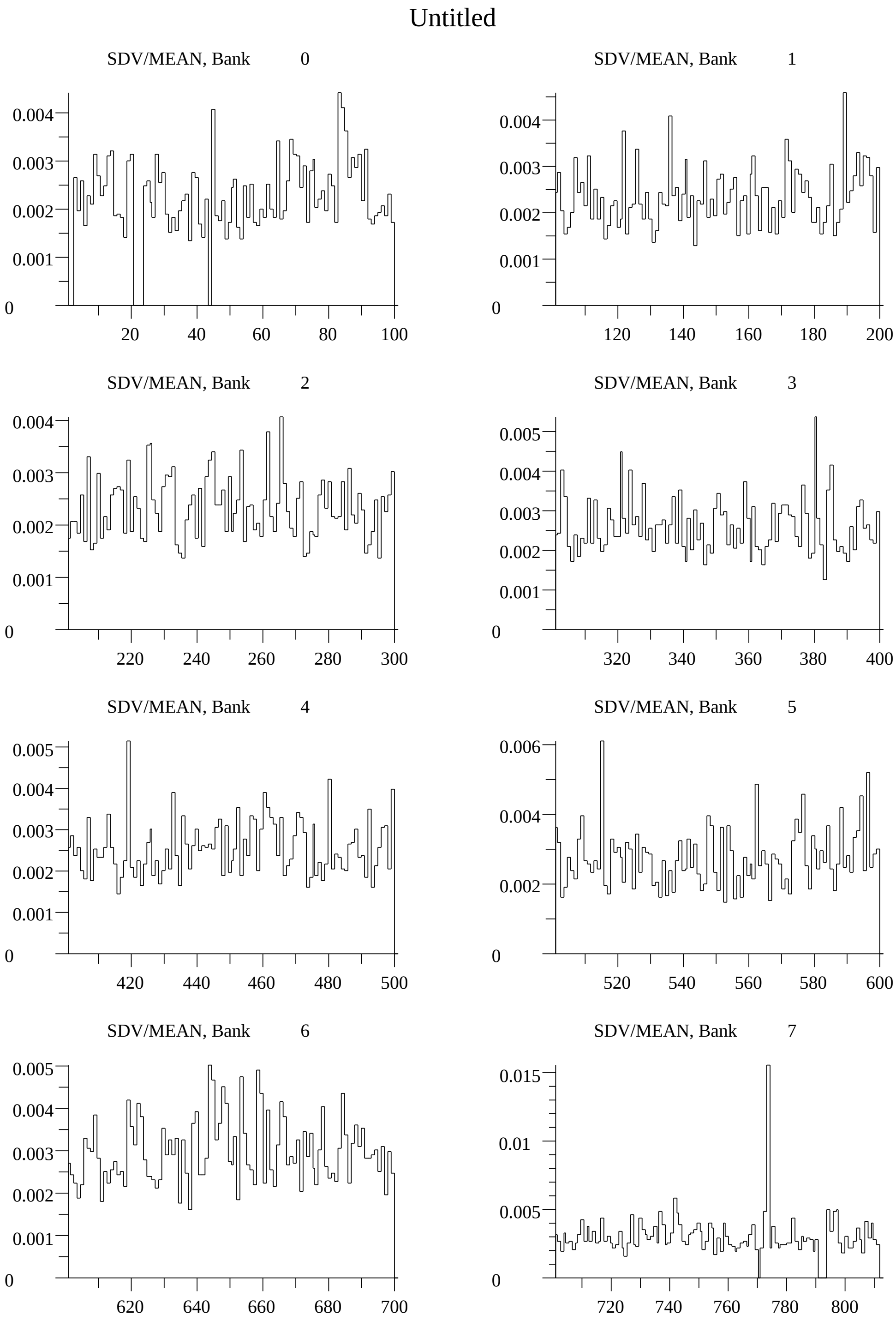
- Motor Drive
  - Design only took 9 weeks
  - Installation should begin next week
  - Readout and control ordered, promised June 1
- Repair and replace PMTs
- Repair 3 summer boards
- Install CAMAC and FNAL summers
  - All parts here, waiting on motor drive
- Check FNAL summing system
- Gate studies
- Finish gain monitoring software
- Gain balance with μ beam
- Calibrate with $e^{\pm}$ beam
- Pedestal vs. rate study?


Swapped
Bad Signal
Unchecked
Dead
Loose Tube
2 Cables
Missing
HV Problem


2 Dead
2 Bad Signal
0 See Logbook
Loose Tube



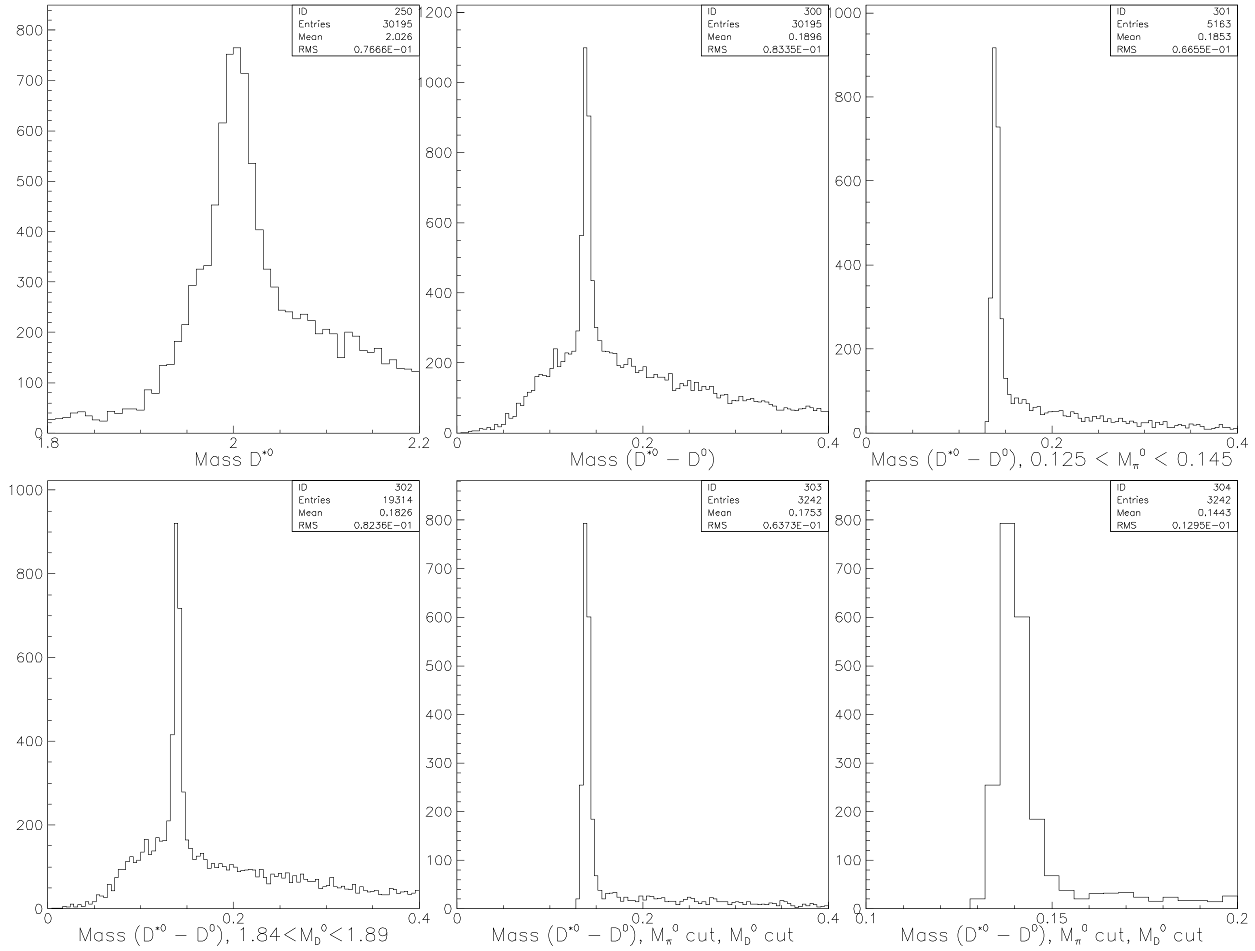
Plots of pedestal widths of all IE channels showing only one marginally bad channel (Slot 13)



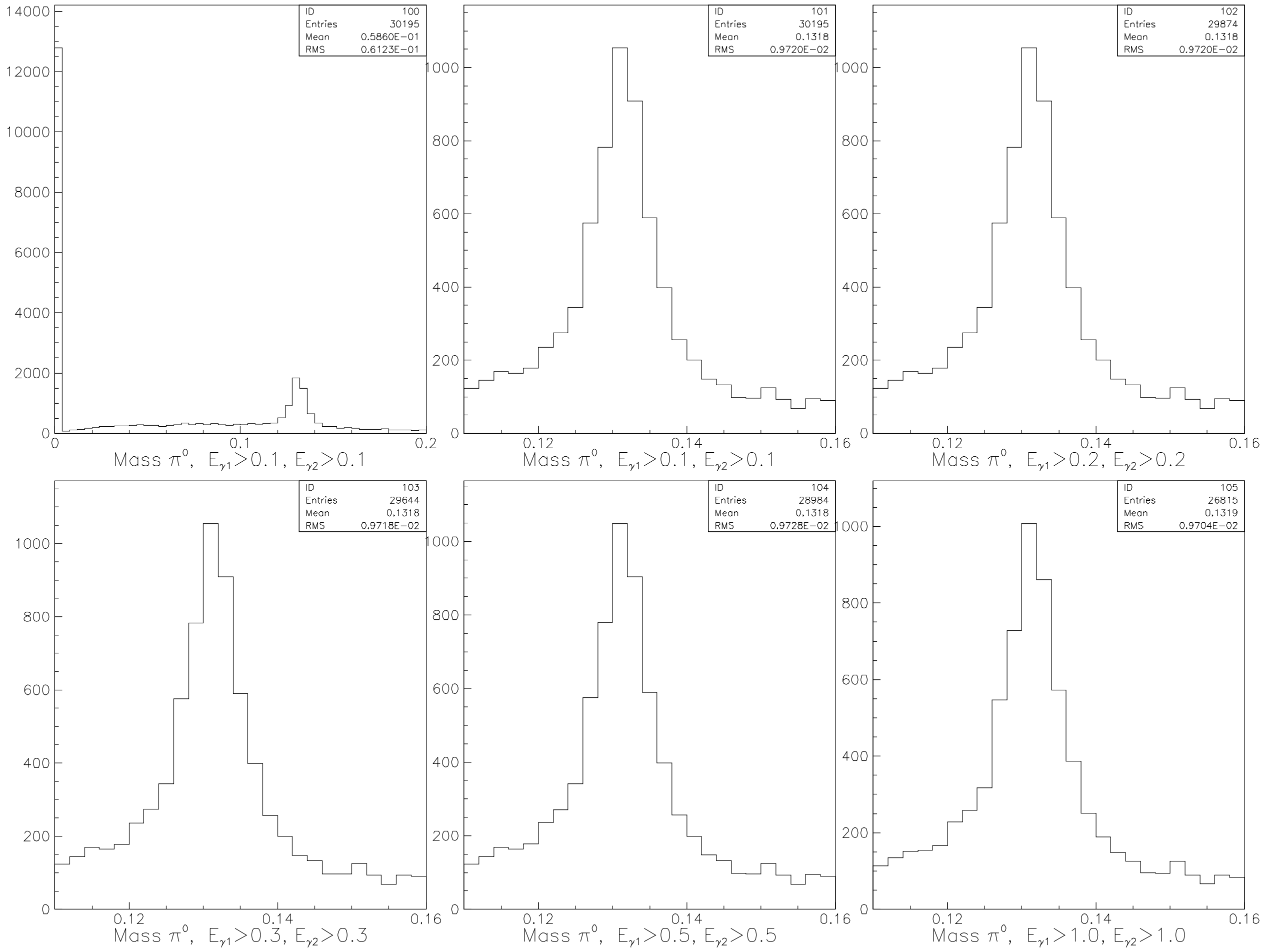
Plots for all IE channels showing gain changes. This is VERY preliminary, but it is something like this that will be used to monitor gain changes.

MonteCarlo and Reconstruction

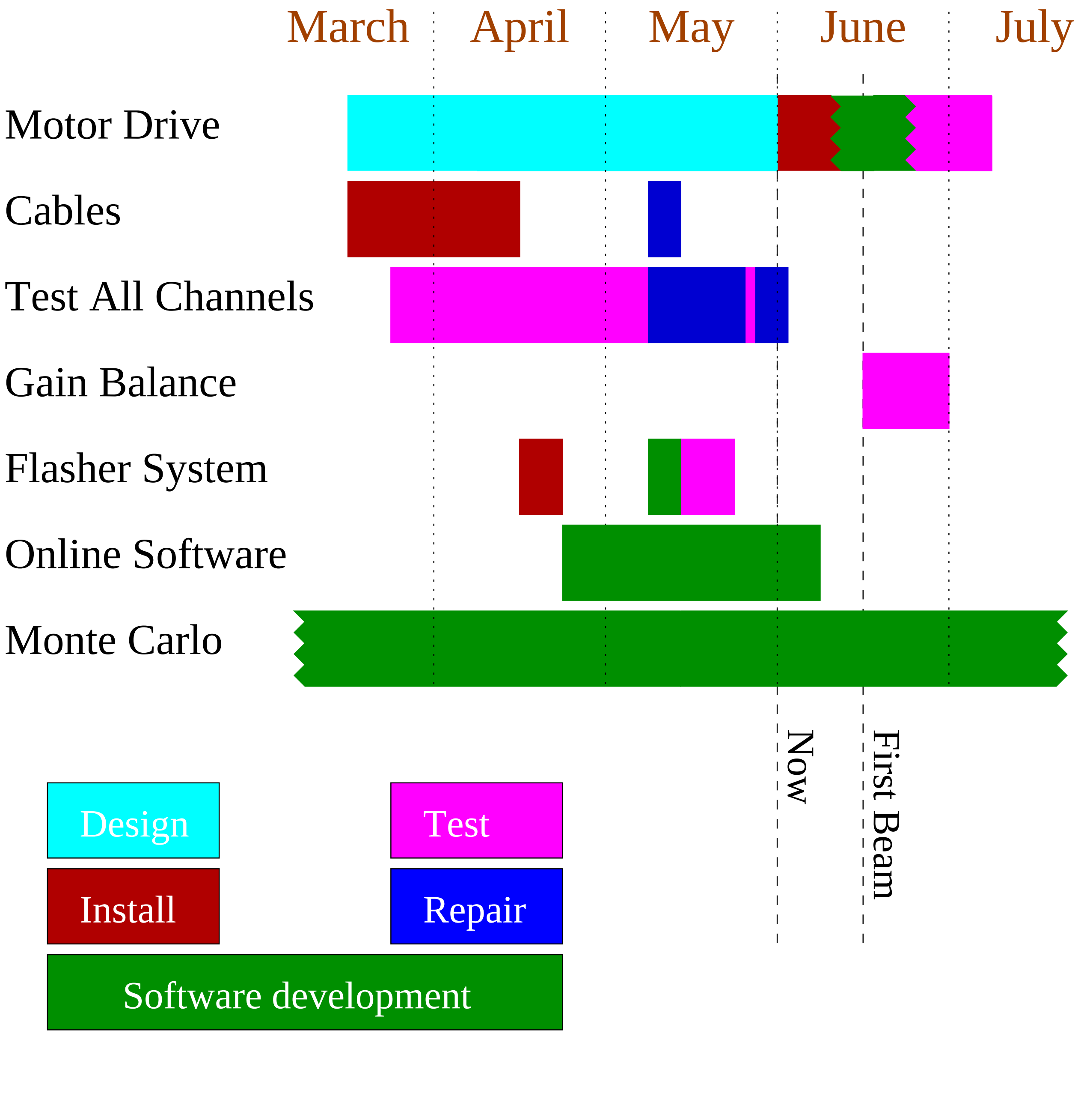
- 100K Events generated with MCFOCUS
- Using the E-799 shower library to deposit γ energy
  - No $e^{\pm}$ simulation yet
  - No correction for showers at edges
  - No correction for energy outside 3×3 array
- Looking at $D^{*0} \to D^0\pi^0(D^0 \to K\pi)$
  - D^0 reconstructed in usual manner, CLP>1%, combine K and π
  - π^0 candidate with new IE reconstruction
  - Combine D^0 and π^0 to get D^{*0} mass
- To do
  - Improve position finding
  - Correct for photon-electron difference
  - Correct for leakage and "missing" blocks
  - Simulate electrons, muons, and pions
  - Use real ADC unpacking



ID 250
Entries 30195
Mean 2.026
RMS 0.7666E-01
Mass D^{*0}
ID 300
Entries 30195
Mean 0.1896
RMS 0.8335E-01
Mass ($D^{*0} - D^0$)
ID 301
Entries 5163
Mean 0.1853
RMS 0.6655E-01
Mass ($D^{*0} - D^0$), $0.125 < M_{\pi}{}^0 < 0.145$
ID 302
Entries 19314
Mean 0.1826
RMS 0.8236E-01
Mass ($D^{*0} - D^0$), $1.84 < M_D{}^0 < 1.89$
ID 303
Entries 3242
Mean 0.1753
RMS 0.6373E-01
Mass ($D^{*0} - D^0$), $M_{\pi}{}^0$ cut, $M_D{}^0$ cut
ID 304
Entries 3242
Mean 0.1443
RMS 0.1295E-01
Mass ($D^{*0} - D^0$), $M_{\pi}{}^0$ cut, $M_D{}^0$ cut



ID 100
Entries 30195
Mean 0.5860E-01
RMS 0.6123E-01
Mass π0, Eγ1>0.1, Eγ2>0.1
ID 101
Entries 30195
Mean 0.1318
RMS 0.9720E-02
Mass π0, Eγ1>0.1, Eγ2>0.1
ID 102
Entries 29874
Mean 0.1318
RMS 0.9720E-02
Mass π0, Eγ1>0.2, Eγ2>0.2
ID 103
Entries 29644
Mean 0.1318
RMS 0.9718E-02
Mass π0, Eγ1>0.3, Eγ2>0.3
ID 104
Entries 28984
Mean 0.1318
RMS 0.9728E-02
Mass π0, Eγ1>0.5, Eγ2>0.5
ID 105
Entries 26815
Mean 0.1319
RMS 0.9704E-02
Mass π0, Eγ1>1.0, Eγ2>1.0



March
April
May
June
July
Motor Drive
Cables
Test All Channels
Gain Balance
Flasher System
Online Software
Monte Carlo
Now
First Beam
Design
Test
Install
Repair
Software development