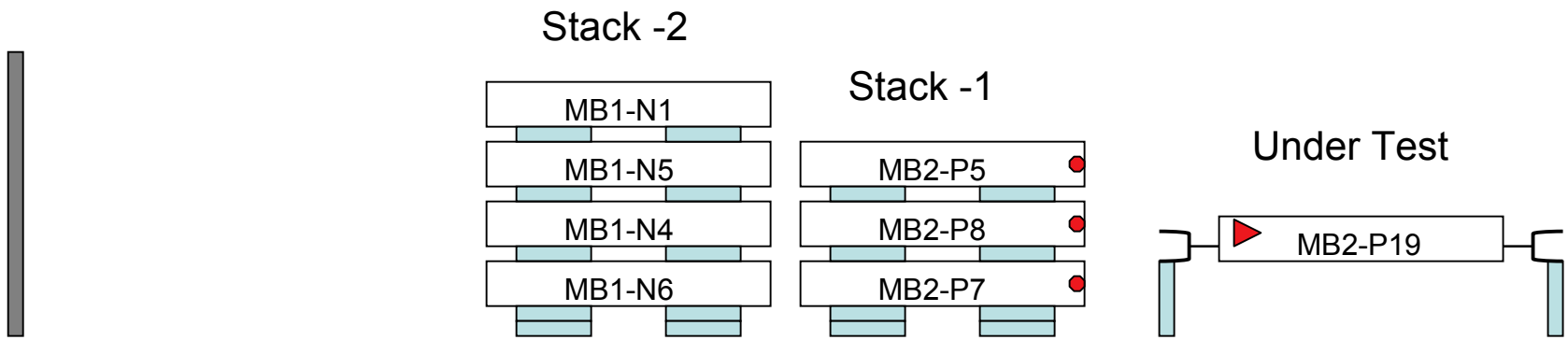
ISR Work
Progress Report

CMS Week December 3rd 2003

A. Benvenuti

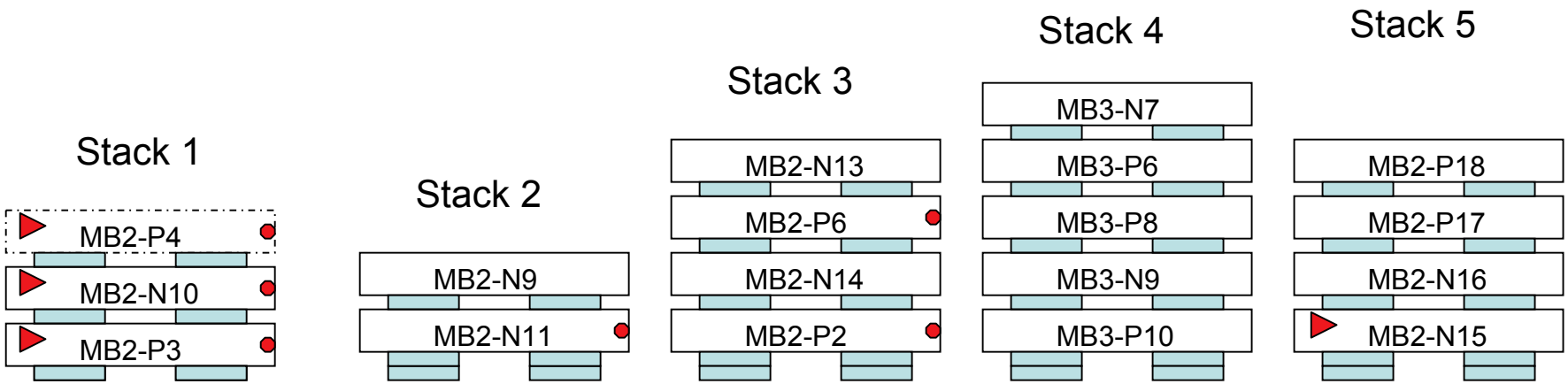
INFN Bologna

Chamber Stacks Layout In I3-I4 Tunnel (part 1)



- Next shipment from Aachen (December 11-12) in Stack -3 and Stack 6
- Stack -2 under HV apart for MB1-N1 (installation Test)
- Stack -1 under HV apart for MB2 P5 SL2 (gas connector problem)
- ● Chambers without RPC pads
- ▶ HV problems

Chamber Stacks Layout In I3-I4 Tunnel (part 2)

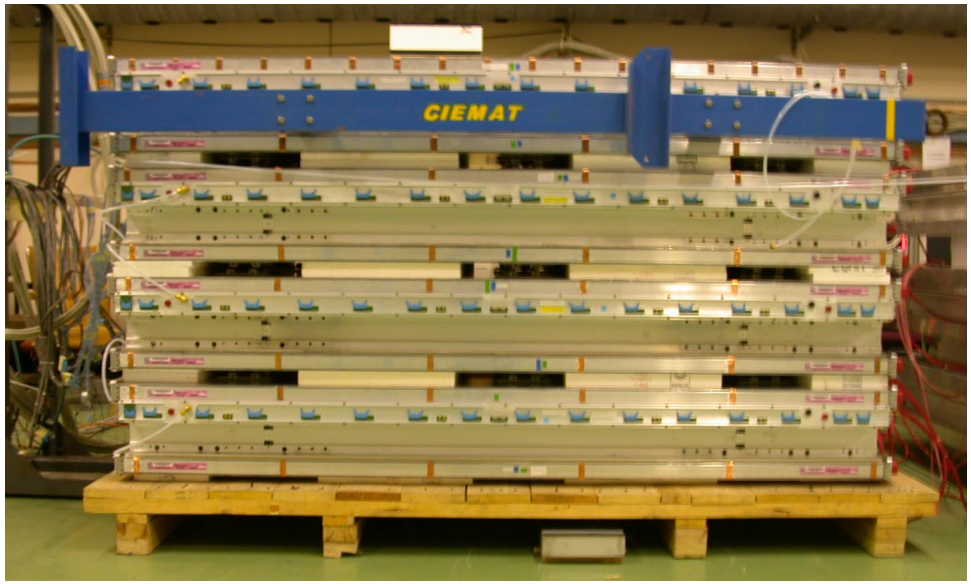


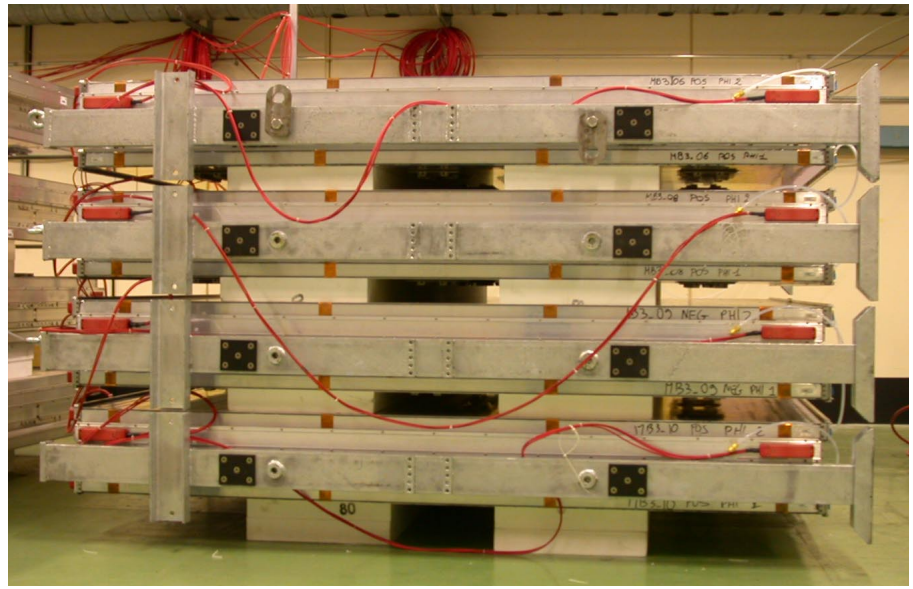
- Stack 1 MB2-P4 on Alignment bench, N10 under HV
- Stack 2 MB2- N11 under HV
- Stack 3 under gas flow apart for MB2-P6 (gas leak in damaged SL PHI 1)
- Stack 4 under HV apart for MB3-N7 (Installation Test)
- Chambers without RPC pads
- HV problems

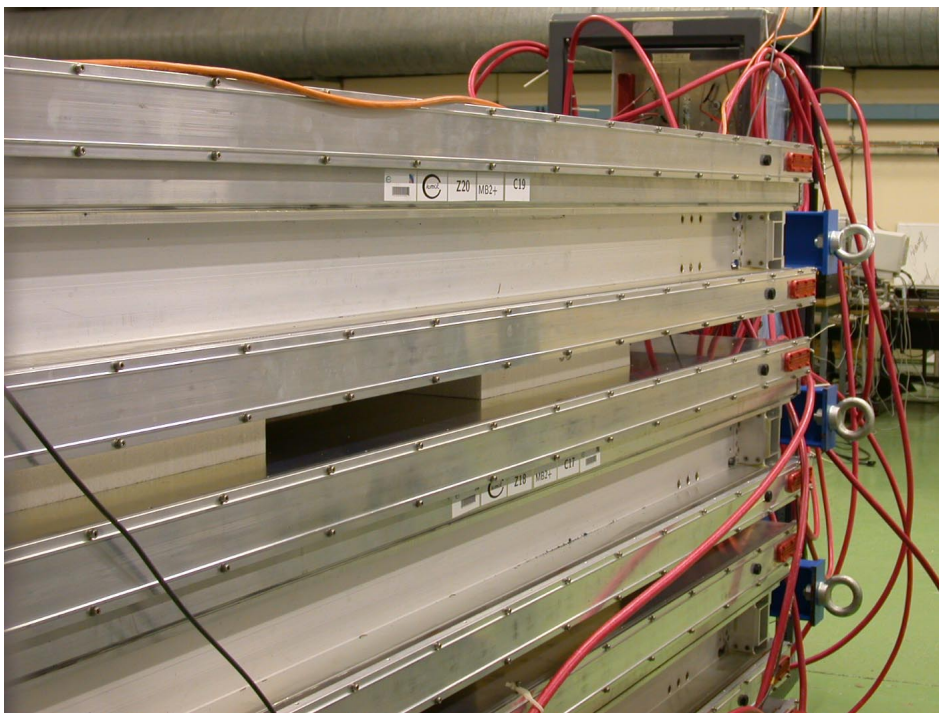
Expect:

- 10 MB3 end of January 03
- 5 MB2 February 03

➡ 26DTs +1(SX5) + 10(MB1)

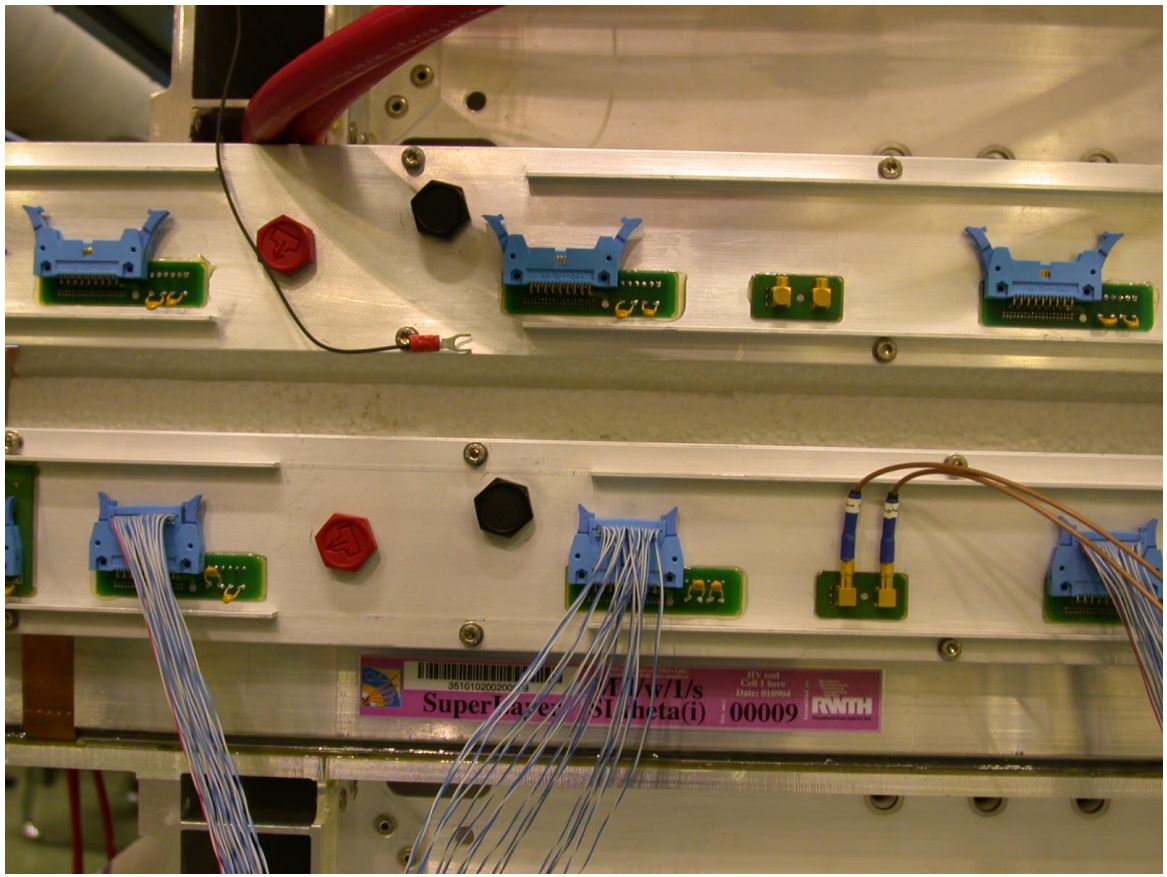




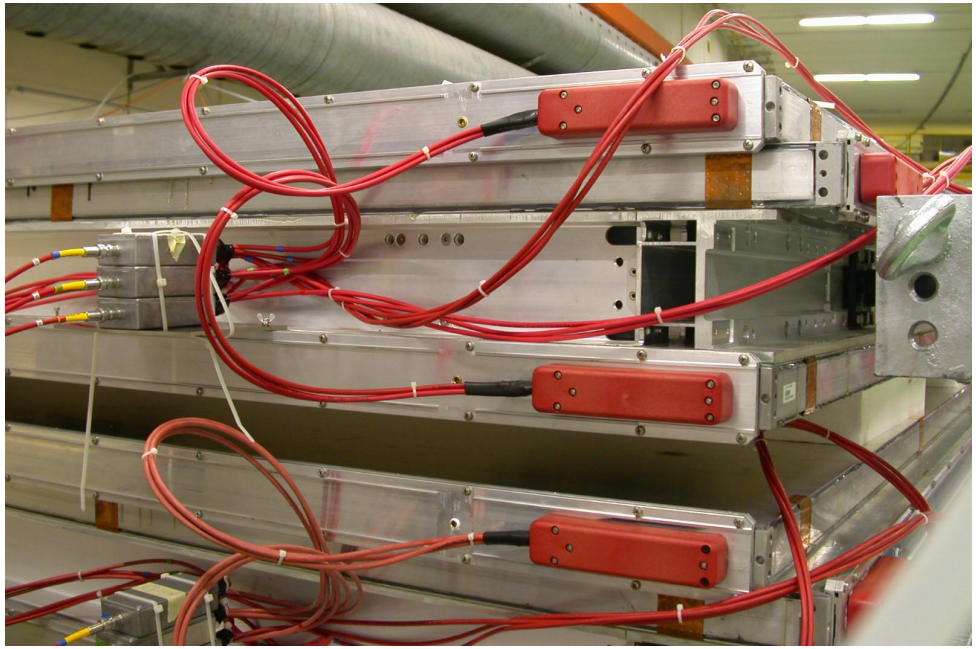


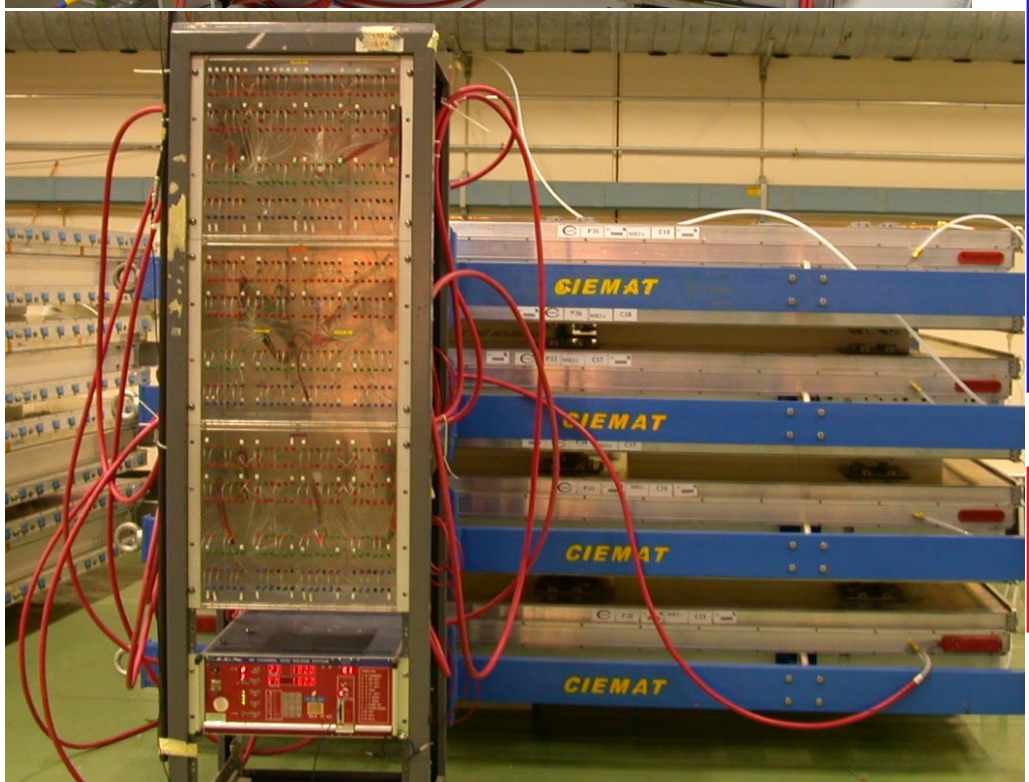
Some Differences Among the Sites

- Chamber Labels (scribbled in Legnaro)
- Transport Fixtures, all different
- SL grounding (Missing in CIEMAT)



- Plastic caps to close gas and cooling in/outlets in Aachen
- avoids use of Teflon tape (dangerous and time consuming)
- should be adopted in other sites





HV Long Term Test

- One HV channel/Chamber
- All Wire pins connected together, same for Strip, Cathode and Ground pins
- At present 12 Chambers can be tested
- Extension to 24DT ready in January 03

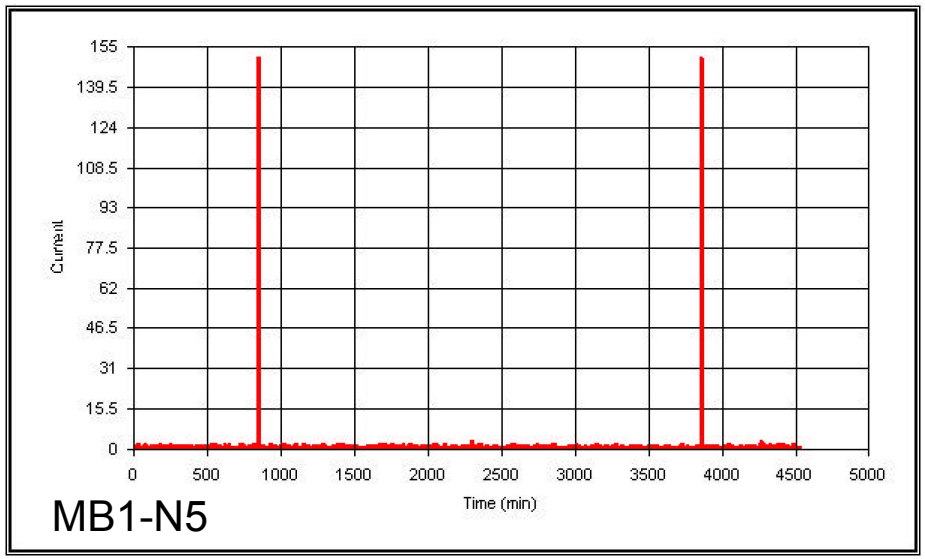
HV Acceptance Test

- One HV channel / Layer
- Disconnect boxes Configured for each DT type
- Allows to identify/remove problem channels
- Only pins connected to HV boards are under HV

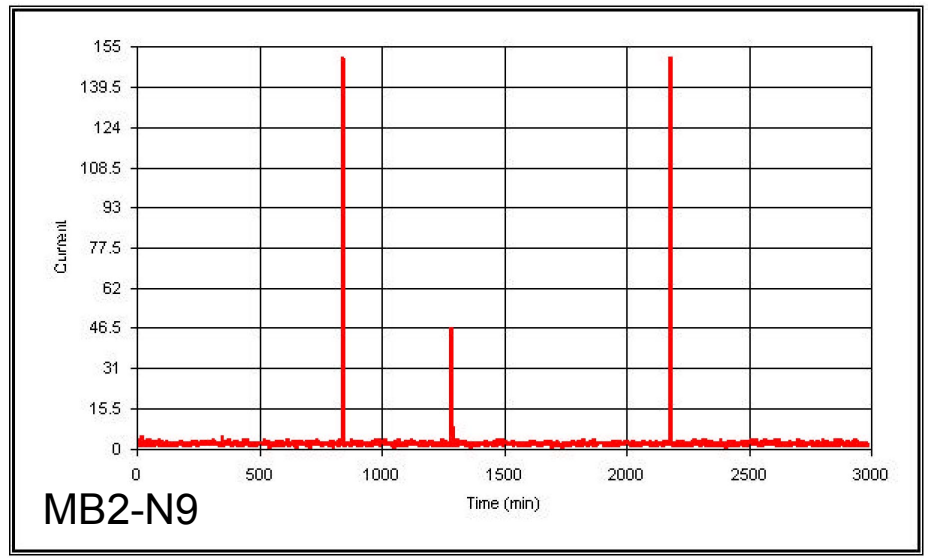
Observe discharges outside the cells in Long Term Test (clicking sound)

➡ Patch Panels unisex or DT specific?

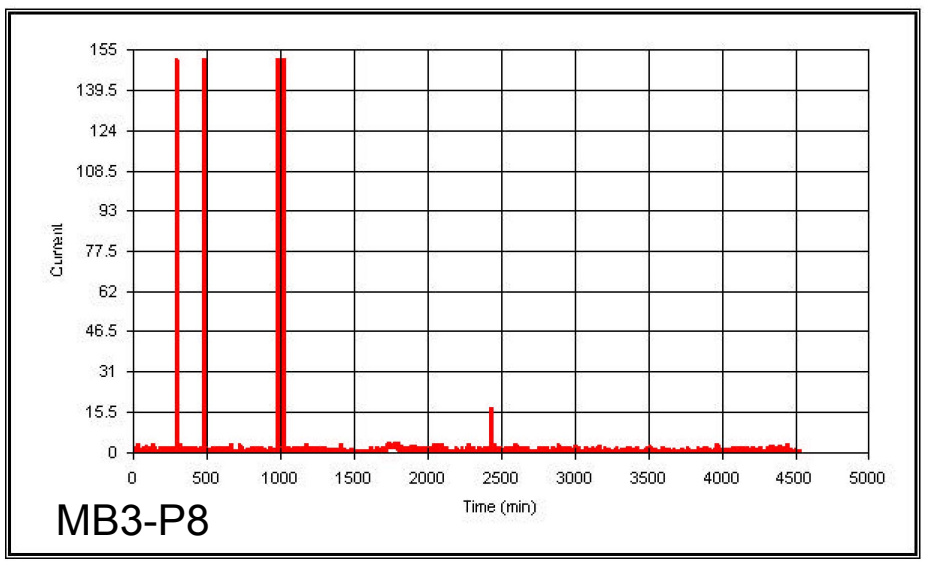
HV Long Term Test Current Monitor



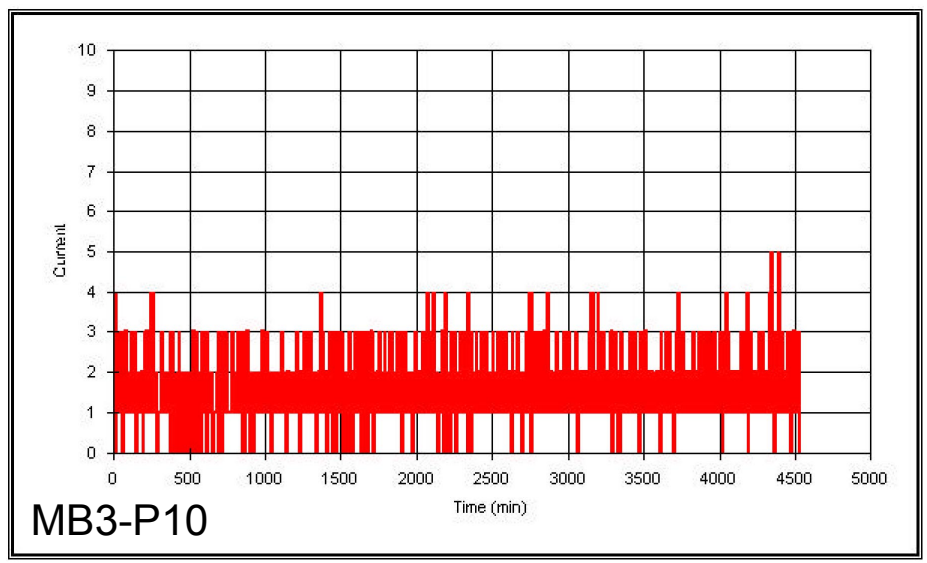
MB1-N5



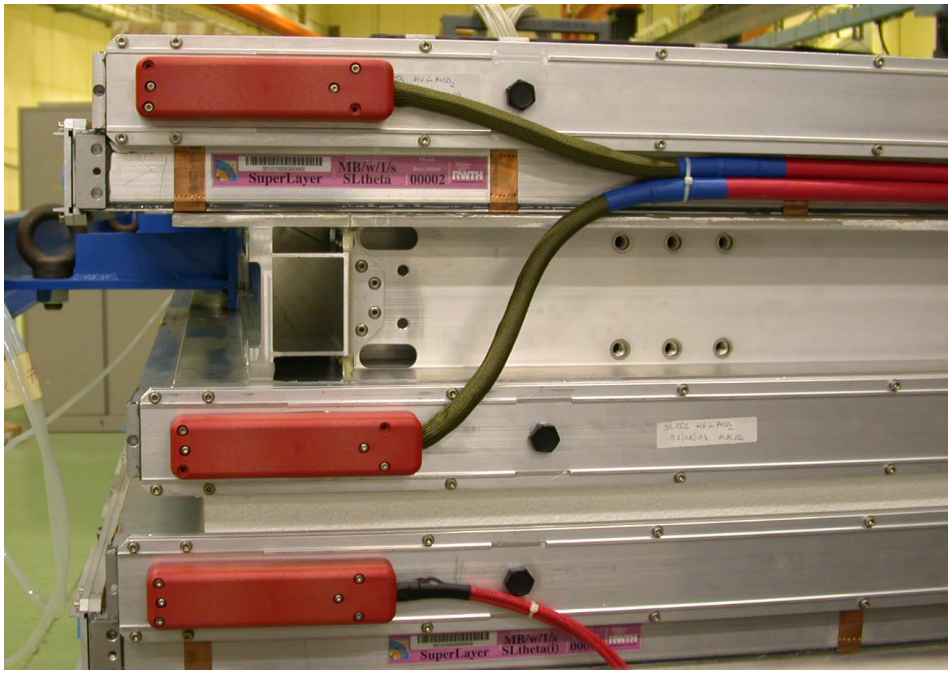
MB2-N9

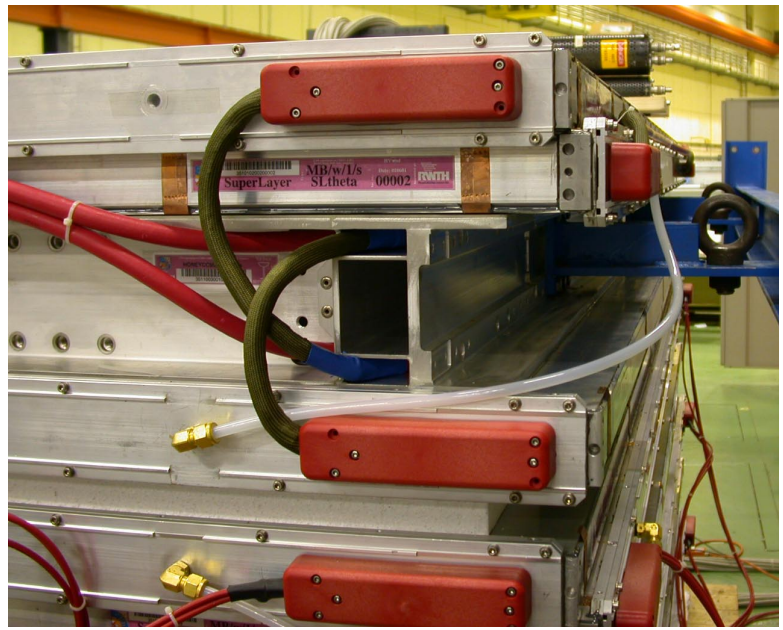


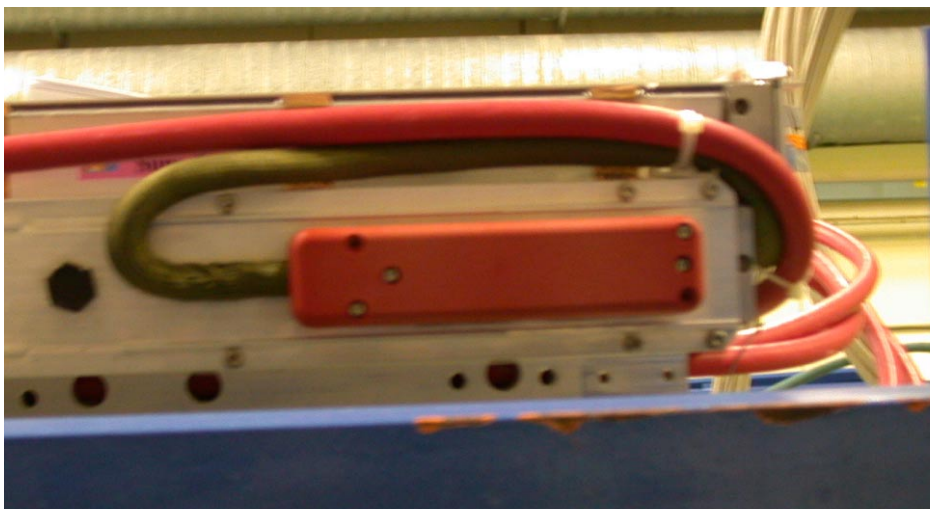
MB3-P8



MB3-P10

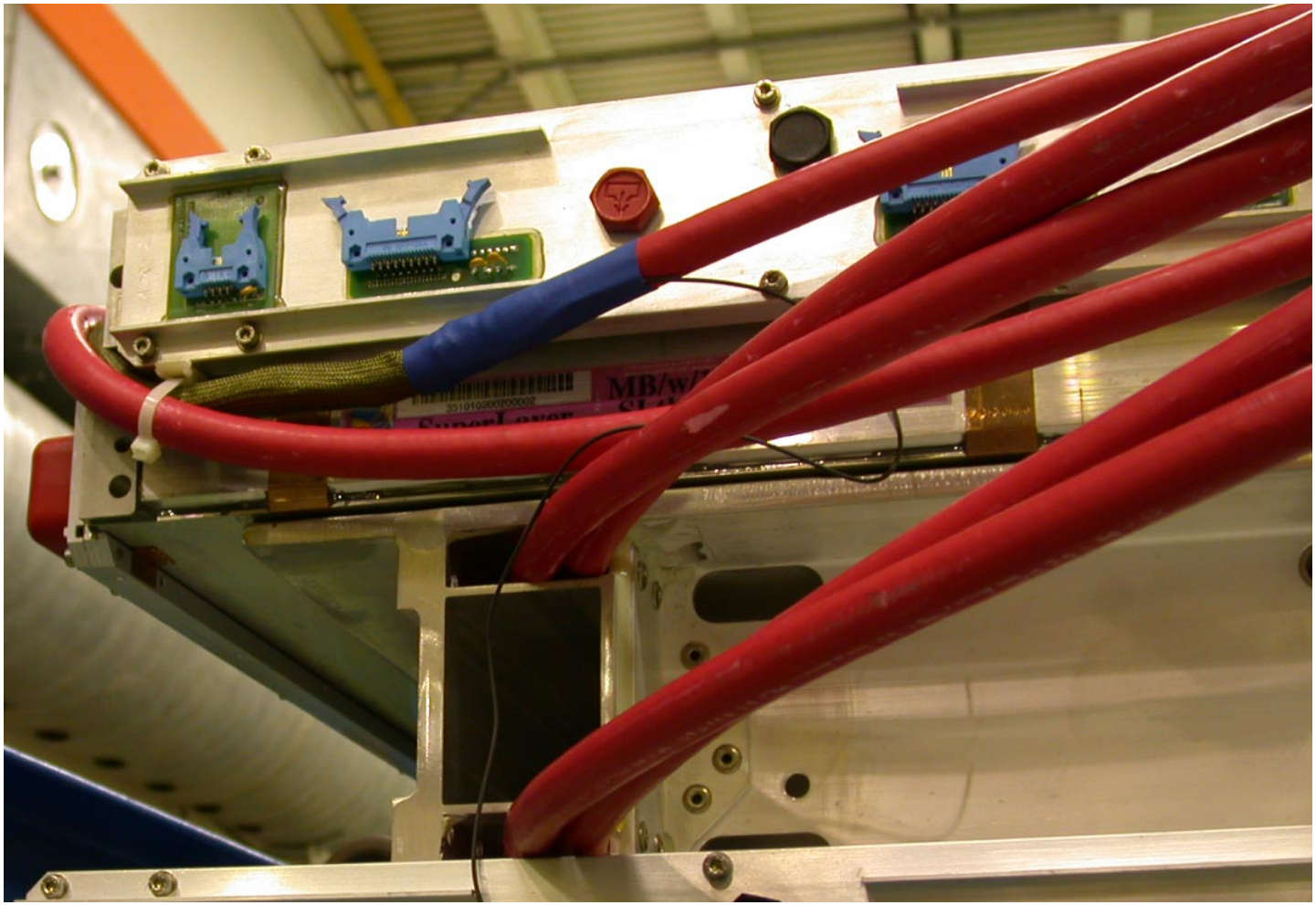






MB1 equipped with HV cables for Installation test (YB0 –5)

- Cable insertion requires two persons
- HV cables must be installed AFTER the LED forks/gas manifold cables
- Interference with gas pipe (copper) cooling must be checked



- Corner Block cuts into Theta-B cable
- Interference with Minicrate and Alignment passage must be checked

Positioning of MB2-P4 on Alignment Bench

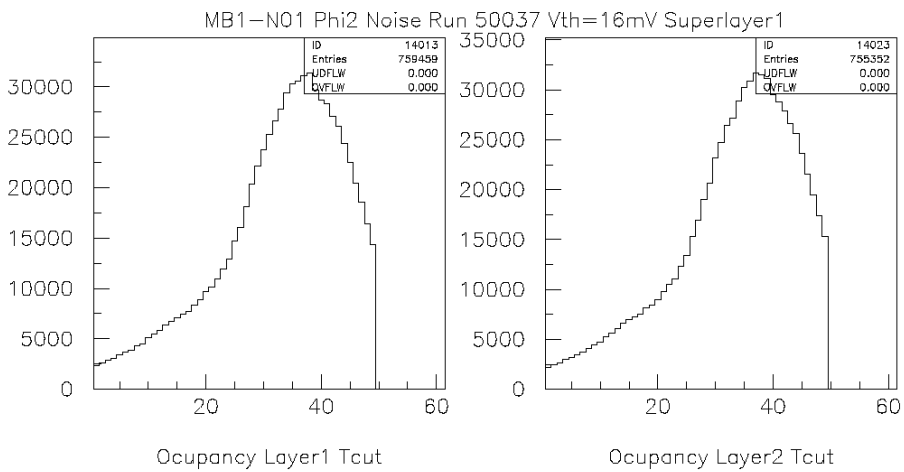
- Photogrammetry up to middle/end of January
- Some redesign of support feet to facilitate chamber handling
- Positioning procedures needs improvements

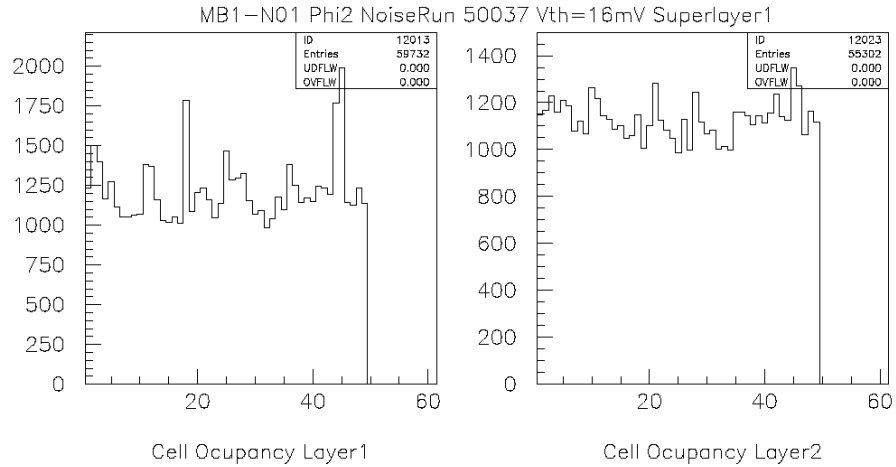
ISR Infrastructure

- Cosmic ray stand at present only for MB2 chambers; can be extended to MB3 but cannot be used for MB1 (trigger counter support).
- Additional DAQ (1SL) and rough trigger available now.
- Scaler system hardware ready, some work needed on the software ready middle of January 03.
- Overpressure test system (Aachen) already in use.
- O2, humidity and temperature monitor ready beginning of January.
- HV Test: additional configurable HV system, extension of Long Term test to 24 chambers (26 DT under HV !) end of January (Bologna).
- Feet for alignment stand: prototype ready (CIEMAT).
- Chamber support through alignment passage: ready CIEMAT).
- Table for cosmic test, February 03 ? (CIEMAT)
- HV Cable soldering and test station March 03

➡ Technicians needed ~ full time starting January

MB1 N01 PHI2 Super-Layer Cell Occupancy

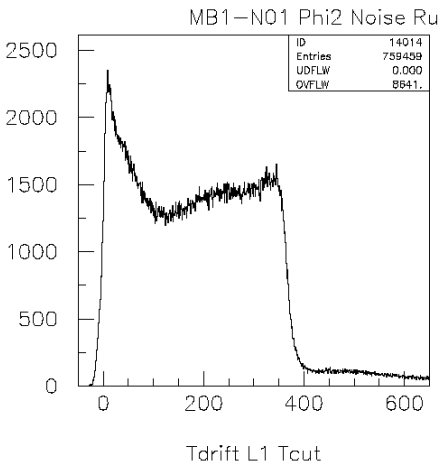


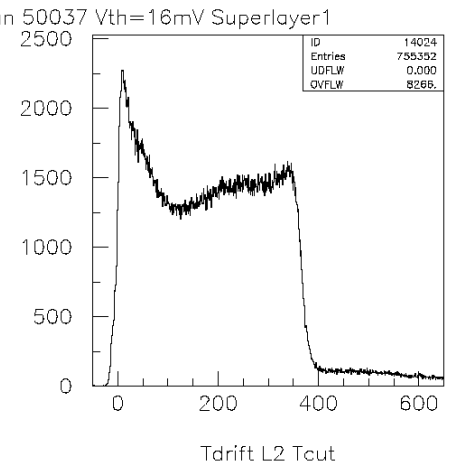


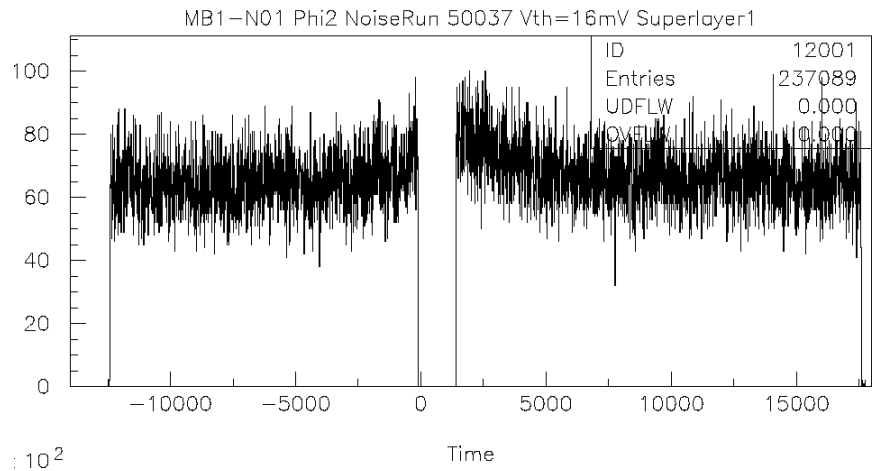
Inside time window

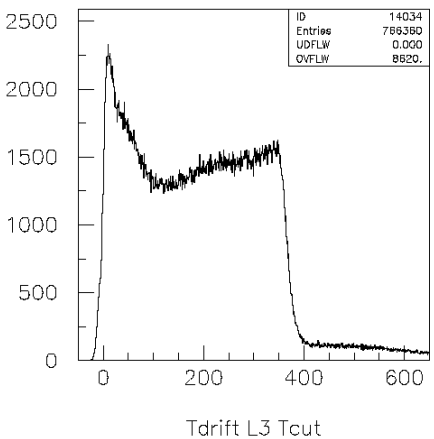
Outside time window
No noisy wires

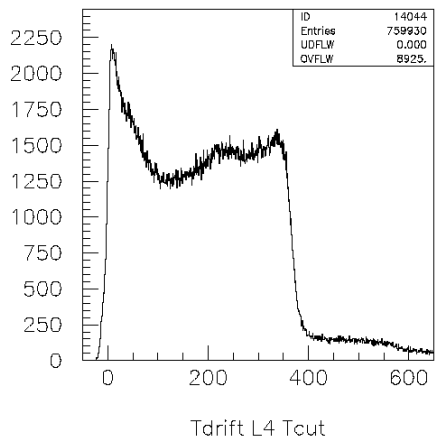
MB1 N01 PHI2 Super-Layer

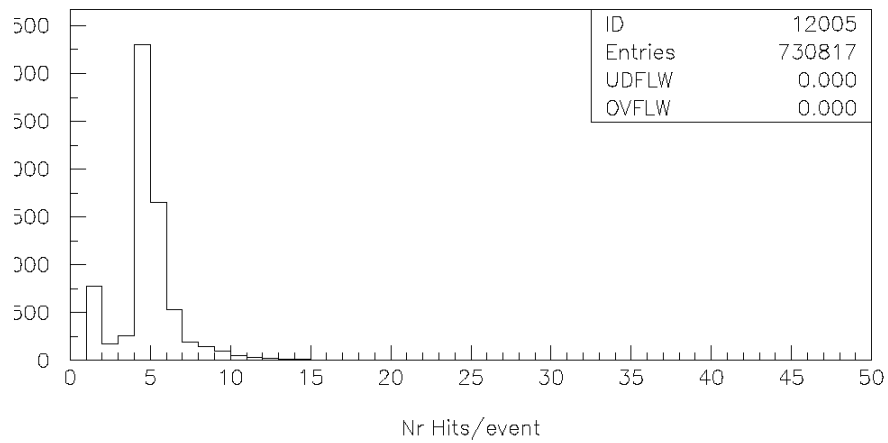












Trigger = Double coincidence Top + Double coincidence Bottom + Clock

Trigger timing still to be equalized (disregard rising edge of time box)

Priorities at ISR (January-February 03)

- Acceptance Test of new shipments: Over pressure and HV test
- Refurbishing of MB2 chambers:
  - Attach missing docking pads, 10 chambers
  - Fix HV problems/bad boards 5 chambers
  - Mechanical problems 2chambers
  - Gas connector problems (short threads) 7 chambers
- Noise tests of all chambers (Scalers)
- Cosmic test

➡ As the number of stacks increases all tests becomes more difficult especially DAQ based ones.

ISR Logistics

- We will run out of space in this section of the tunnel ~ Spring 03
- ATLAS should move out of the tunnel by mid January 03 (Austin)
- We will extend the ArCO2 gas line in the other section of the tunnel
- Additional storage space for heavy mechanical parts (chamber supports) will become available in the tunnel.
- Ethernet lines installed but still not operational (funding for start-point)
- Garbage collection, cleaning of the premises is still an issue, done once this year. Try for once a month clean-up (Austin)
- Support for loading/unloading chambers must be done via EDH this requires to schedule the work few days in advance. Difficult to get "on call" service (Austin)