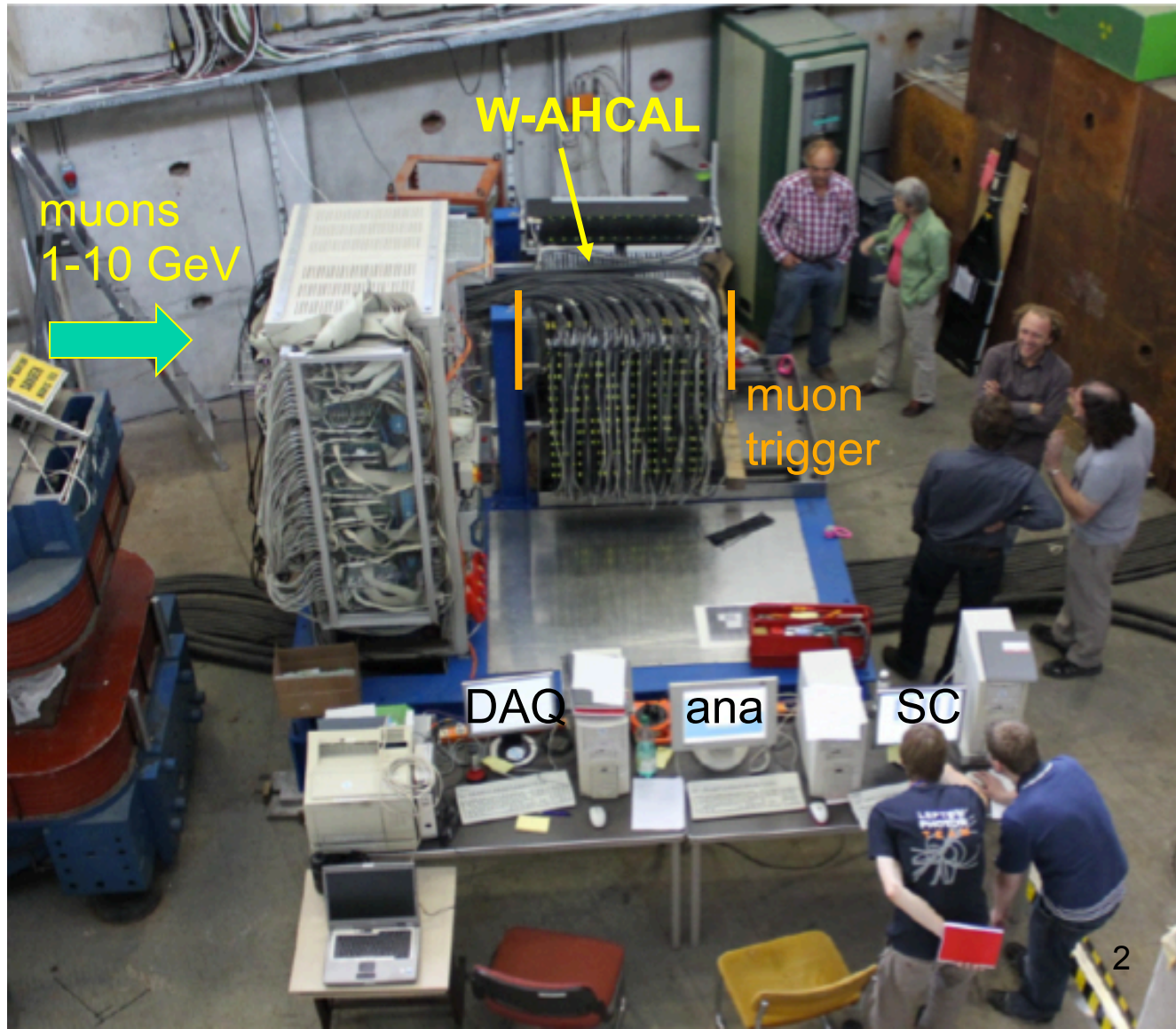


Report of W-AHCAL installation @ PS

Nils Feege / Erika Garutti / Wolfgang Klempt

CALICE installation @ PS - T7

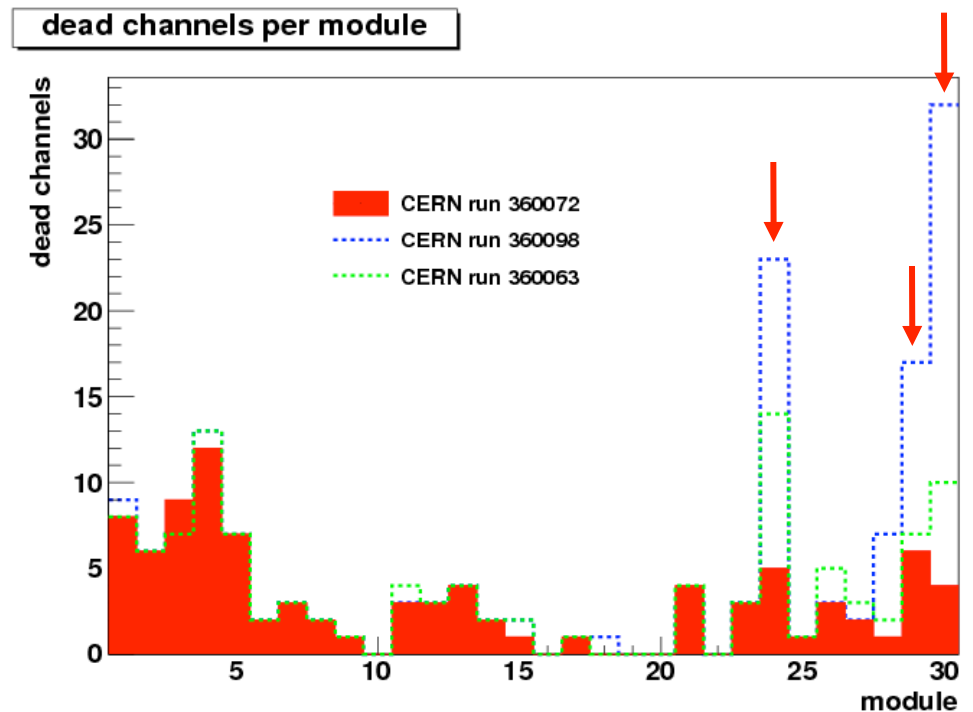


Calorimeter commissioning

- successful installation : 30 Aug. – 3 Sept.
- 30 modules (fine granularity) installed in W sandwich structure
- Noise level consistent with previous installations
- Large number of dead channels in modules 24/29/30 (fluctuating!)

Channels known from last FNAL runs but not reproduced during CERN pre-assembly

→ Plans for repair at CERN under discussion



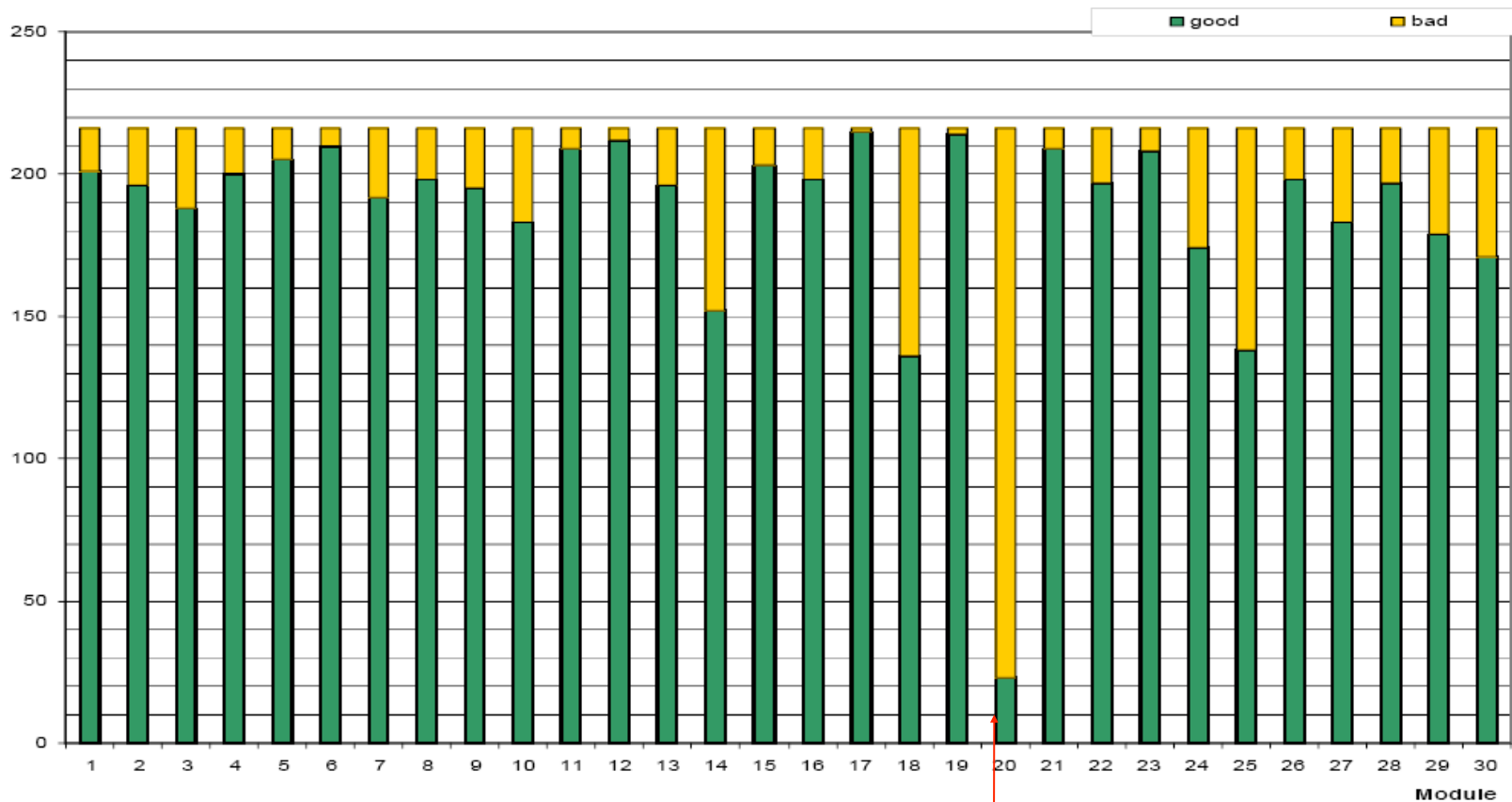
LED monitoring system

LED system operational

First SiPM gain runs analyzed

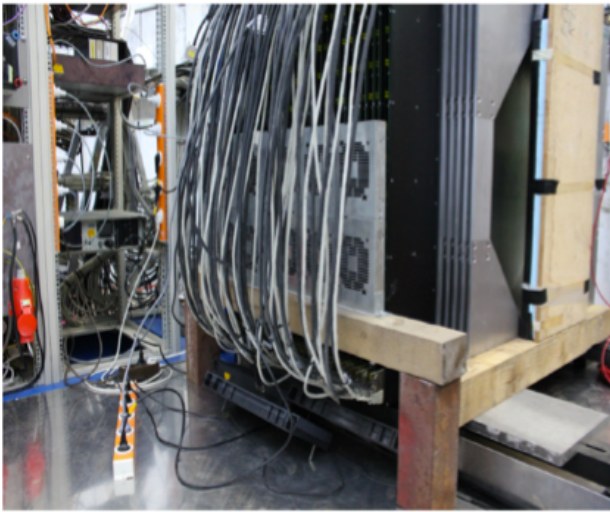
Average of ~85% good fit in one run

→ can improve to >90% combining runs

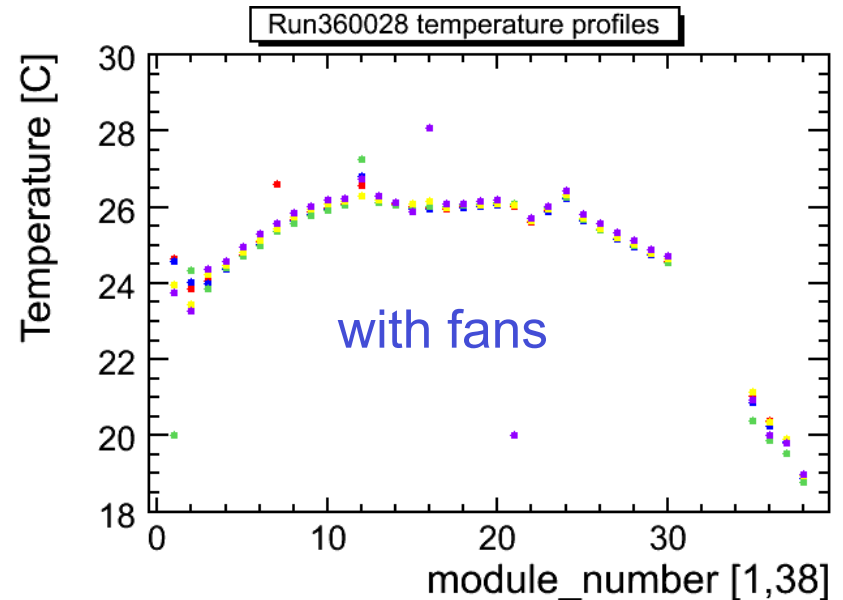
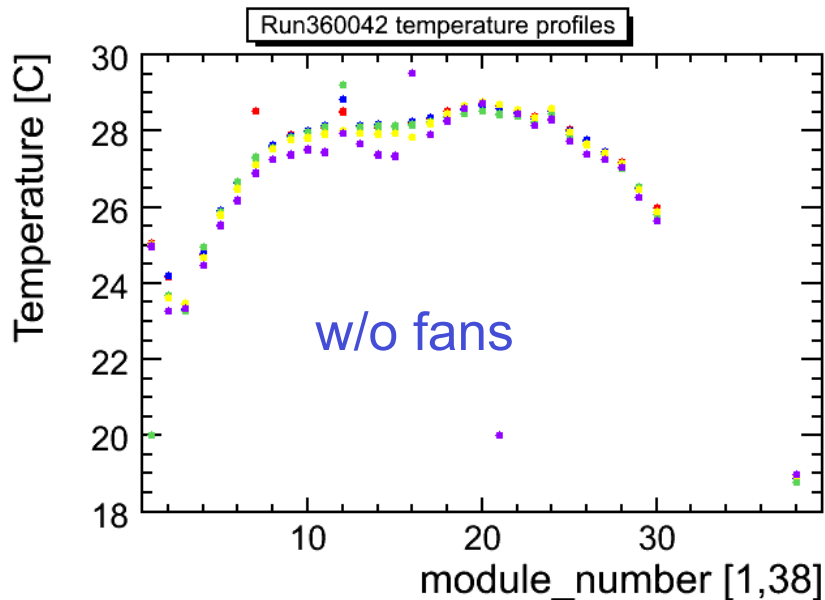


CMB of module 20 removed for repair⁴

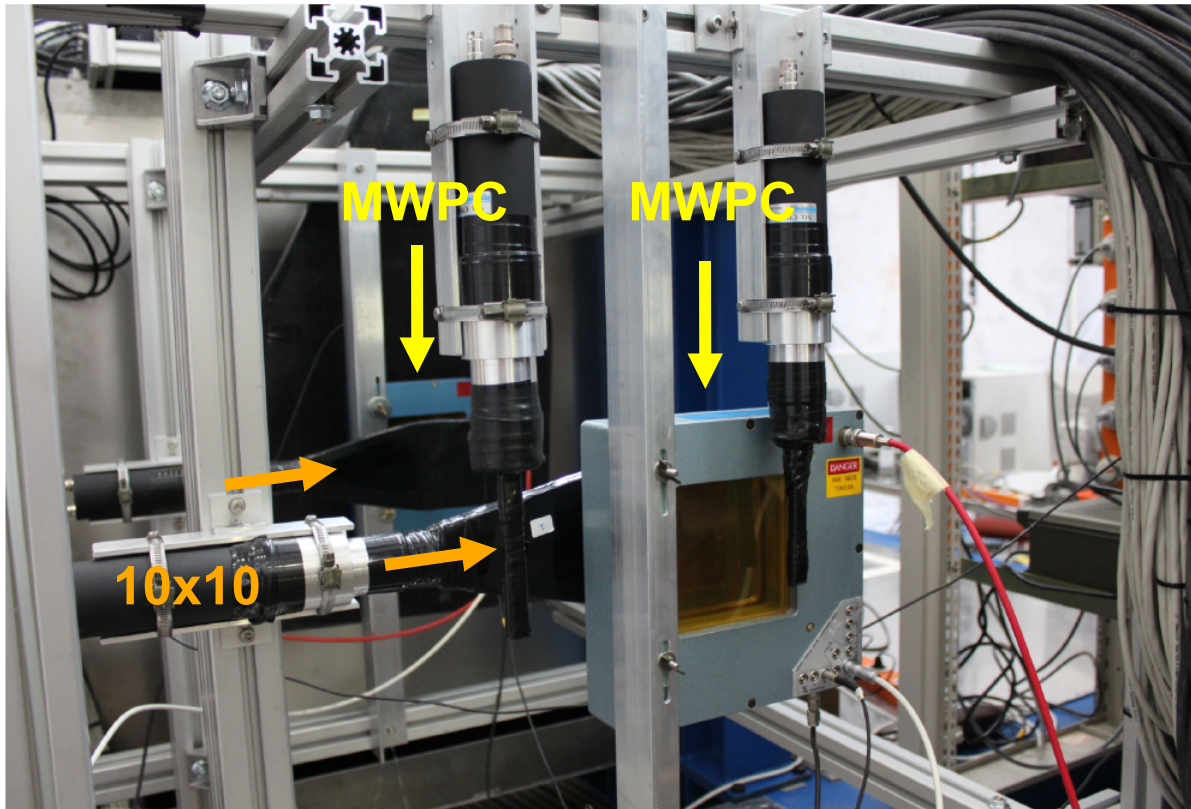
Cooling issues



- ◆ We installed a couple of blowing fans on both sides (CMB and VFE), as well as beneath and on top of the detector.
- ◆ Large temperature variation during day and night
 - ◆ Typical gradient is ~ 2 degrees
- ◆ Large temperature variation along the module
 - ◆ Typical gradient is ~ 2 degrees



Beam instrumentation

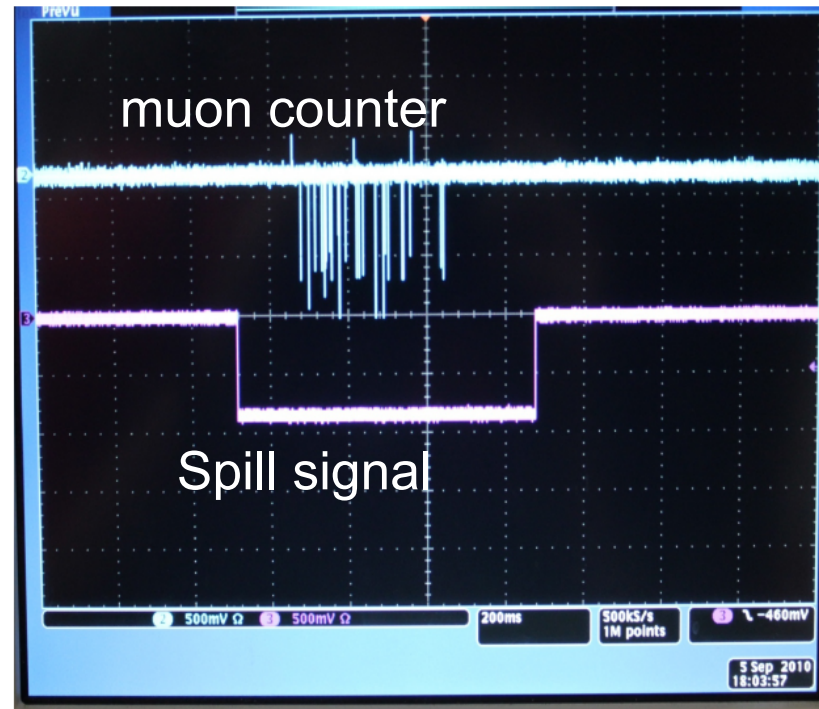


More details to follow ...

- 2 sets of trigger coincidences: $10 \times 10 \text{cm}^2$ for beam (visible)
 $50 \times 50 \text{cm}^2$ for muon (one in the back)
- 2 MWPC (same as at CERN 2007)

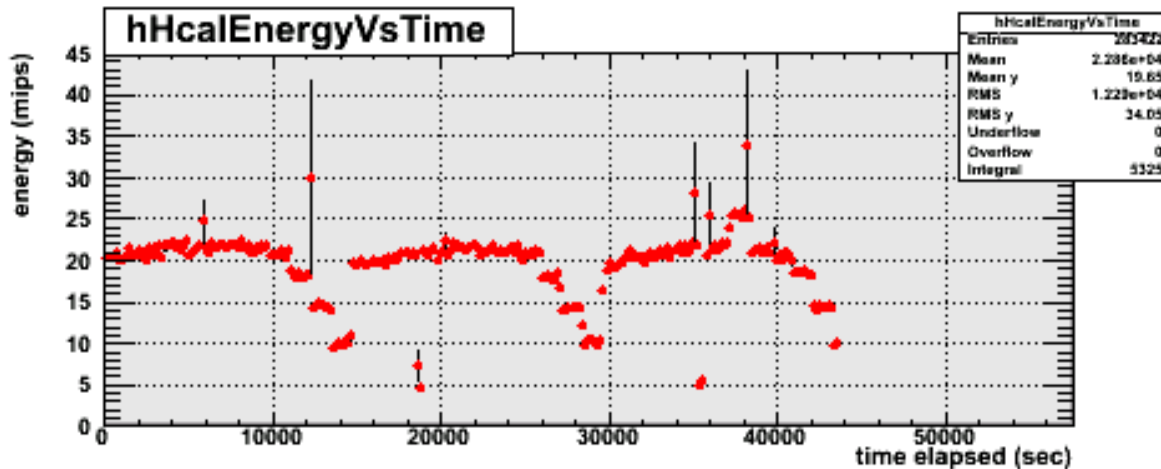
Trigger issues

- Spill: 300 ms every 45 ns
- Scintillator triggers:
 - 10x10 cm² (2)
 - 350 counts/spill
 - 50x50 cm² (2)
 - 1000 counts/spill
 - relative timing measured, coincidences optimized
- DAQ Rate: **8 Hz** (1 ms deadtime / event)
 - Tuning possible



Beam hold scan

Determine trigger latency with respect to signal



Hold scans collected with 10x10 and 50x50

1 night run
3 hold loops

First analysis performed (C. Greife):

-too low statistics

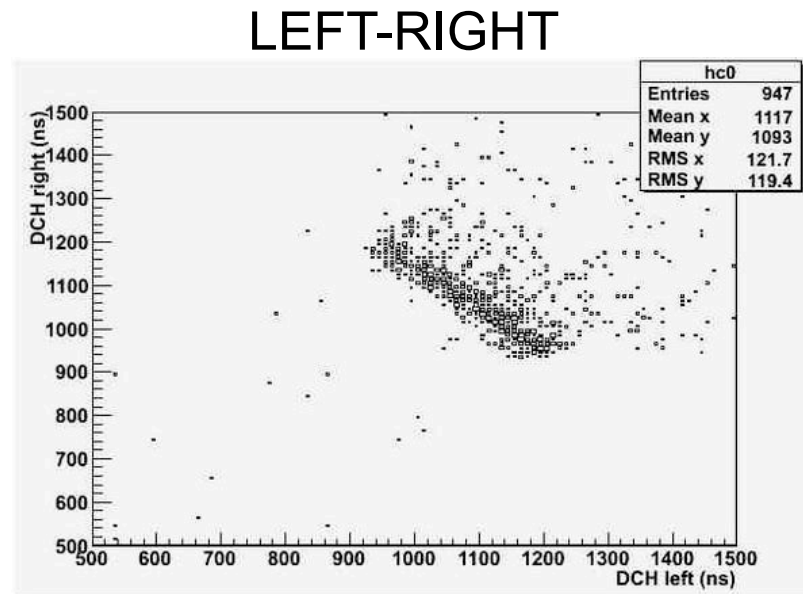
-too small signal / noise in single cell from muons

➔ First indications confirm the measured 40ns difference between two trigger coincidences

➔ Longer runs being analyzed now for module to module adjustment

MWPC commissioning (TDC)

- Problems in setting up TDC readout
 - After one intense weekend++ of Paul TDC (CAEN 767) replaced with new module (CAEN 1290)
- ➔ Correlation in time of hits from the left and right wire chamber readout.

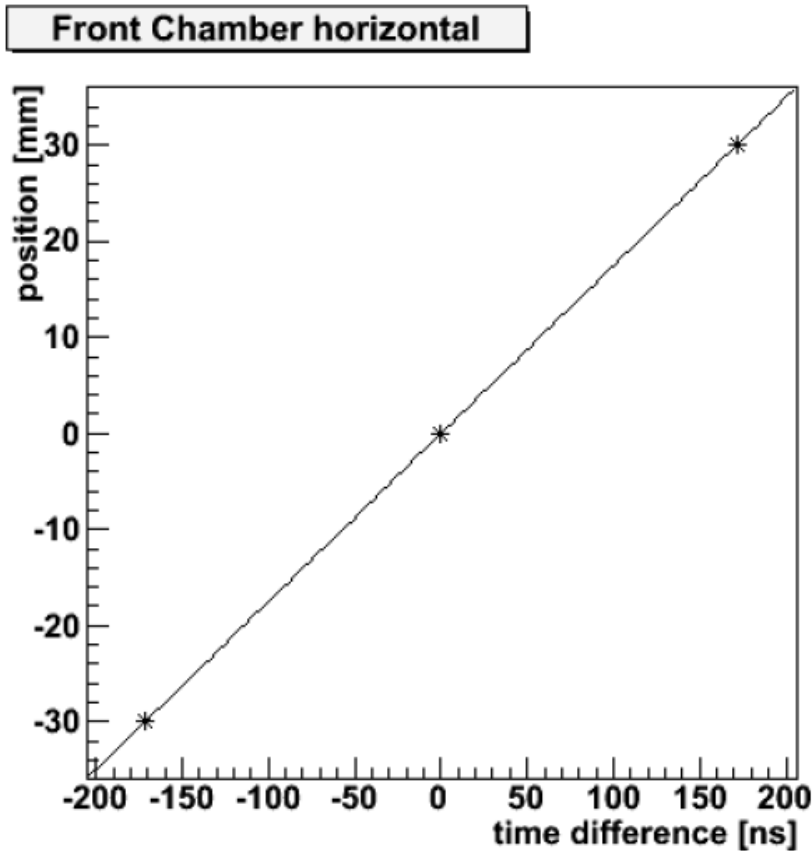


- As a particle hit is read out both sides, then the sum of the two distances (and hence times if the velocity is linear) should be a constant

➔ TDC + MWPC are working sensibly

Thanks Paul!!

MWPC calibration



MWPC calibration using pulser signal input at three fixed positions on the chamber.

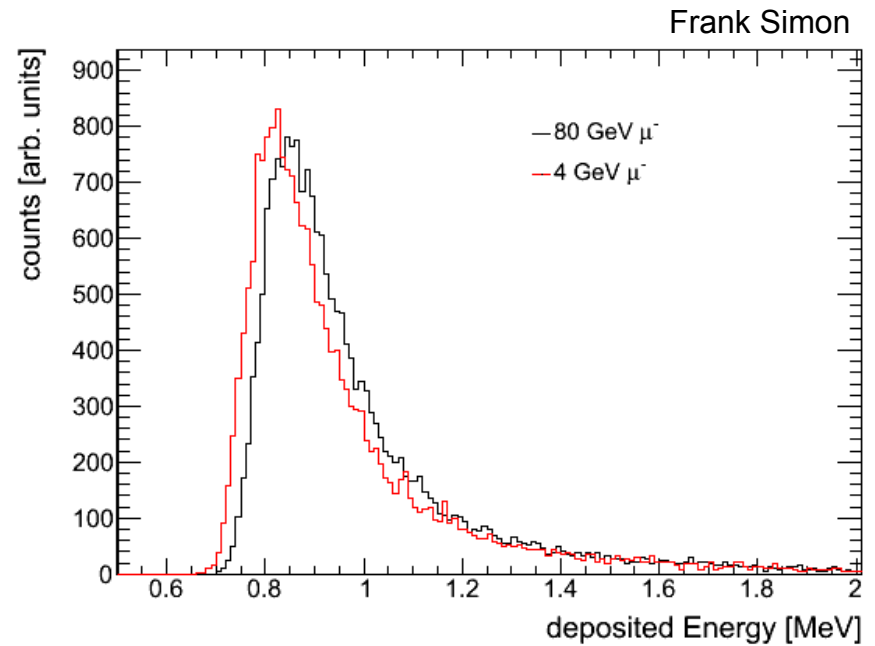
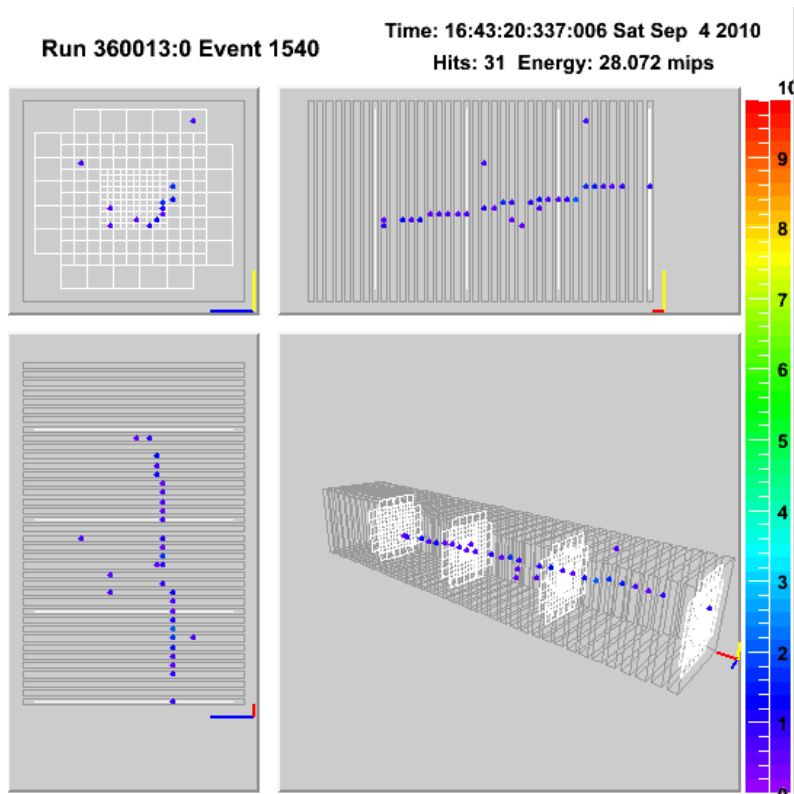
→ One such plot for each chamber and each orientation (vert/hori)

→ Extract ns-mm conversion factors to be used in reco.

A. Muennich

CERN PS muons

Low energetic muons between ~1-10 GeV



Lower energy deposited by 4 GeV muon

Energy cut on the muon with back trigger
~ 900 MeV deposited in 38 layers steel
~700 MeV in 30 layers Tungsten

PS Schedule

		Thu 21 Oct	Fri 22 Oct	Sat 23 Oct	Sun 24 Oct	Mon 25 Wk43	Tue 26 Oct	Wed 27 Oct	Thu 28 Oct	Fri 29 Oct	Sat 30 Oct	Sun 31 Oct	Mon 1 Wk44	Tue 2 Nov	Wed 3 Nov	Thu 4 Nov	Fri 5 Nov	Sat 6 Nov	Sun 7 Nov	Mon 8 Wk45	Tue 9 Nov	Wed 10 Nov	Thu 11 Nov	Fri 12 Nov	Sat 13 Nov	Sun 14 Nov	Mon 15 Wk46	Tue 16 Nov	Wed 17 Nov	Thu 18 Nov	Fri 19 Nov	Sat 20 Nov	Sun 21 Nov	Mon 22 Wk47
Machine		8 18 THU MD							8 BIG MD							8 24 WED MD							8 20 28 THU MD											
EAST HALL	T7	8h M Glaser		possible repair				Irradiation																										
	T8	8h L Nemenov		DIRAC																														
	T9	8h E Vallazza		SUPERB				8h W Klempt		CALICE-WHCAL																								
	T10	8h C Cecchi		8h A di Mauro				ALICE-TOF														8h A di Mauro		ALICE-TRD										
	T11	8h J Kirkby		CLOUD																														
For further information contact the SPS/PS-Coordinator																																		

W-AHCAL move to T9

- W-AHCAL will “fly” to T9 on the 3rd of Nov.
- Possible time for module repair: 25-31 Oct. (fixed by availability of expert)
- After commissioning, official CALICE TB starts on the 6th of Nov.

Summary & Outlook

- Calorimeter installed and operational
 - LED system operational (apart from 1 CMB)
 - Repair of 3 modules will be done before moving to T9
- TDC commissioned / MWPC calibrated
- Trigger system understood / DAQ rate $\sim 8\text{Hz}$ (with one spill)
- Data transfer / conversion / analysis in progress (Angela)