

SiW ECAL activities in 2013

Vladislav Balagura

LLR/CNRS

Mar 2013

Lessons from TB'Feb13 at DESY

- Retriggerings in BX+1, ..., BX+n
- Noise level (esp. in trigger)
- Problems at DAQ start
 - (A few) DIF, LDA reset(s) may be required
 - Corrupted LDA TCP/IP packets
 - Debugging tools are needed
- Lost data packets (a few %, understood)
- Change power to analog (instead of digital) in one of SKIROC power lines
- Extra external resistor to increase DAC range for individual threshold adjustments
- “Negative” signals at ADC=4, check x-talk for high signals
- Nonlinearity at MIP amplitudes

Plans (France)

- **work on all of the above**, use lab cosmic ray stand
- Extend/improve DAQ software
- Power pulsing
 - Study pedestal shifts, multiple peaks, extra noise (?)
- Long slab (x10)
 - Check propagation of signals over longer distances through traces with multiple connections
- GDCC instead of LDA (~Sep'13)
- Requirements for next SKIROC3 from MC
 - Maximal number of events stored between spills
 - Required dynamic range
- Contacts with Si sensor producers

Plans (France, cont.)

- Produce more (5?) slabs before next TB
- Make test bench with two slabs in LAL
- Commission sensor gluing by robot

Plans in Kyushu and Tokyo (contact Tamaki Yoshioka for more details)

- Construction of laser system (Kyushu)
- Check radiation hardness with neutron source (Tokyo) - important eg. for new capacitors
- Define necessary Si sensor tests in mass production (all labs)

Optimization of ECAL

- Affordable fraction of dead pixels (Tokyo)
- Number of layers (LLR, possible publication)
- Affordable guard ring thickness (LAL, Tokyo)
- Hybrid ECAL study (Kyushu & Tokyo)
- Alternative algorithms to PANDORA? (ARBOR in LLR)
- Hadron interactions in SiW ECAL (LAL, plan to publish)