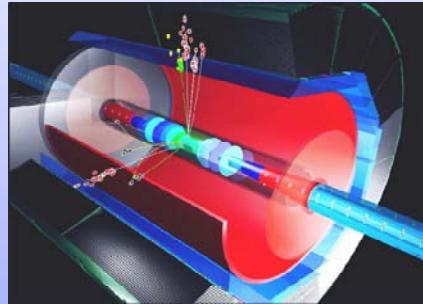




DESY Summary

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Tatsiana Klimkovich, Ulrich Koetz
Alessandro Montanari, Carsten Muhl, Jolanta Sztuk



- Chip Characterisation
- Integration Planning

JRA1 Meeting in Geneva
March 27th 2007





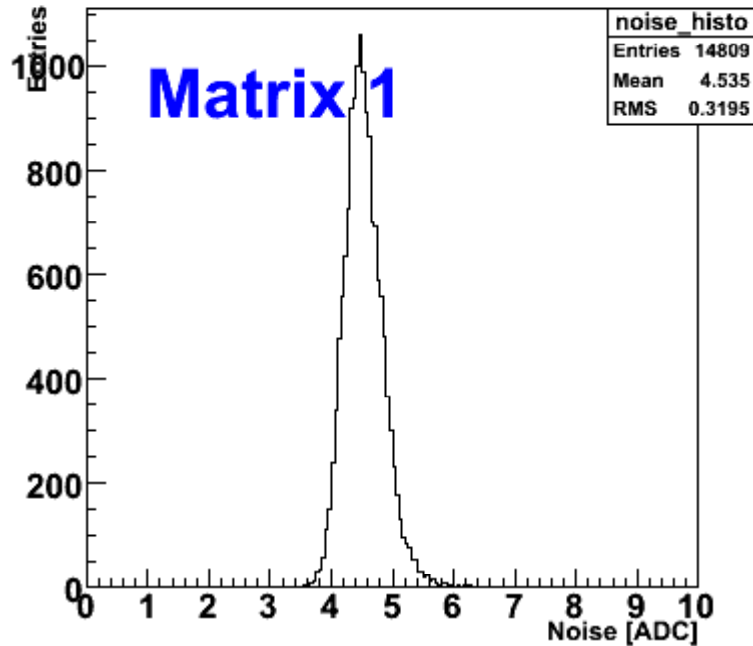
Board Testing

- First bonded MimoTel and Mimosa18 were delivered to DESY
- Along with this we received new versions of Strasbourg DAQ and JTAG programming
- Turning on the MimoTel and Mimosa18 was without any problems
- Preparing a test protocol to have a standardised test procedure for each sensor of one kind
 - Functionality test (smoke test ;-)
 - Pedestal and noise
 - Response to Fe55 K_{α} and K_{β}
 - Number of dead/noisy pixel
 - Anything else ?
- Store all information on data base accessible for JRA1 members
 - Results, "features"
 - location

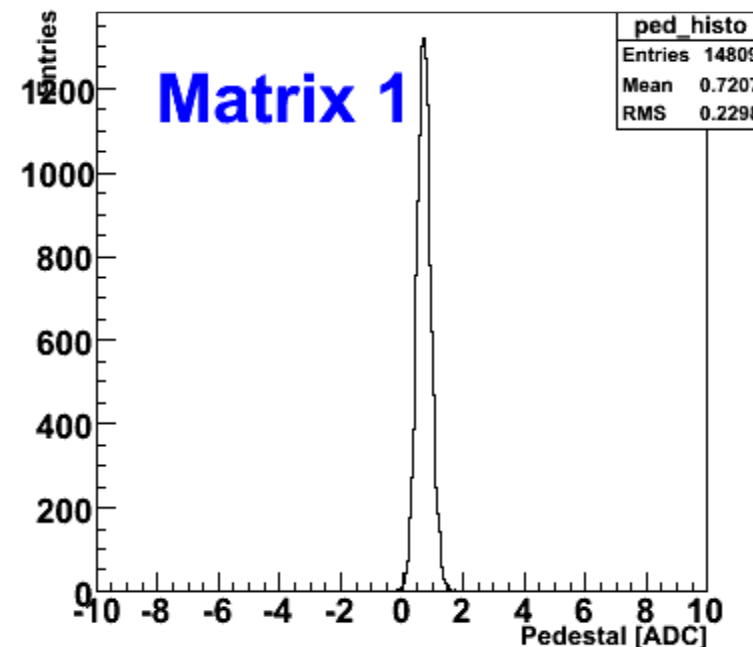


MimoTel (20 μ m)

Noise distribution



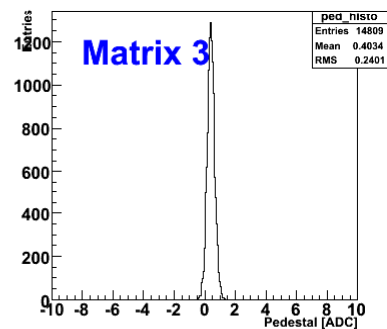
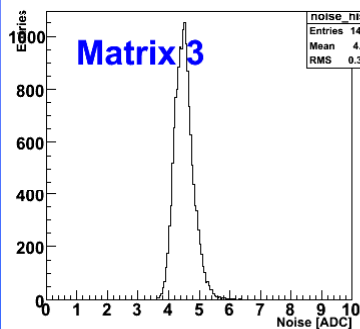
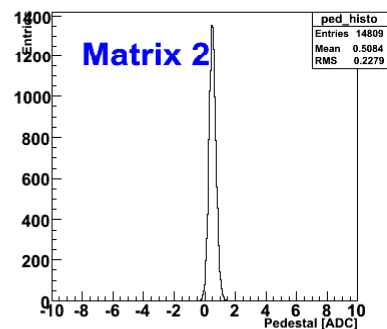
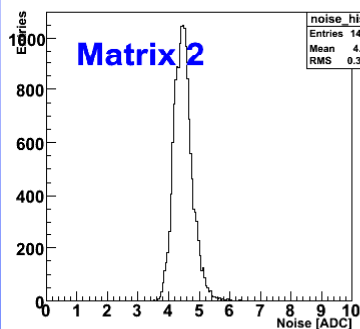
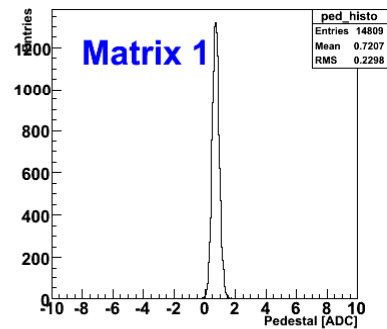
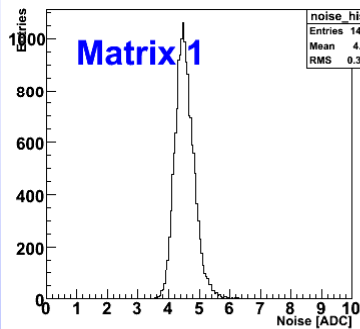
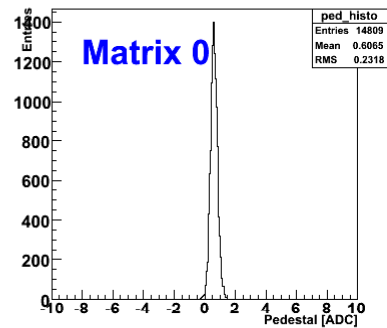
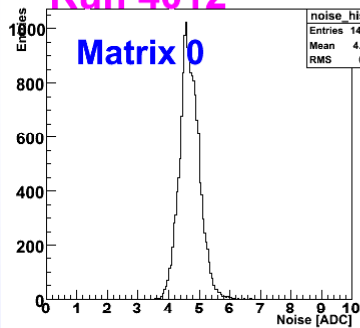
Pedestal distribution



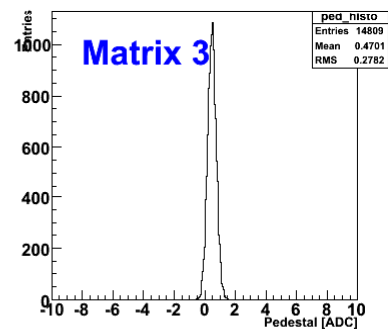
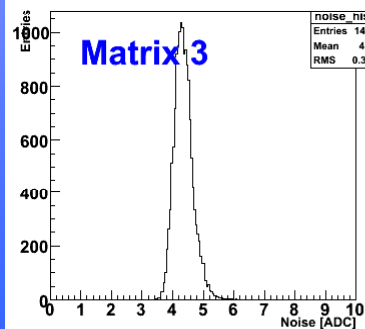
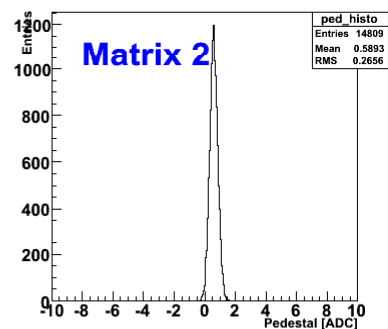
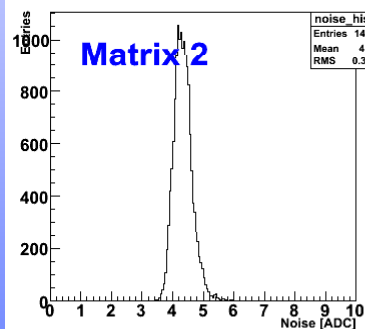
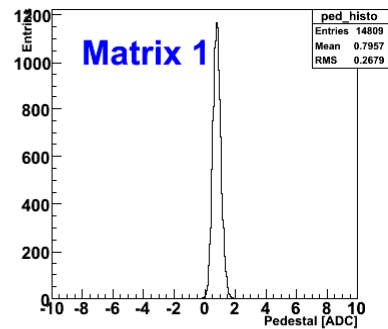
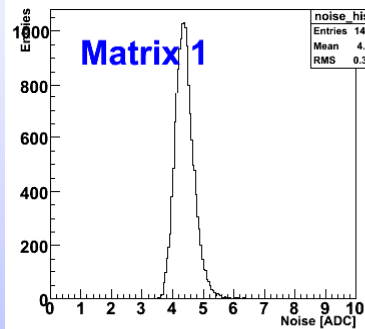
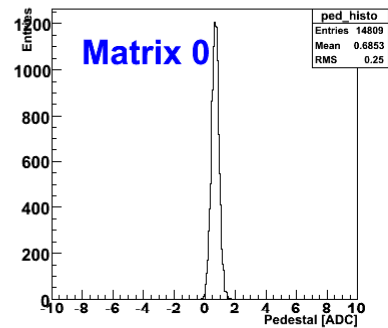
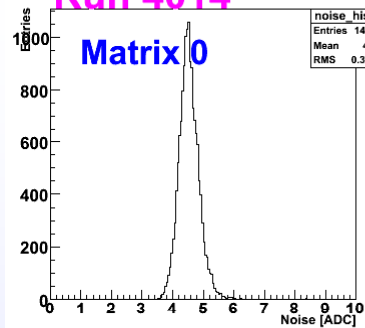
- Example: chip#3 on Strasbourg sensor board
- Data taken at 10MHz
- Noise: ~ 4.5 ADC $\rightarrow 25$ e $^-$
- Wojtek: only 16 e $^-$ noise
- Observed rise in noise when taking data \rightarrow sensitive to temperature increase
- Textbox is noticeably warm
- Systematic studies will start next week when test box is cooled (and temp. stabilised)



Run 4012



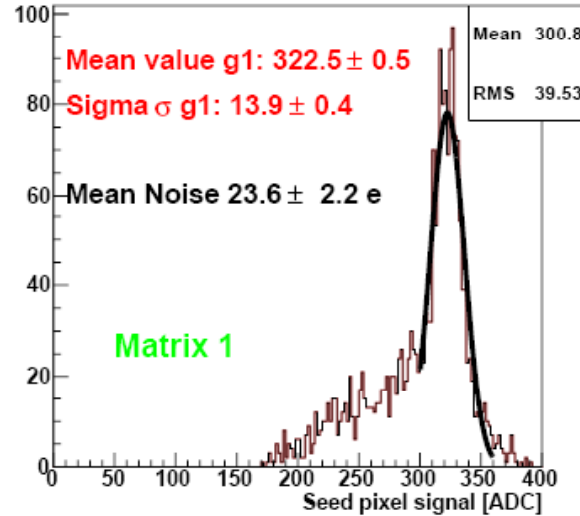
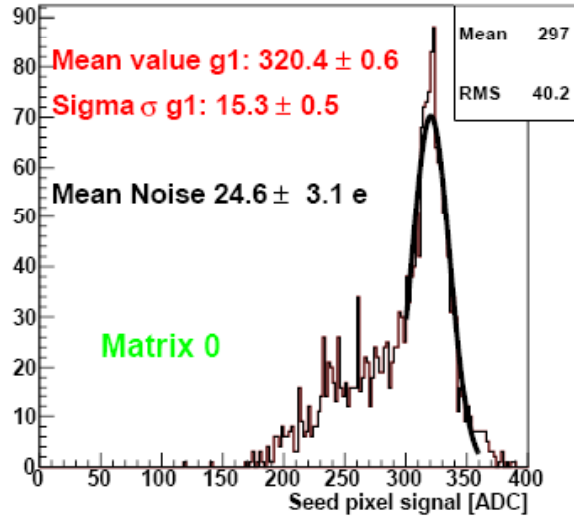
Run 4014



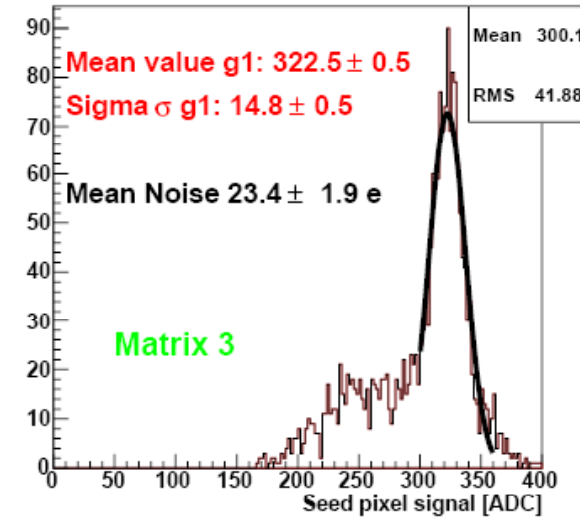
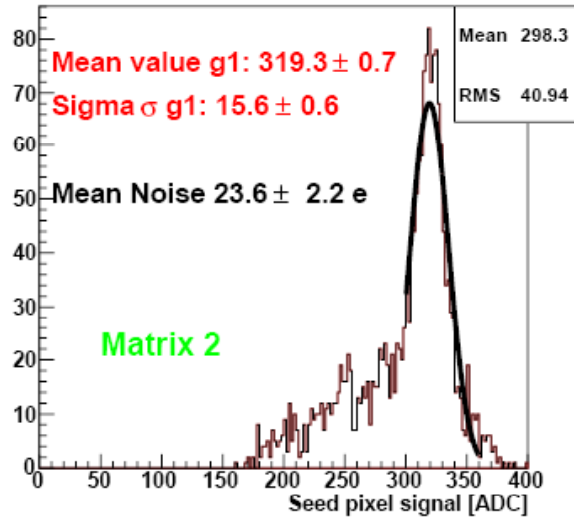


MimoTel (20 μ m)

Run 4012



- Fe55 signal
- K_{β} peak lost in noise





MimoTel (14 μ m)

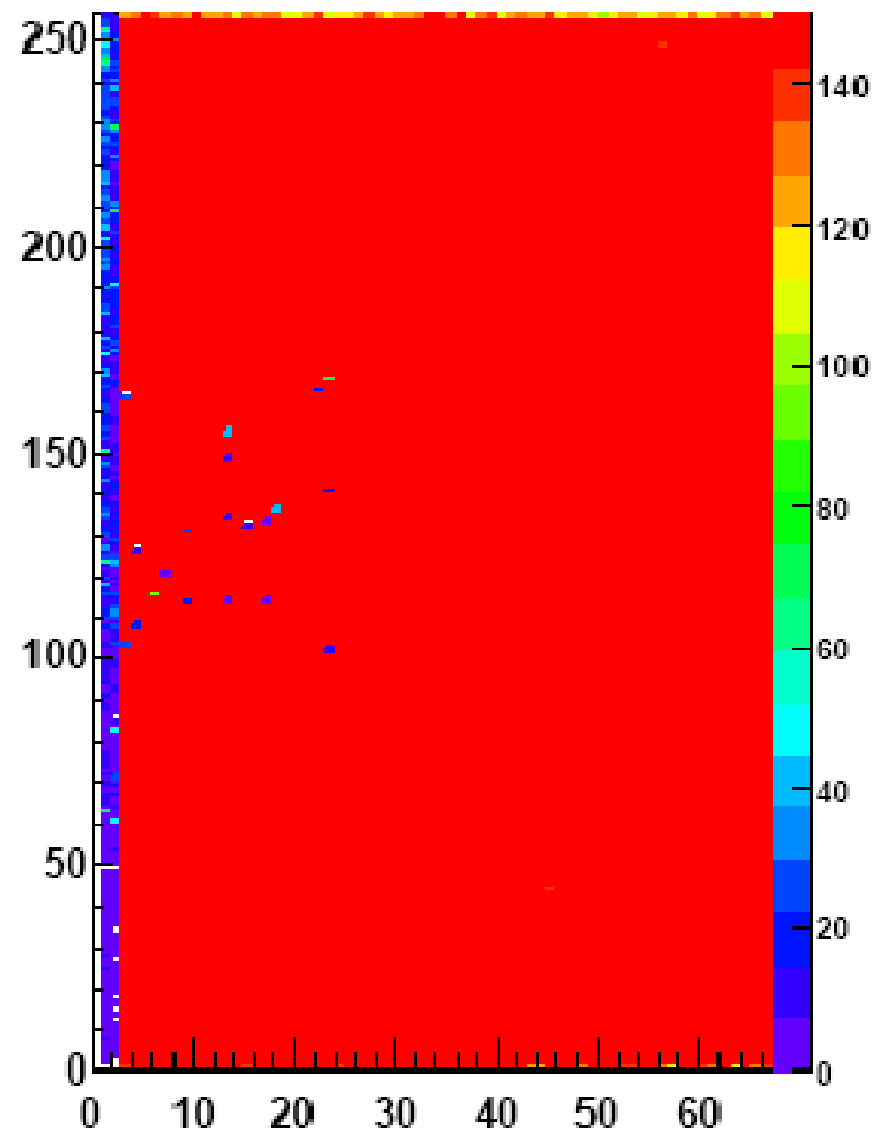
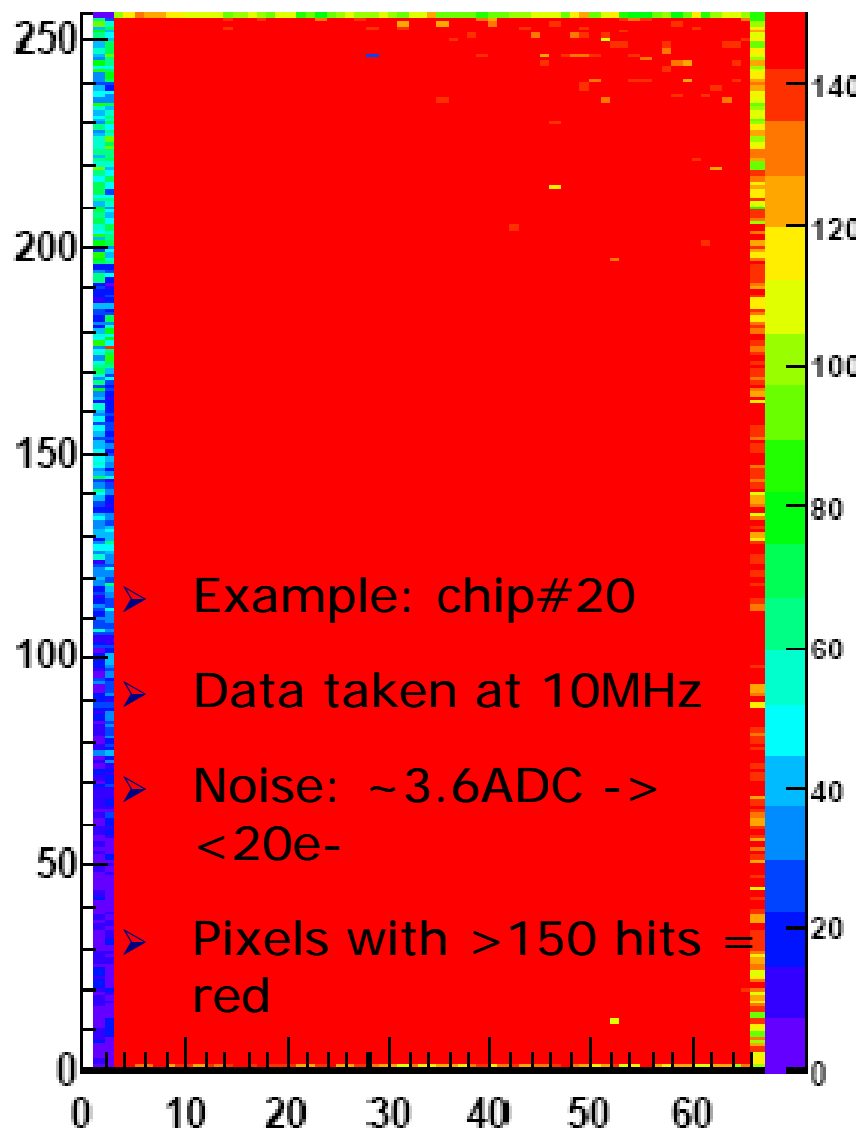
- Connected to exactly the same AUX board with same settings and same file for JTAG programming
- Noise already quite decreased
- Need to study in detail
- Fe55 signal
- K_{β} visible



MimoTel (14 μ m) - Hitmap

Matrix 0

Matrix 1



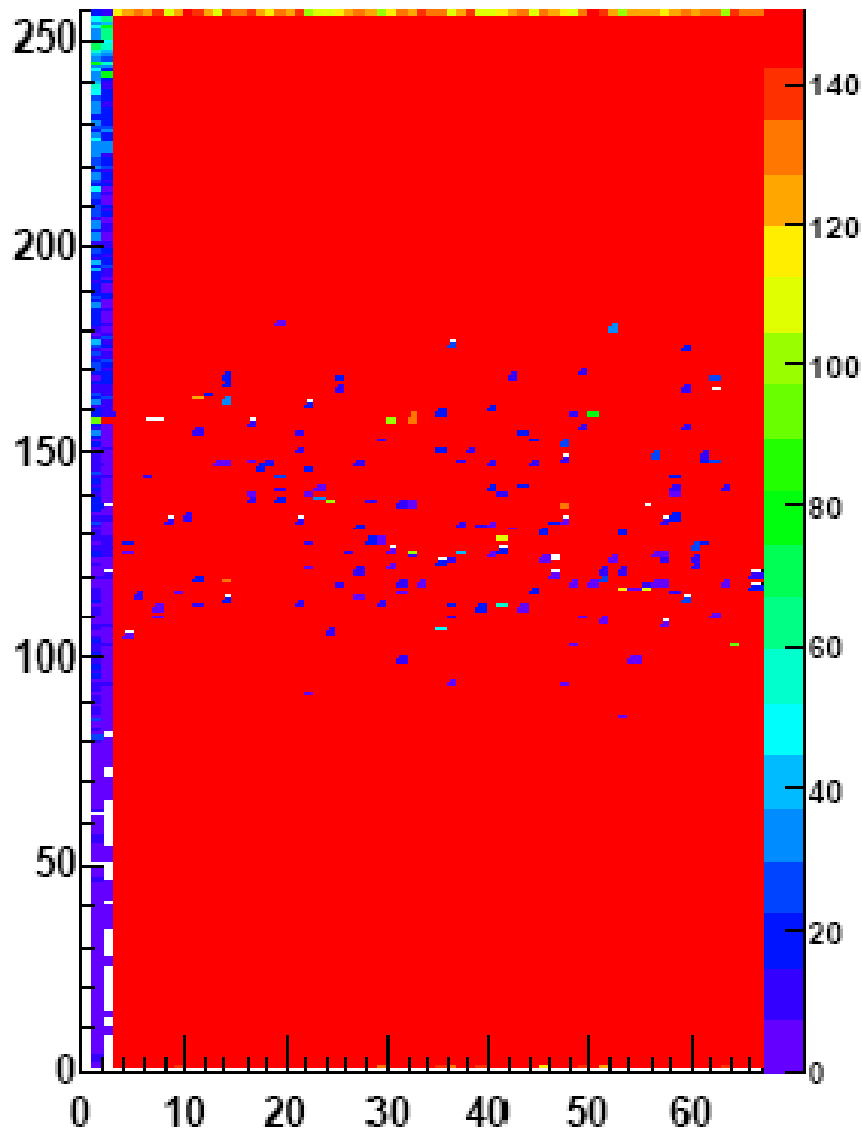
- Example: chip#20
- Data taken at 10MHz
- Noise: $\sim 3.6\text{ADC} \rightarrow < 20e^-$
- Pixels with > 150 hits = red



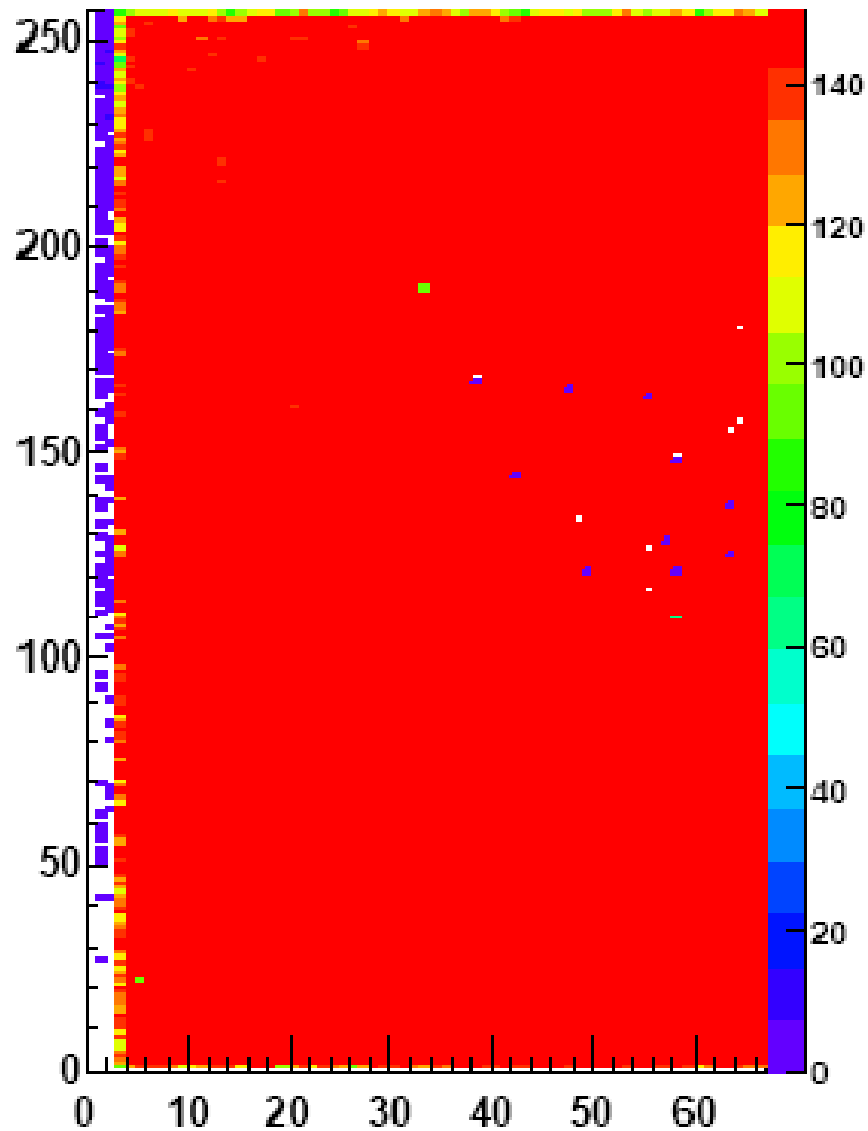
MimoTel (14 μ m) - Hitmap



Matrix 2



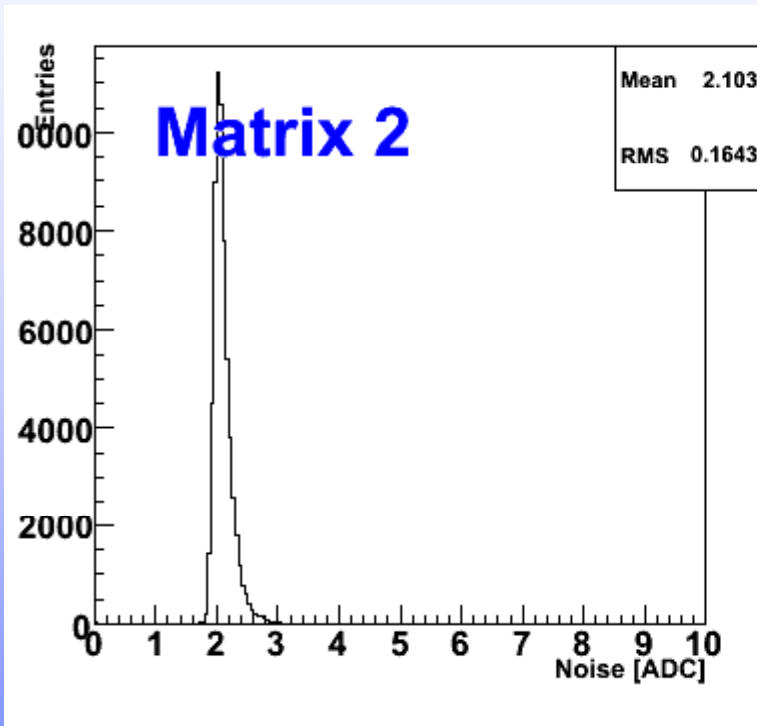
Matrix 3



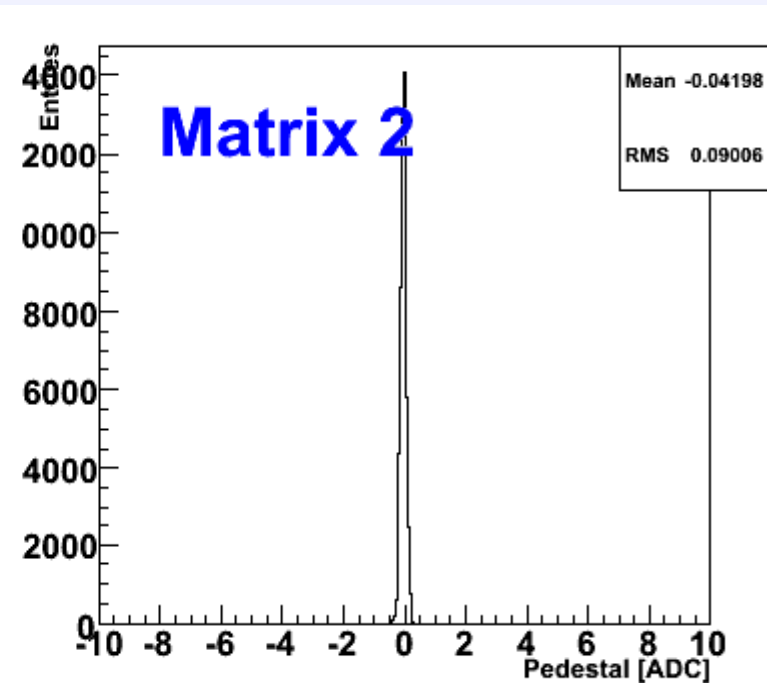


Mimosa18

Noise distribution



Pedestal distribution

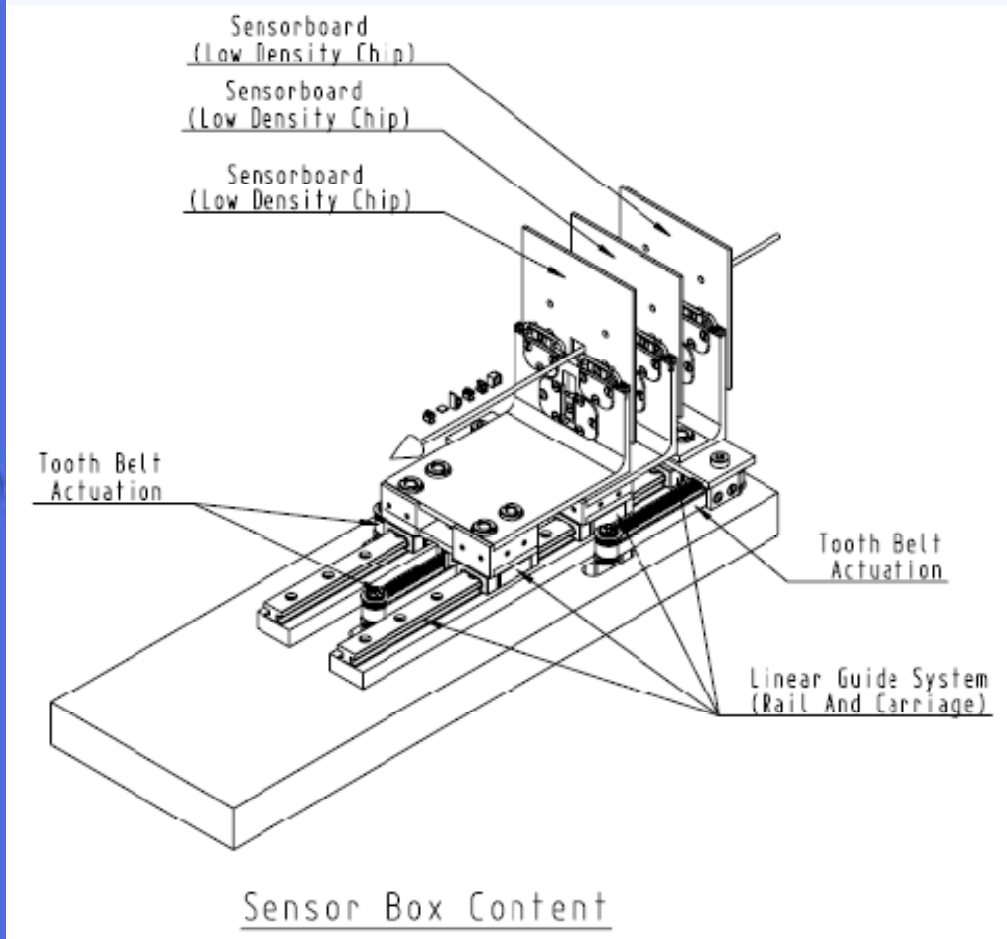


- Test of Mimosa18 was very straight forward
- First noise measurement showed similar results as Wojtek (11e-)





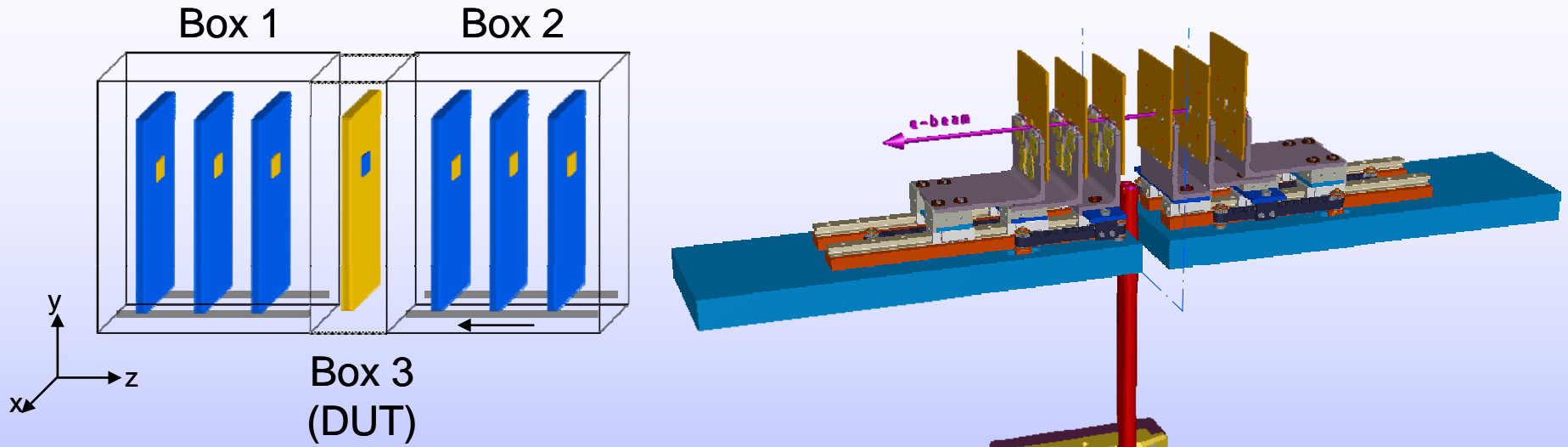
Senor Boxes



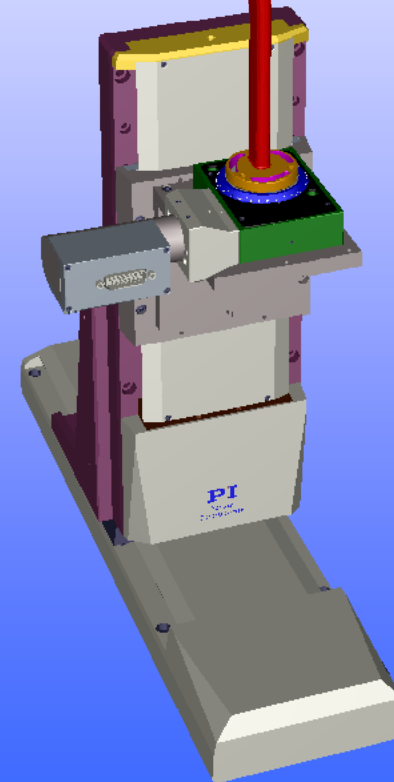
- Mechanics design almost completed
- 3 planes on one main structure
 - Each has different geometry depending on position
 - Each plane movable individually with small tool
- Minimal distance between planes: 7mm
- Maximum level arm: 200 mm
- Material: aluminum
 - All material non-magnetic
 - Materials were optimised for minimal thermal stress



Overall Construction



- Design now finalised
- Machining will start next week
- Complete system available end of June





Overall Integration

- Mechanics completed by end of June
- May/June 2007
 - first test of 2 (or more) chips in testbeam at DESY
 - Ample of time booked for area 24
 - EUDRB(s) at DESY necessary
- July: complete assembly of mechanics + chips + readout (no test beams available at DESY 2.7-15.8)
- August: first test of complete system in testbeam
- End of September: go to CERN for testbeam



Summary

- Magnet from Japan delivered and tested up to full field (1.2T)
- XY ϕ table delivered and tested on bench top
- Mechanical design of sensor boxes well under way
- Board production delayed but under way