# ETHZ pixel projects

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*PSI/ETHZ common meeting*

PSI, November 21

# Pixel lab at ETHZ

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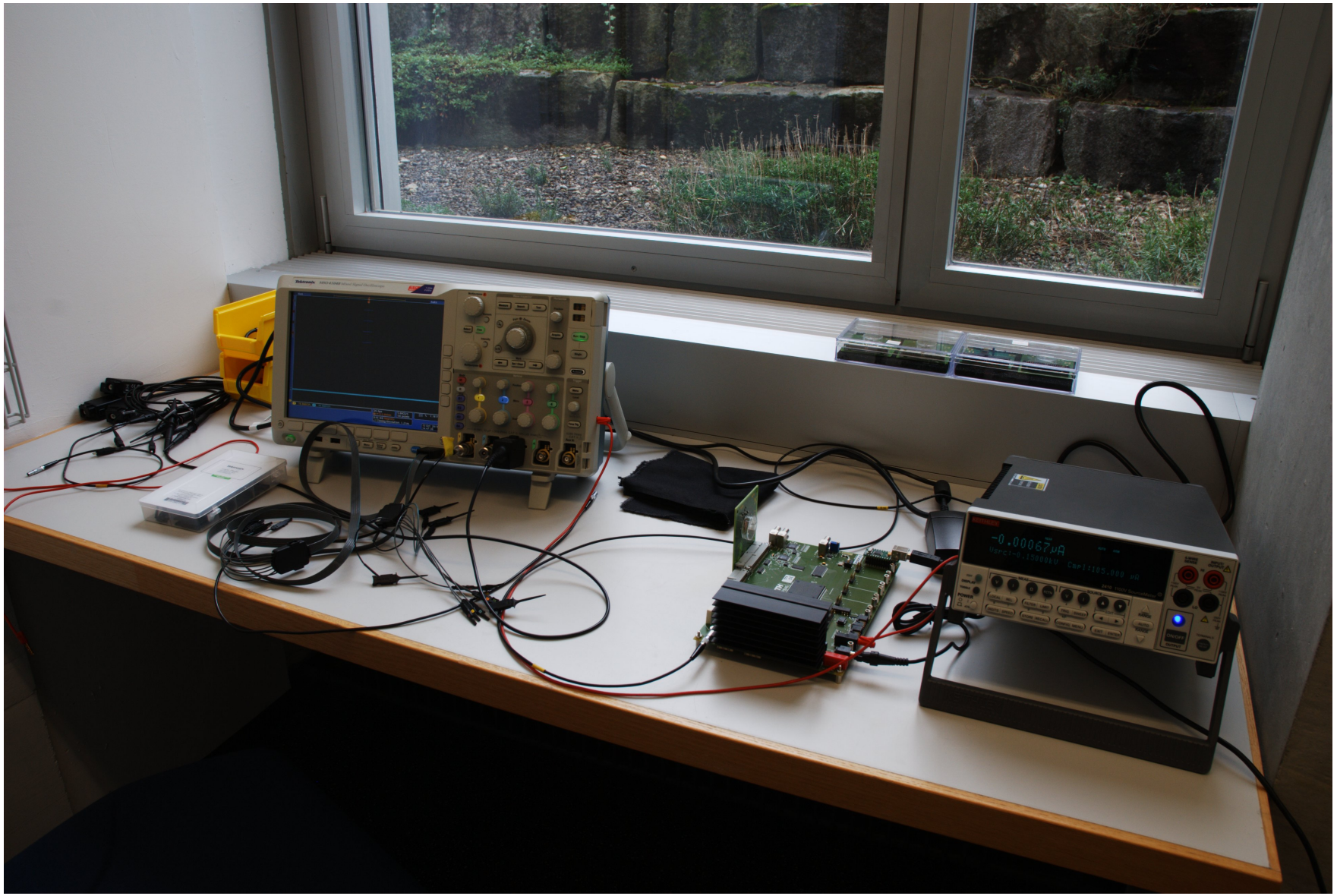
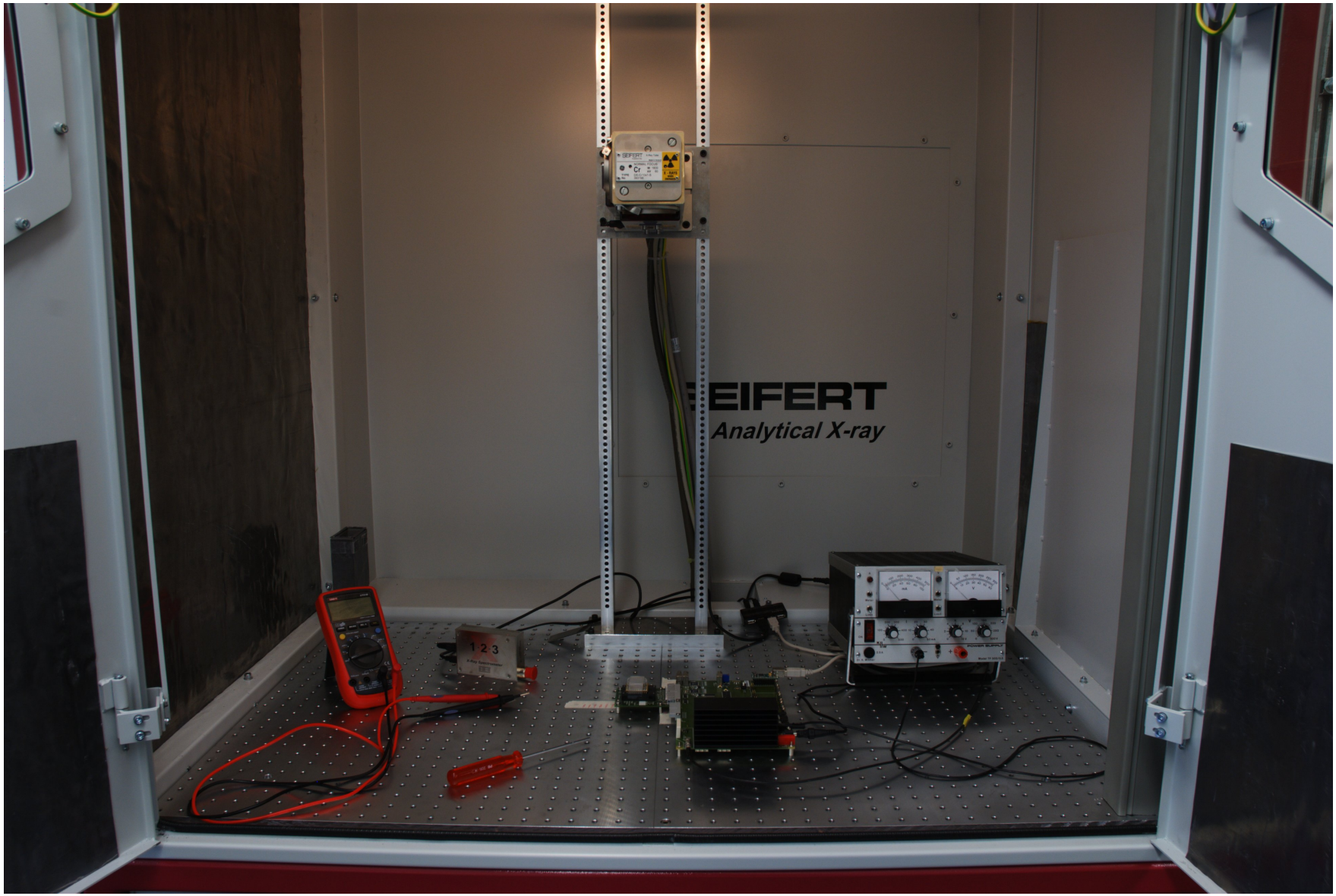


# Pixel lab at ETHZ



# Pixel lab at ETHZ

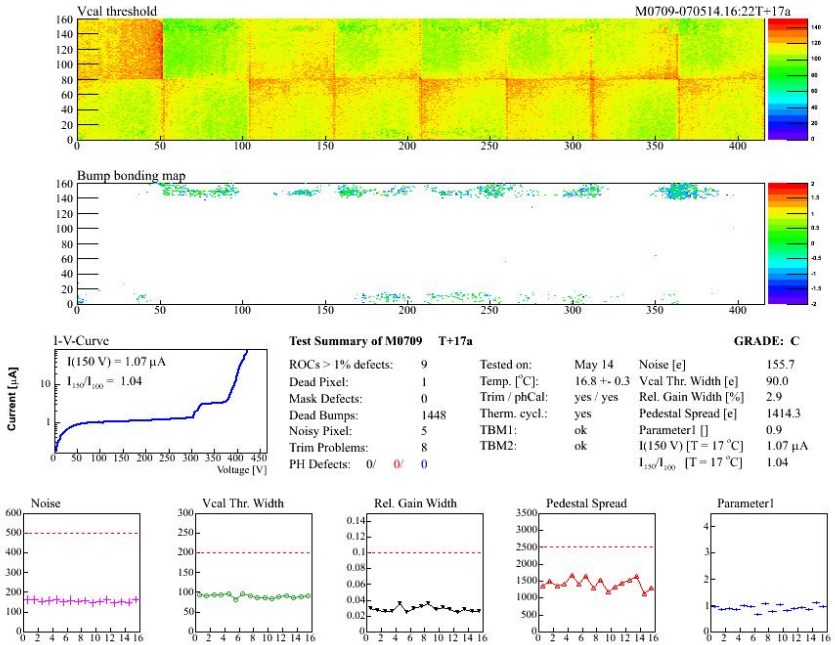
# Ongoing projects

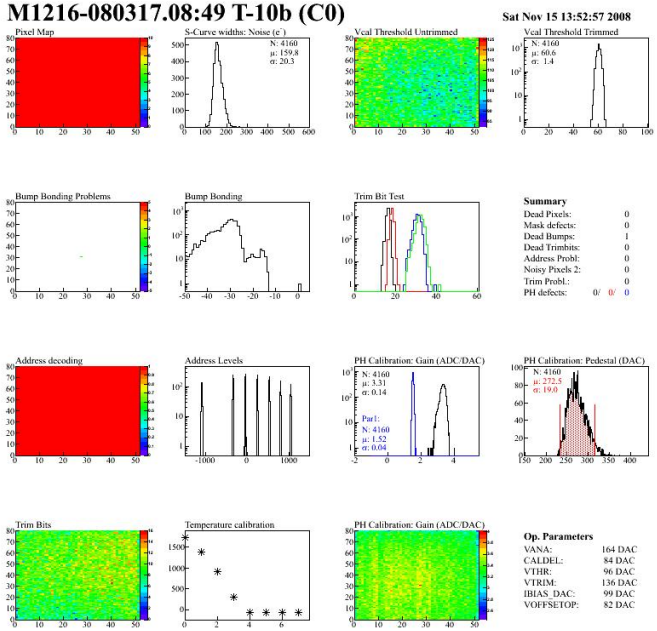
- Improvement of the cooling box
  - thermal isolation
  - vacuum system
  - module holders
  - build mechanical parts for 4 boxes (CERN and Germany)
- Repair modules with short cables
  - prolong power and signal cables
  - retest modules
- Set up computing system in the lab
- Test linearity of the Trim Bits
- Repair web-based module test result 'DB'
- X-ray tests

# Web-based module test result 'DB'

---> Weekly Summaries

| FINAL | Module | Test | Date | Grade | Full | Short | Pixel Defects | ROCs > 1% | Noise | Trim-ming | PH Cal. | Ad. Lvl | Current | I (150 V) | IV-Slope | Temp | T cycling | Mount Pos. | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B | M1216 | T-10b | Mar 17 2008 | B | B | a | 0/0/6/0/0 1/0/0/2/0 | 0 | ok | ok | 1B Ped | fits | 1.54 uA (0.13 uA) | 1.72 uA (0.14 uA) | 1.53 | -10.00+-0.02 | yes (2.5+-9.2) | - | Ped Par C13 ? |
| B | M1216 | T-10a | Mar 17 2008 | B | B | a | 0/0/6/0/0 1/1/0/0/0 | 0 | ok | ok | 1B Ped | fits | 1.30 uA (0.11 uA) | | | -10.00+-0.02 | yes (2.5+-9.2) | - | Ped Par C13 ? |
| B | M1216 | T+17a | Mar 17 2008 | A | B | a | 0/0/6/0/0 2/0/0/0/0 | 0 | ok | ok | ok | fits | 1.17 uA | 0.80 uA | 1.26 | 16.87+-0.86 | yes (2.5+-9.2) | - | |
| A | M1215 | T-10b | Mar 20 2008 | A | A | a | 0/0/3/0/0 0/6/0/0/0 | 0 | ok | ok | ok | fits | 3.36 uA (0.28 uA) | 2.70 uA (0.22 uA) | 1.60 | -10.00+-0.02 | yes (2.8+-9.6) | 21048 | |
| A | M1215 | T-10a | Mar 20 2008 | A | A | a | 0/0/3/0/0 2/9/0/0/0 | 0 | ok | ok | ok | fits | 2.65 uA (0.22 uA) | | | -10.00+-0.01 | yes (2.8+-9.6) | 21048 | |
| A | M1215 | T+17a | Mar 20 2008 | A | A | a | 0/0/3/0/0 0/5/0/0/0 | 0 | ok | ok | ok | fits | 1.39 uA | 1.50 uA | 1.15 | 16.84+-0.27 | yes (2.8+-9.6) | 21048 | |
| A | M1213 | T-10b | Mar 20 2008 | A | A | a | 0/0/3/0/0 0/2/0/0/0 | 0 | ok | ok | ok | fits | 0.36 uA (0.03 uA) | 0.42 uA (0.03 uA) | 1.20 | -10.00+-0.02 | yes (2.8+-9.6) | 210412 | |
| A | M1213 | T-10a | Mar 20 2008 | A | A | a | 0/0/3/0/0 0/5/0/0/1 | 0 | ok | ok | ok | fits | 0.35 uA (0.03 uA) | | | -10.00+-0.01 | yes (2.8+-9.6) | 210412 | |
| A | M1213 | T+17a | Mar 20 2008 | A | A | a | 0/0/3/0/0 0/7/0/0/0 | 0 | ok | ok | ok | fits | 0.51 uA | 0.56 uA | 1.10 | 16.84+-0.27 | yes (2.8+-9.6) | 210412 | |



# X-ray tests (reminder)

- Input numbers
  - Pixel fluence at $2 \times 10^{34} \mathrm{cm}^{-2} \mathrm{s}^{-1}$ and 25ns bx
  - Layer 1: 250MHz/$\mathrm{cm}^2$ : 2.6GHz/module
  - Layer 2: 108MHz/$\mathrm{cm}^2$ : 750MHz/module
- High rate test with direct beam
  1. uniformity of double column readout
  2. bump bonding quality
  3. readout data losses
  4. noise measurement under X-rays
- Calibrations under monochromatic X-rays
  5. VCal calibration with 3(4) lines
  6. Trimming