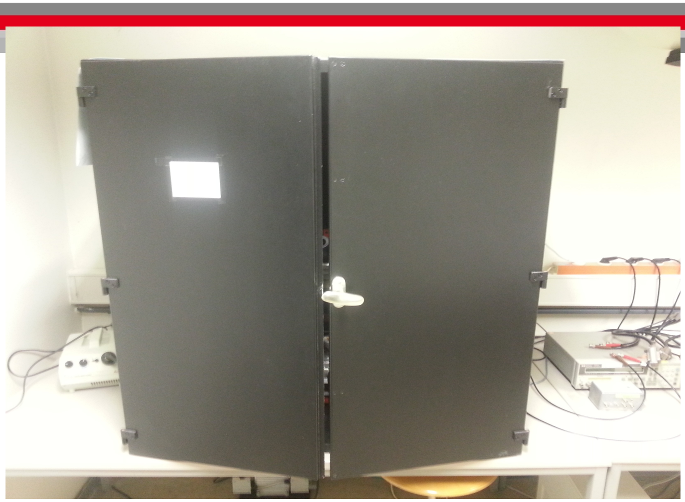
CMS pixel group

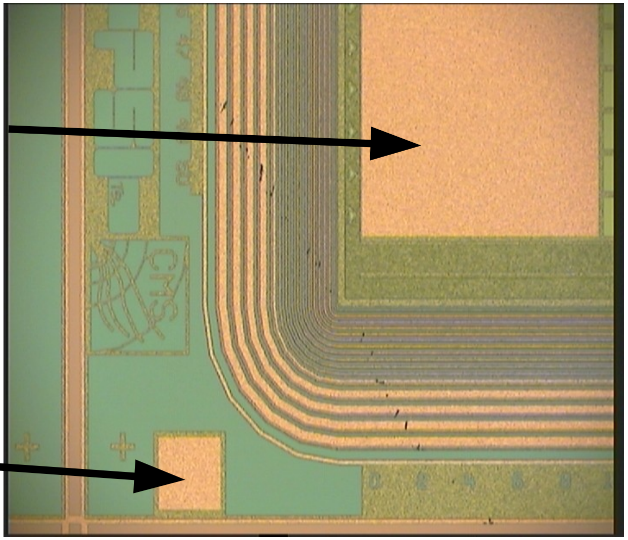
Status Update
27.07.2012

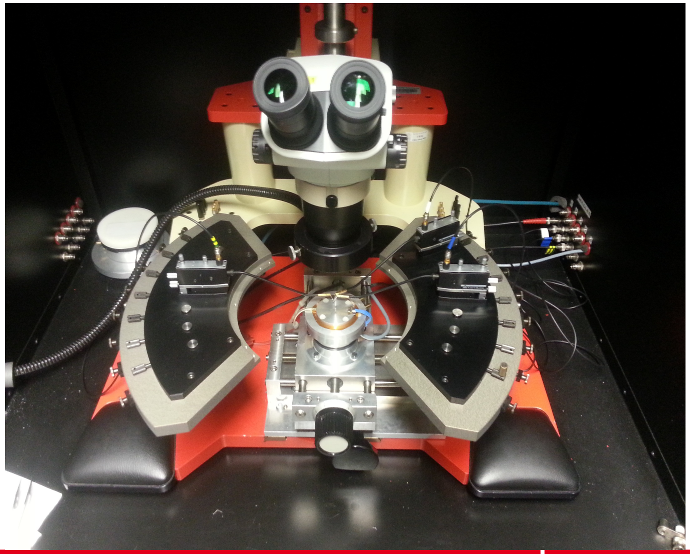
Matteo Centis Vignali, Tobias Lapsien, Jennifer Sibille

IV/CV measurements

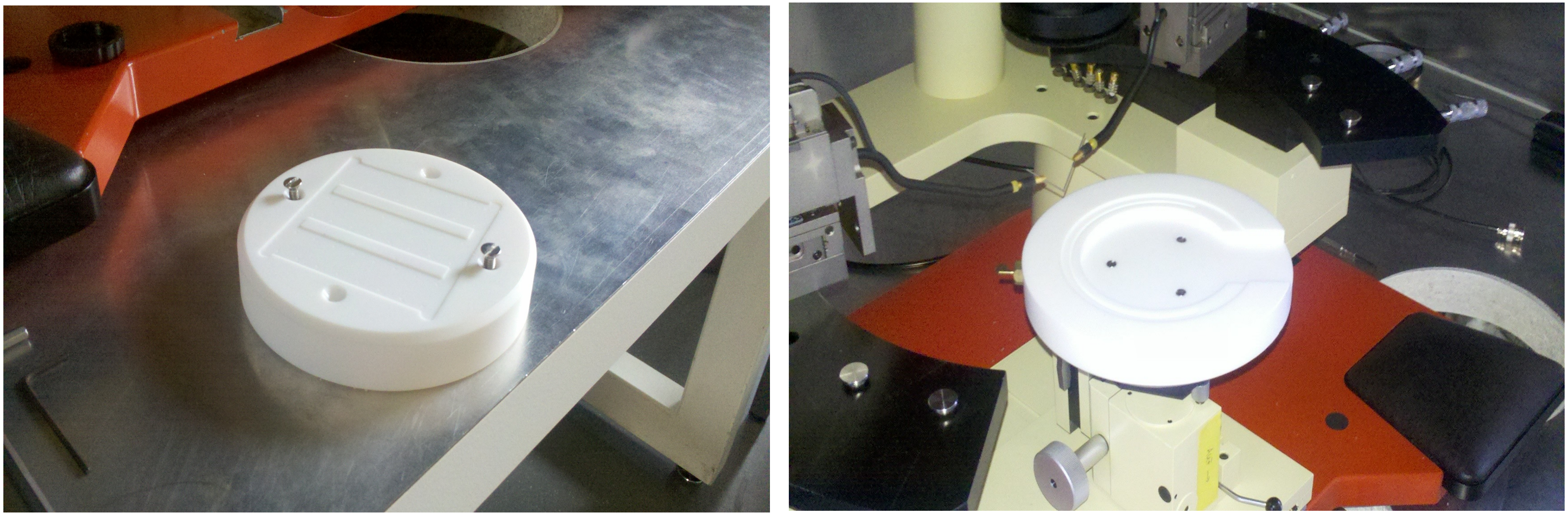
- We are planing to use the setup downstairs in the DLTS room
- possibility to connect the sensor from just one side for IV/CV measurements



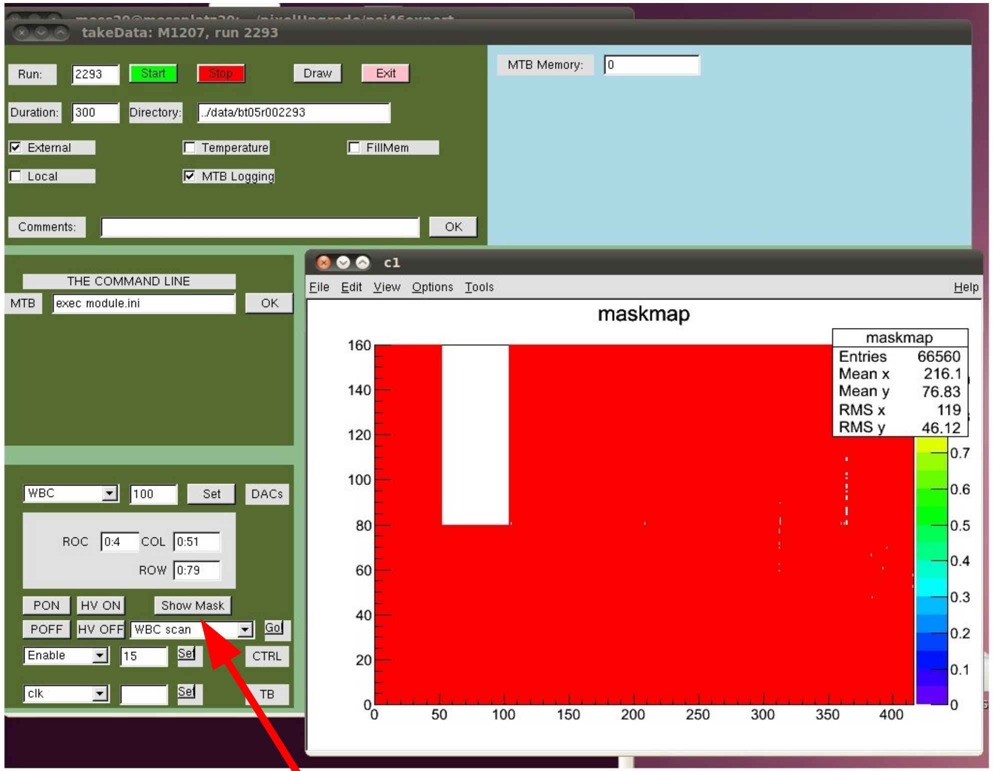




IV/CV measurements



- Teflon chucks are in production (one for the whole wafer and one for the diced Sensors)
- Possibility to start with the measurements next week
- visual inspection for 4 of 6 wafers is finished



Run: 2293

Duration: 300

Directory: ../data/bt05r002293

☑ External

☐ Temperature

☐ FillMem

☐ Local

☑ MTB Logging

MTB Memory: 0

MTB exec module.ini

WBC 100

ROC 0:4 COL 0:51

ROW 0:79

WBC scan

Enable 15

clk

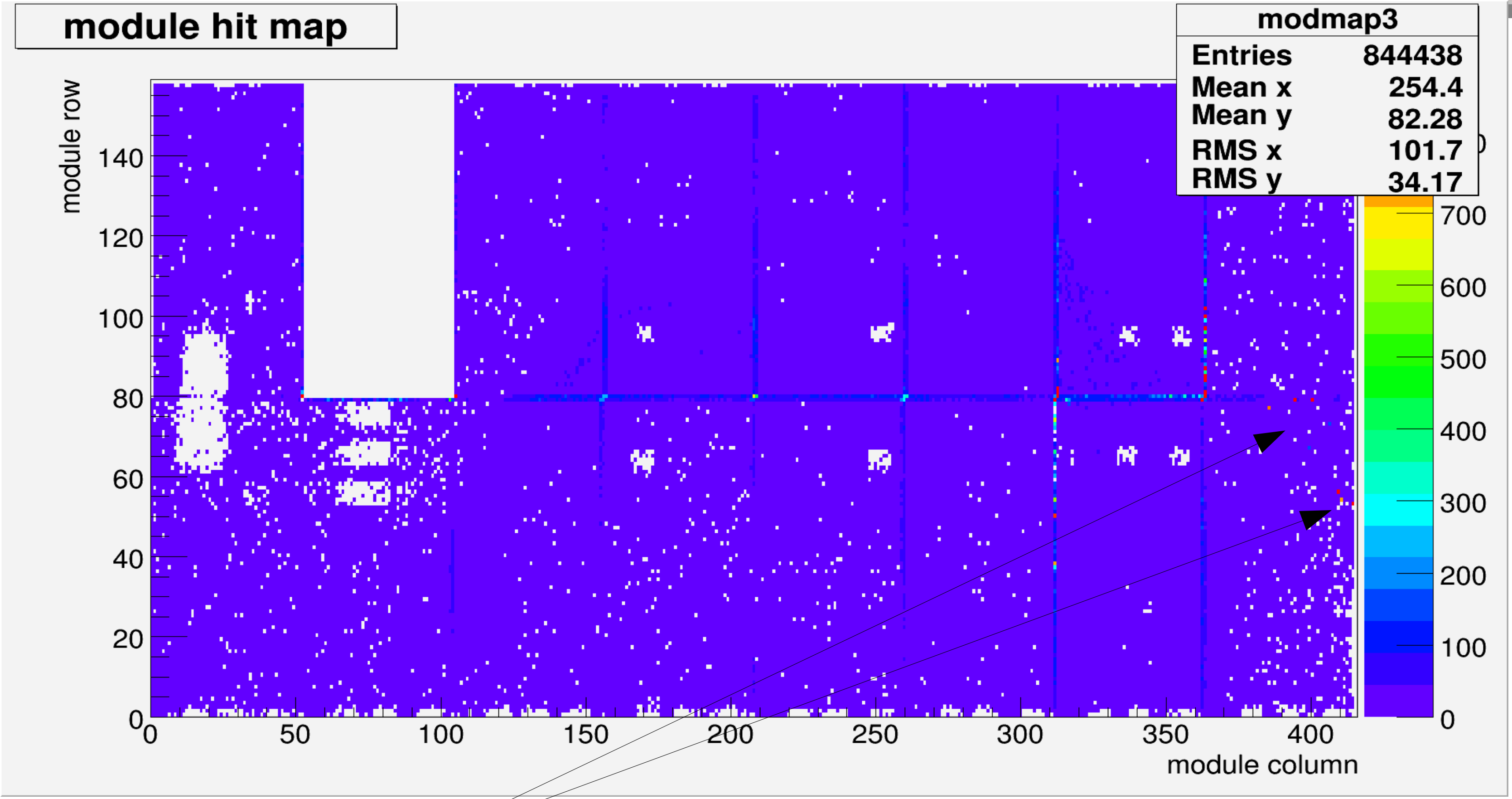
```
maskmap
Entries     66560
Mean x      216.1
Mean y      76.83
RMS x         119
RMS y       46.12
```

-start takeData with option “-mask”

-masking file “pixelMask.dat” should be in the folder of the module

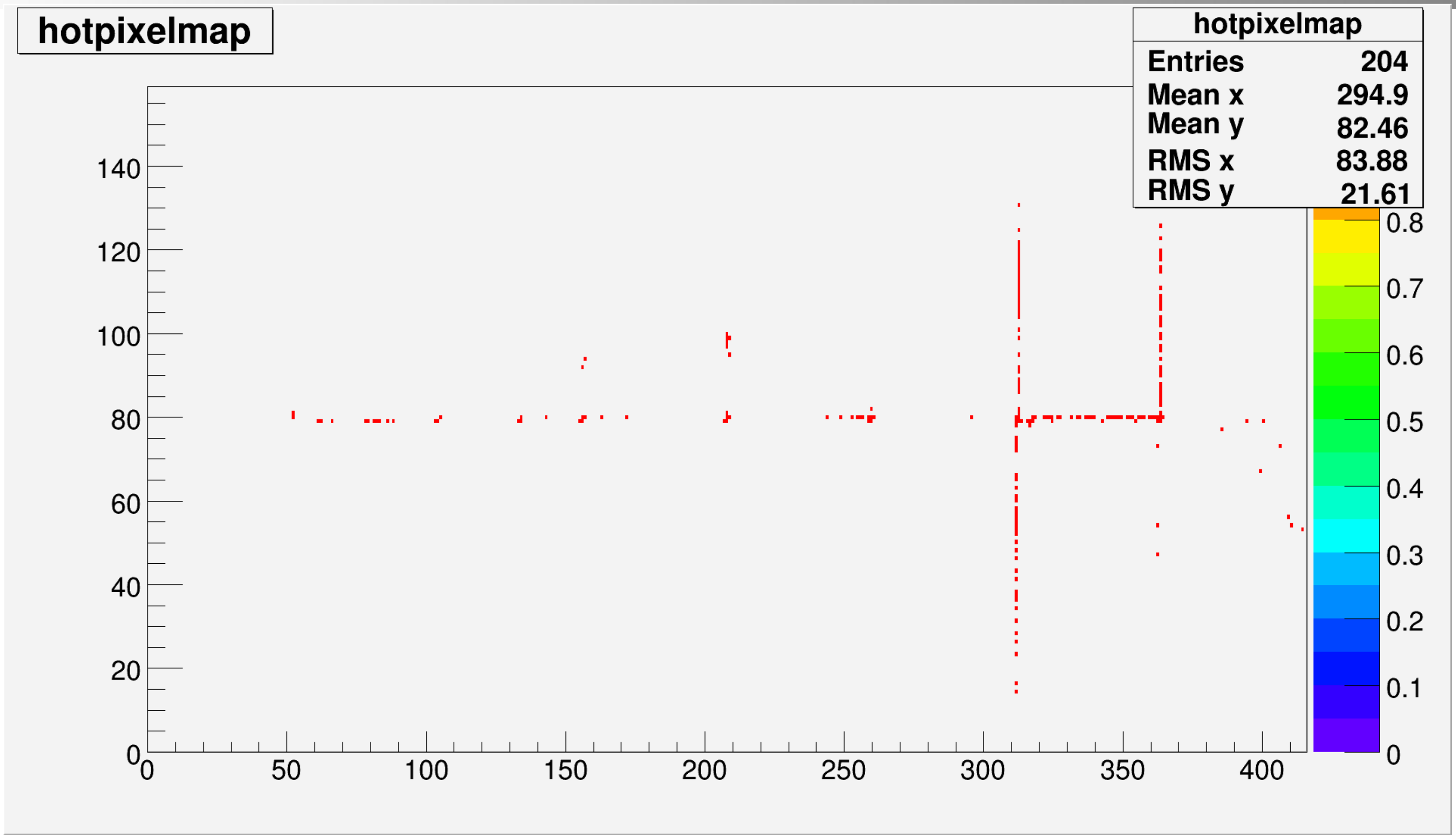
Take a look at the masking file before starting the run

Pixel masking



some noisy pixels

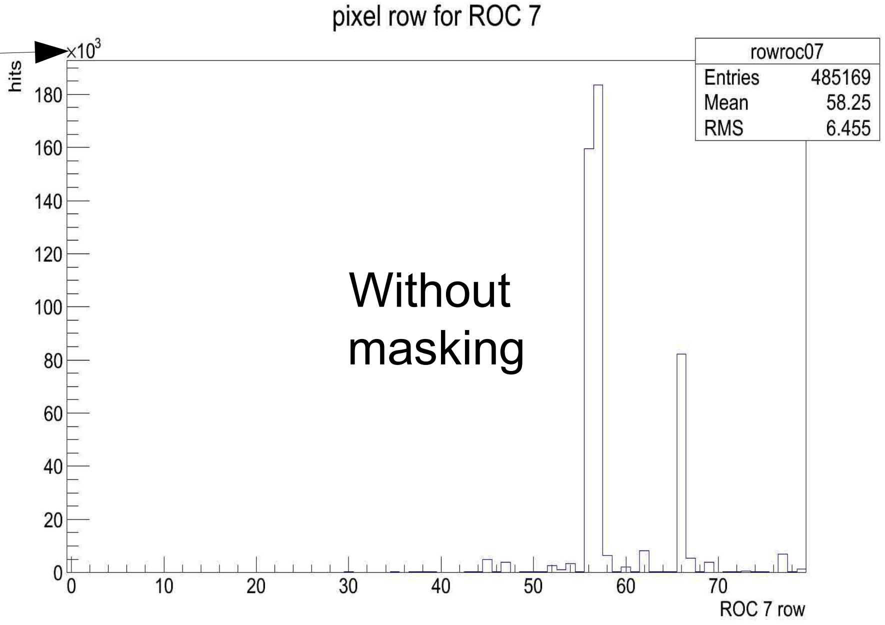
Pixel masking



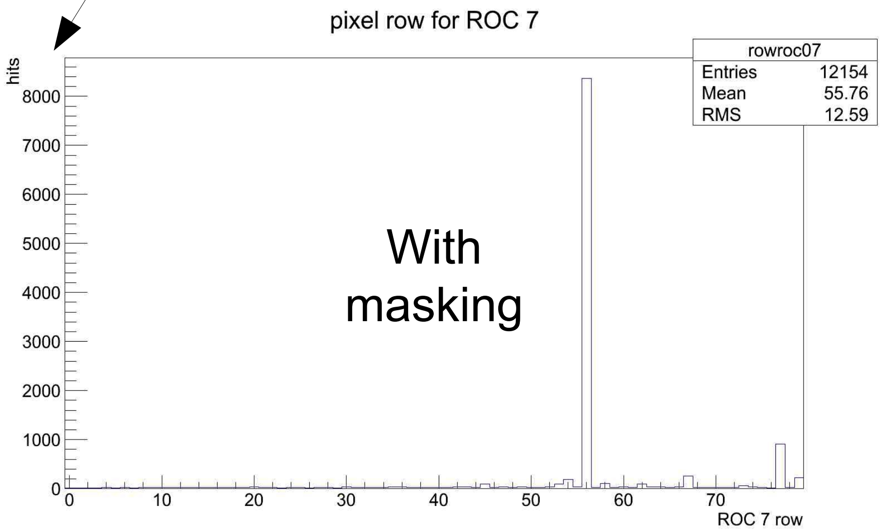
Masks all pixel that have 10 times more hits

Pixel masking

Suppress noise

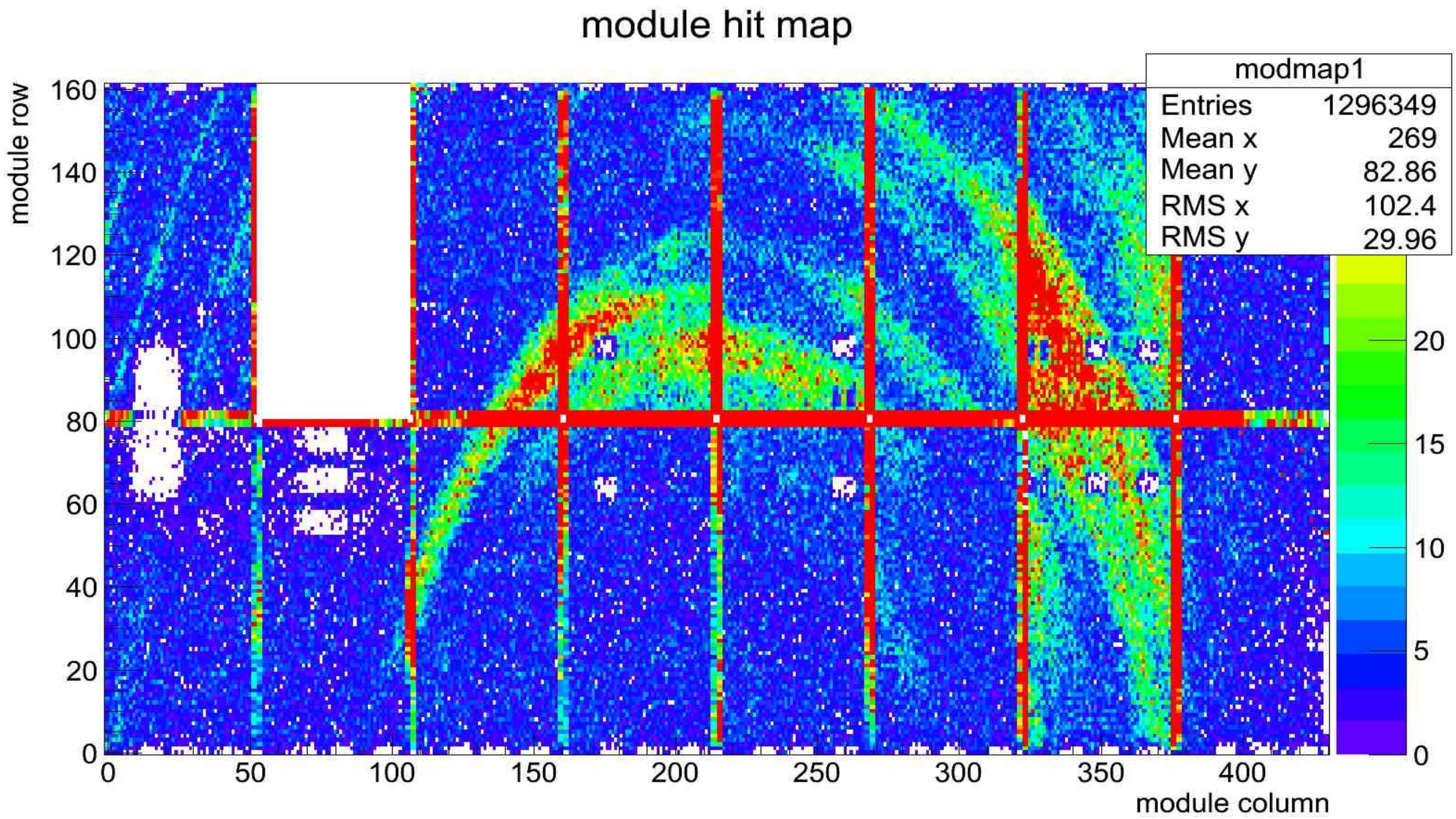


Without masking

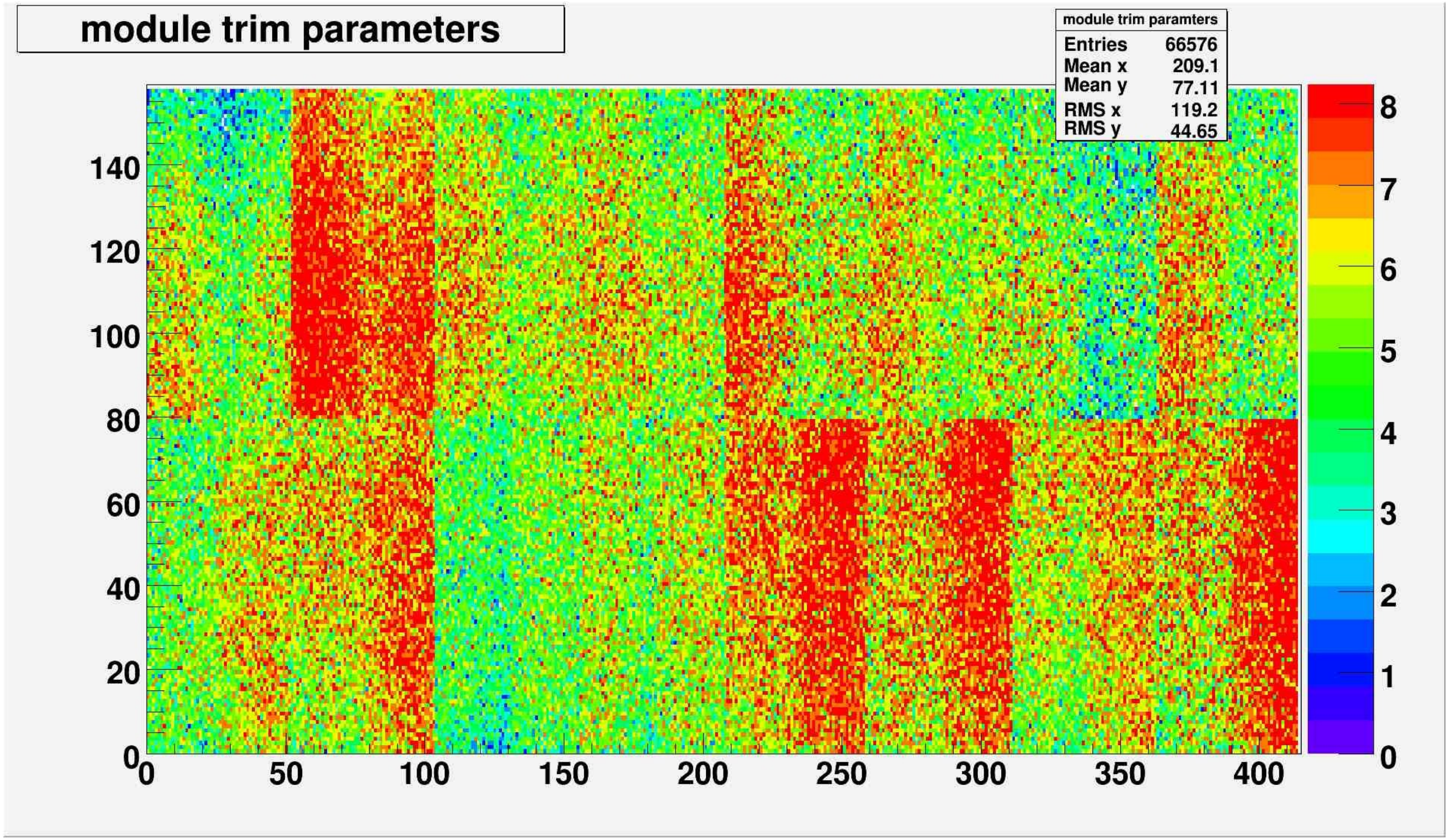


With masking

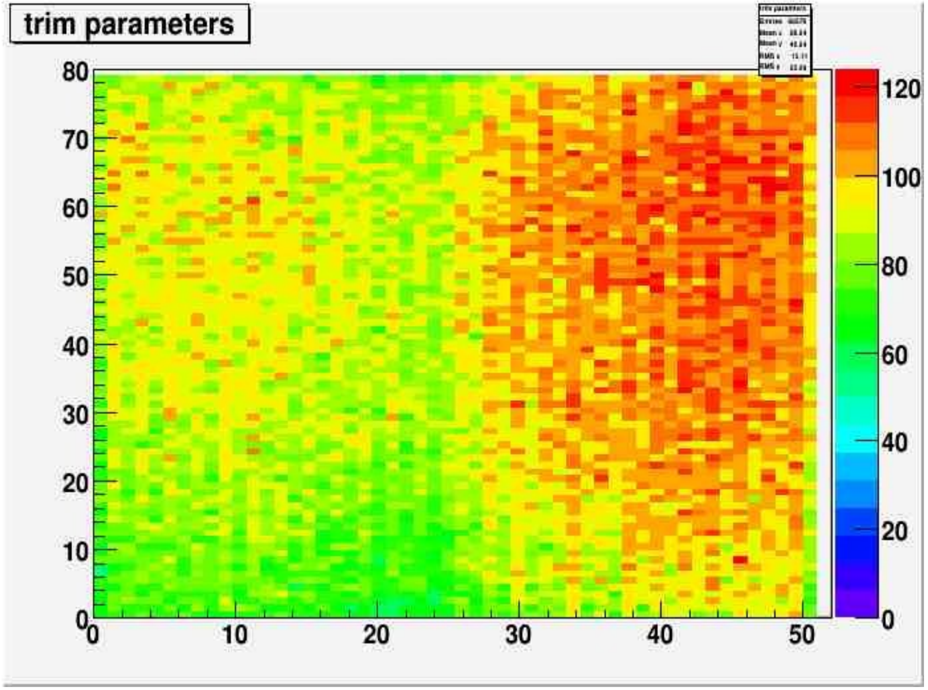
The “fingerprint”



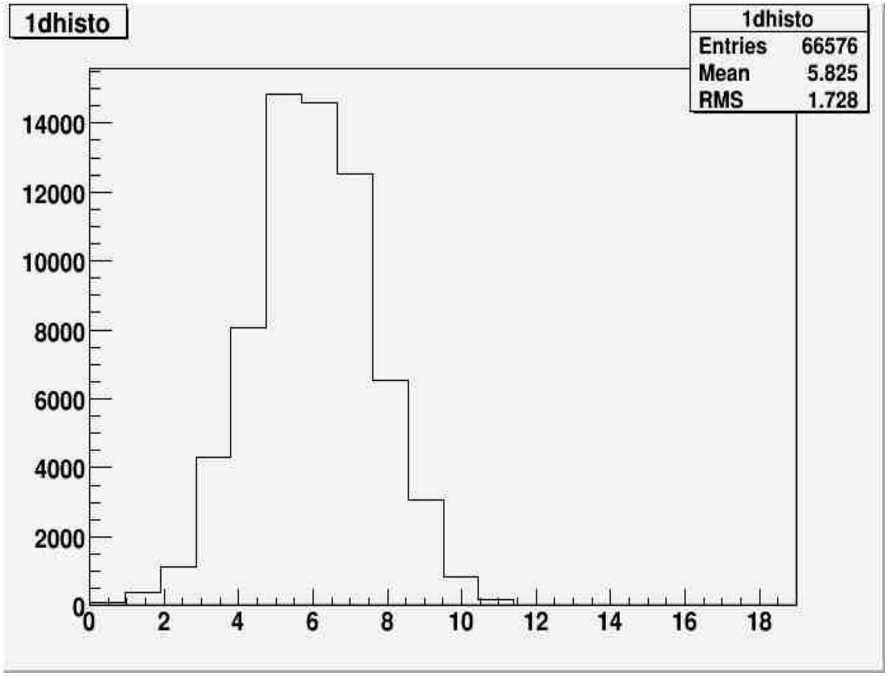
Trim parameters



Trim parameters

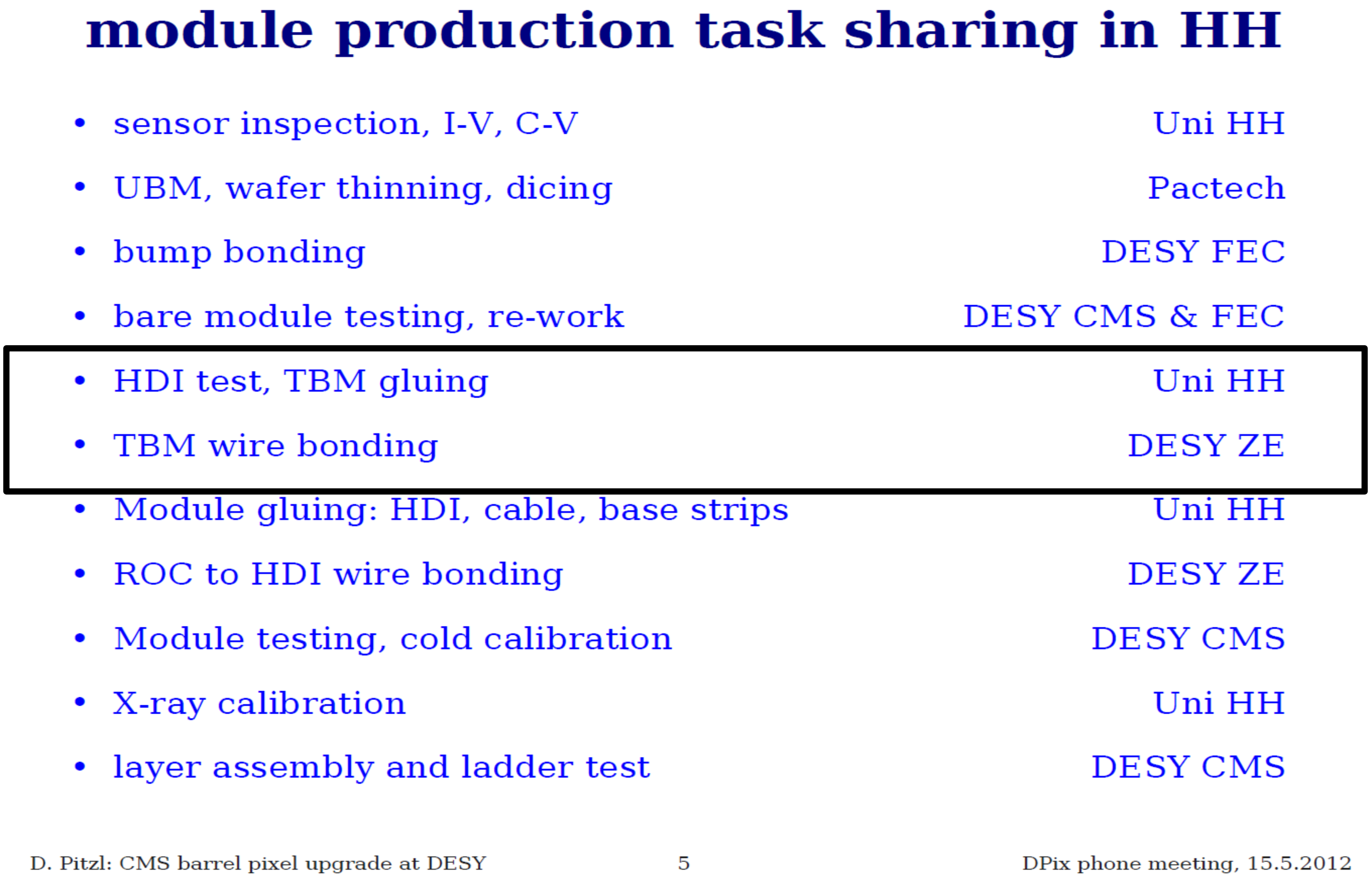


All rocs overlapped



Trim parameters distribution
(whole module)

HDI-related steps



module production task sharing in HH

sensor inspection, I-V, C-V	Uni HH
UBM, wafer thinning, dicing	Pactech
bump bonding	DESY FEC
bare module testing, re-work	DESY CMS & FEC
HDI test, TBM gluing	Uni HH
TBM wire bonding	DESY ZE
Module gluing: HDI, cable, base strips	Uni HH
ROC to HDI wire bonding	DESY ZE
Module testing, cold calibration	DESY CMS
X-ray calibration	Uni HH
layer assembly and ladder test	DESY CMS

D. Pitzl: CMS barrel pixel upgrade at DESY 5 DPix phone meeting, 15.5.2012

For my clarification:

HDI testing document:

https://cms-docdb.cern.ch/cgi-bin/DocDB/ShowDocument?docid=5736

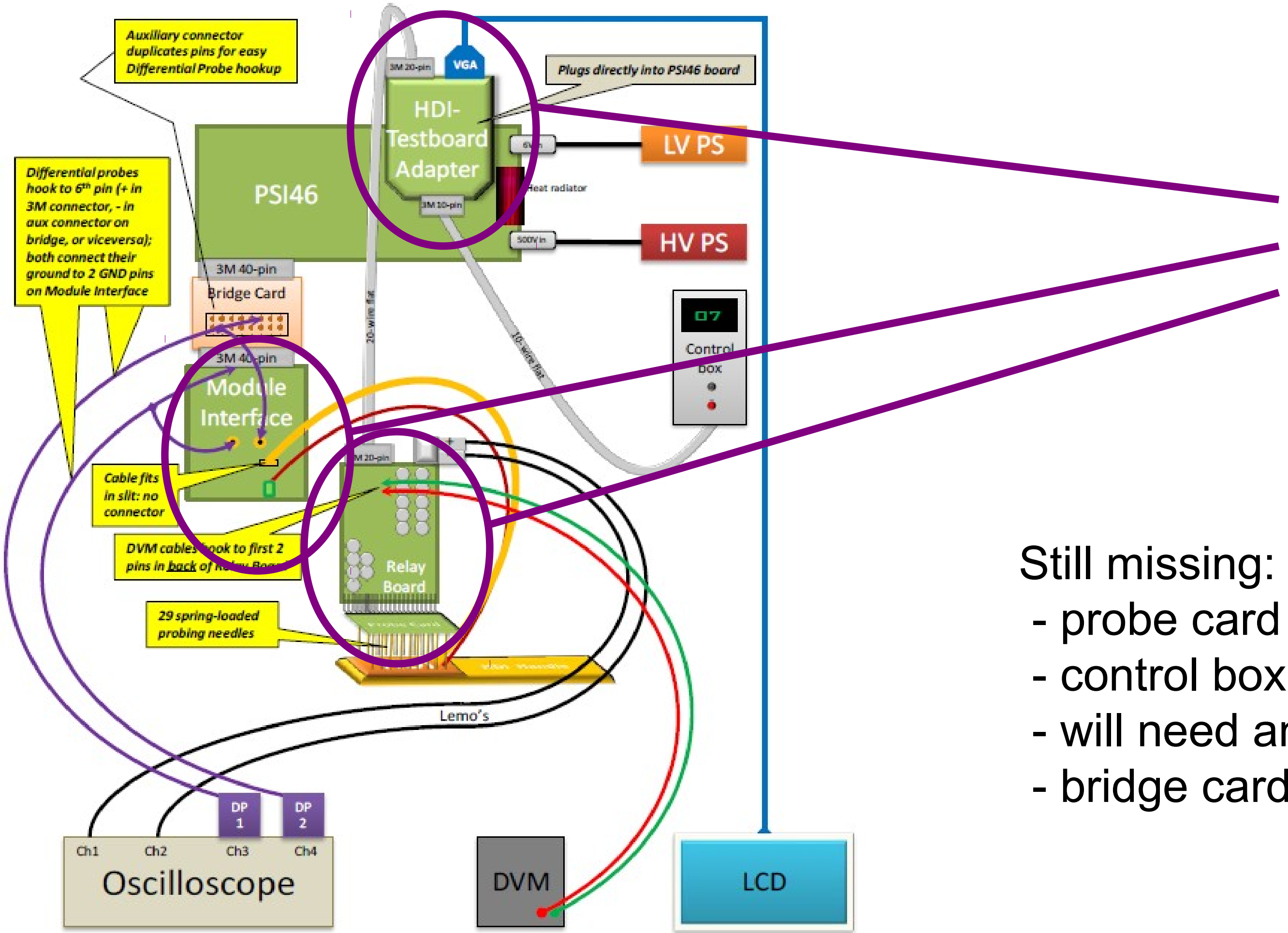
My understanding: HDI testing occurs after TBM wire bonding

- Tests TBM cores in single/dual mode, TBM distribution of CTR signals, etc

Do we really plan to shuttle the HDIs back and forth across campus so many times?

- TBM gluing at UHH
- TBM wire bonding at DESY ZE
- HDI test at UHH

HDI testing setup



Engineering View:
Components & Connections

Already have at UHH

Still missing:
- probe card
- control box
- will need another testboard
- bridge card (? optional)

New target holder

- Possibility to change between 4 targets by rotating the goniometer and without opening the box
- with new target we get about 40% less hits than with the old Target (size changed)
- Mo, Te is ordered
- maybe also copper target is possible (with new roc we can have lower thresholds)