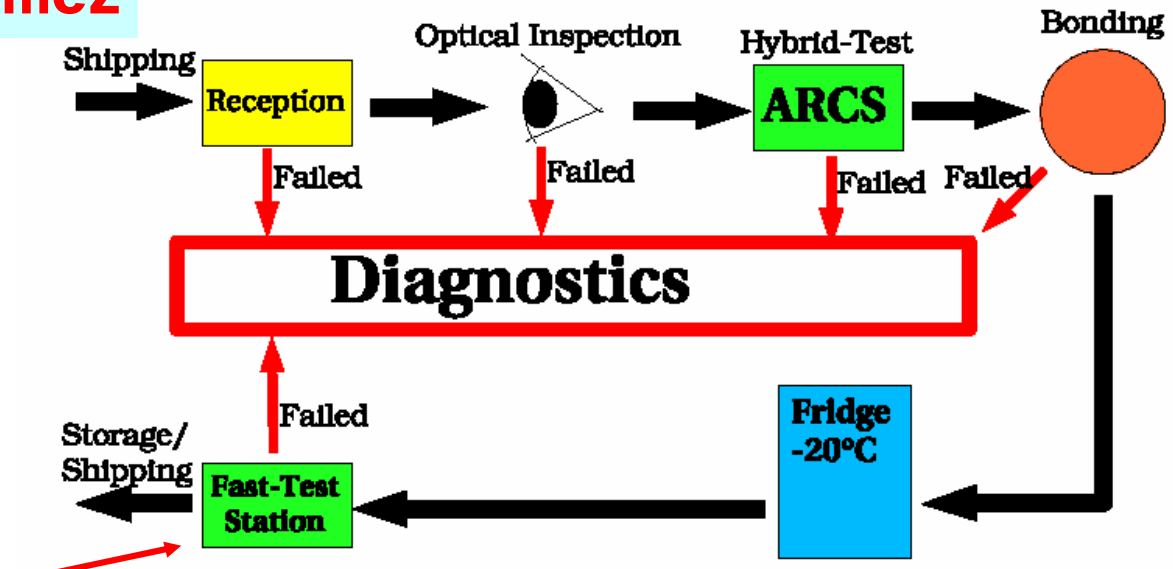
Module Test W.G.
Latest News

 Marco Meschini, INFN Firenze

Module Bonding- and Test-Procedure in Karlsruhe

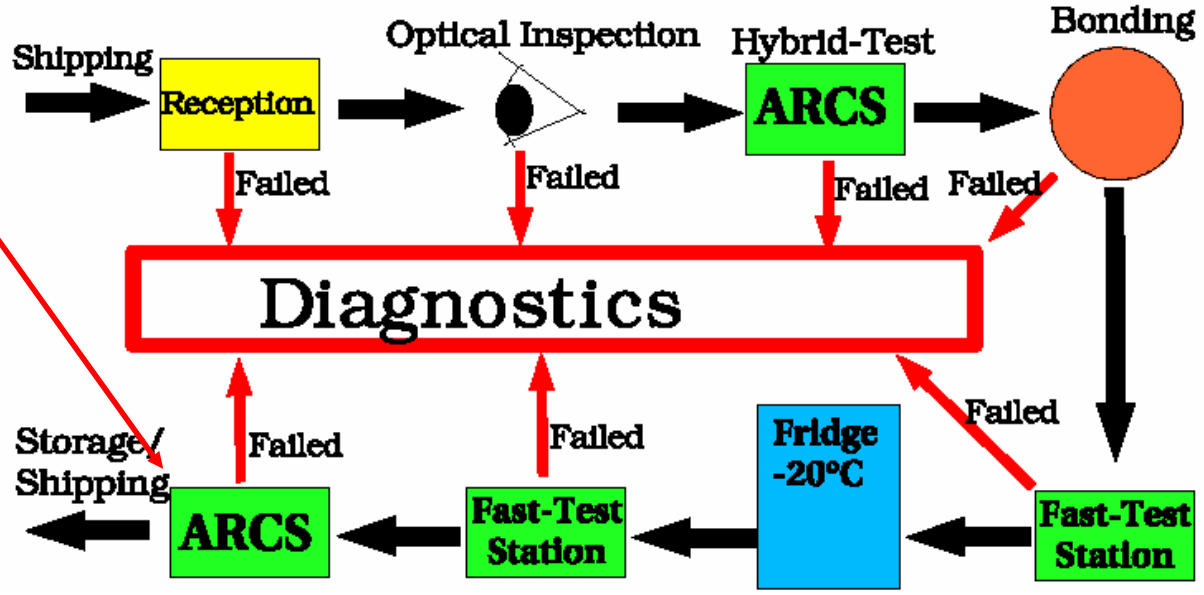
Karlsruhe ring 3
by Tino Ortega-Gomez

Final scheme



A big difference!

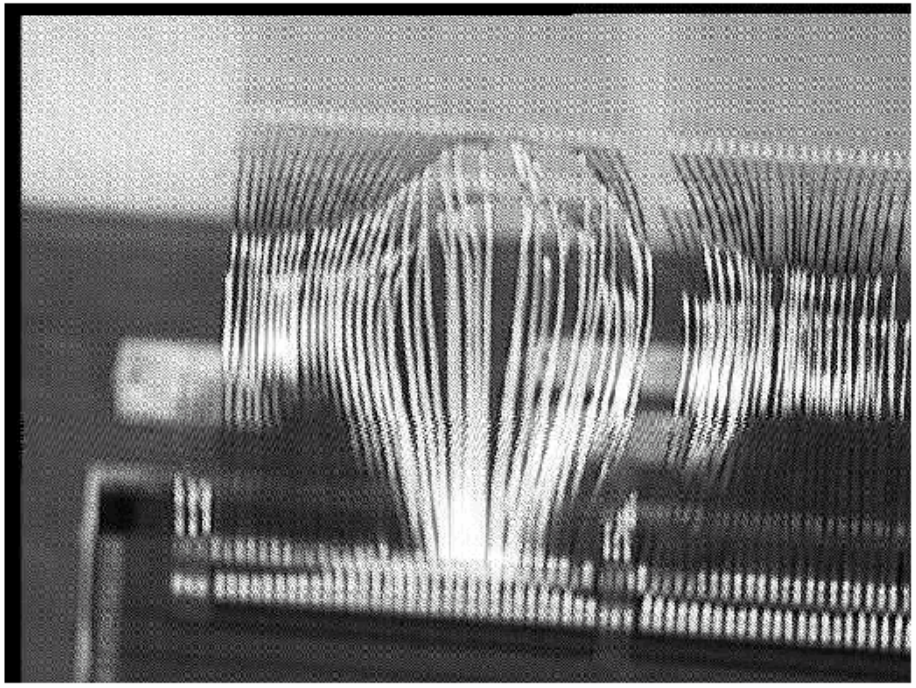
Initial scheme



Karlsruhe ring 3 by Tino Ortega-Gomez

- TEC Ring 3 results: Non standard fast test station setup, results "in agreement" with ARC
- Grading: is it done with official macros?
- DB Unclear situation: ROOT files? Cannot upload files to DB now
- **38 bonded, 35 "grade A", 1 B, 2 C**

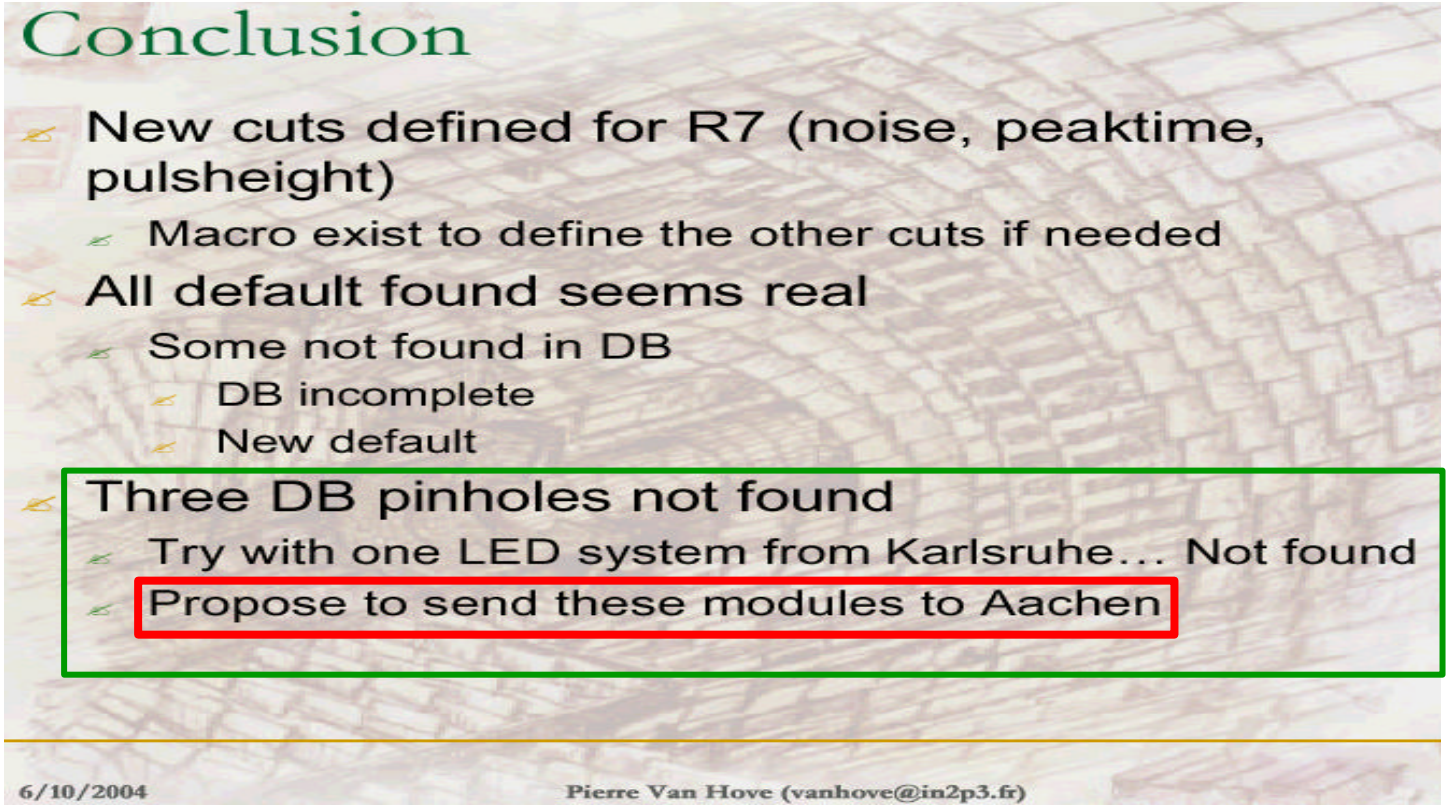
some problem with handling?



- distorted bonds on 2. APV
- Test results:
  - SN 1-2 Short
  - SN 8 Noisy
  - SN 23 Noisy
- IV-behavior: break-through above 480V

touched bonds have no electrical effect

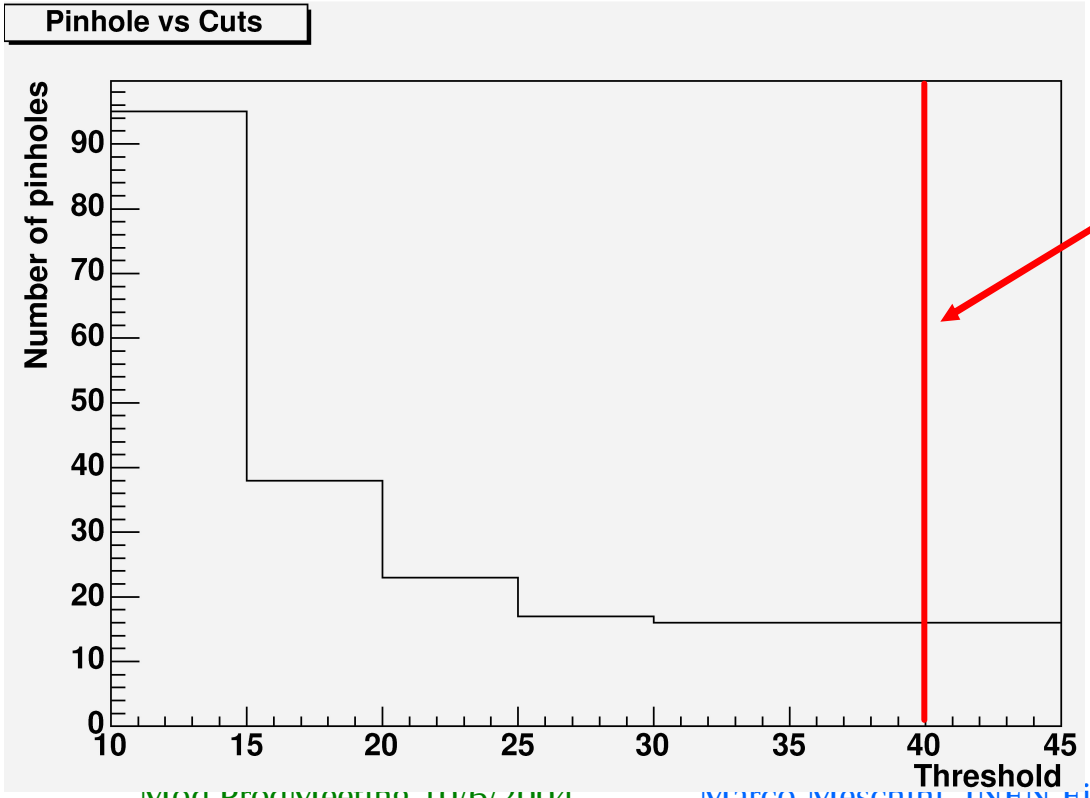
Pierre Van Hove



- Not finalized. Not fully standard equipment in some TEC labs
- New cuts have to be tested and approved by TEC community (as done in TIB and underway in TOB)
- I'll be following closely developments in TEC
- Final results before next TK week?

Pinholes

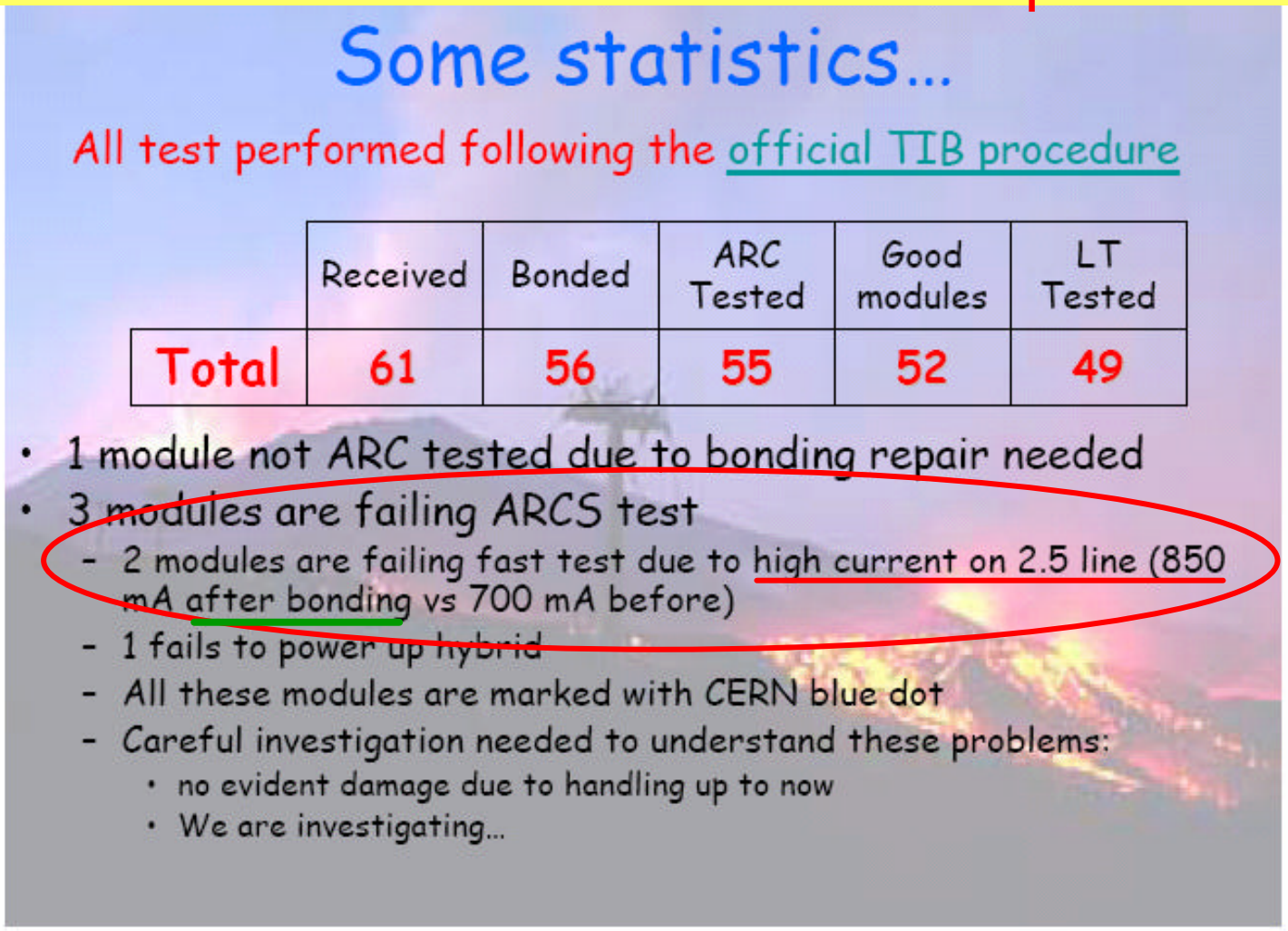
- The pinhole test cuts a pinhole if the difference between calibration amplitude at different LED intensities is > 40 ADC channels
- The following plot gives us confidence on the stability of this cut



Official cut value

Data taken from Catania, Firenze, Padova, Torino

LV, something weird?
Last TK Week: Catania report



ARC fast test fails if current on 2.5 V is higher than 780 mA

M. Stoye, Hamburg

From bonding to DB:
very good progress in short time!

Test Results

- 3/131 failed the initial ARC Fast Test
- 4/26 fully tested got graded C
  22/26 graded A
- No further Pineholes where found

⇒ 7 electrically faulty Moduls:

Similar to Catania case?

Could both these effects be a hint of a short on hybrid?

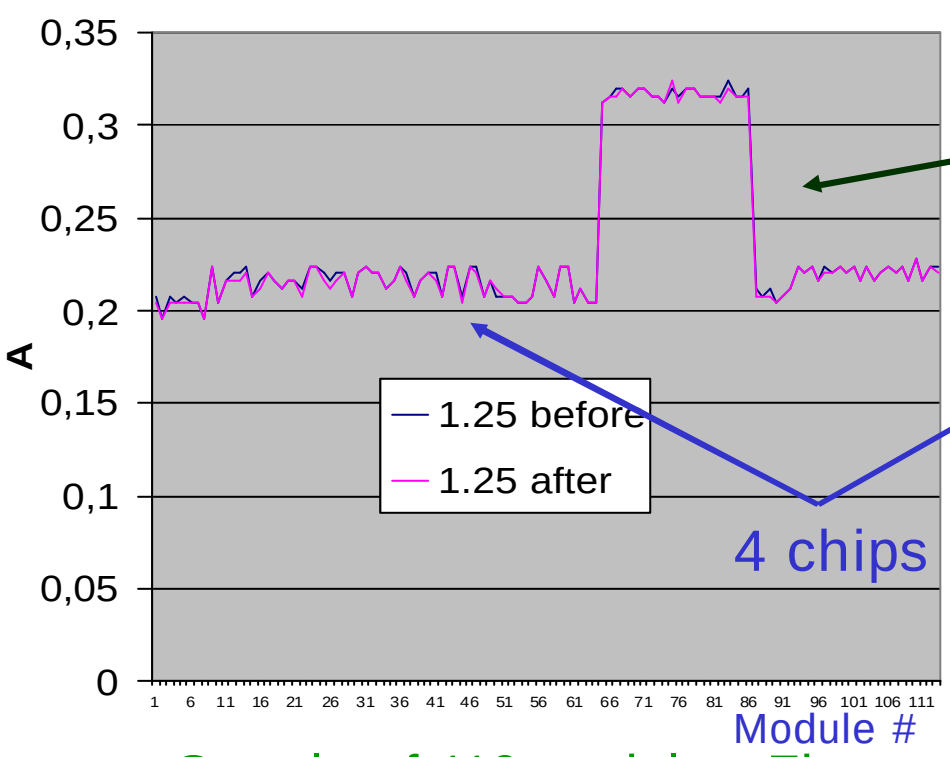
30200020032009	Hybrid-bonds bend; too hight current I(V250) 1.020A
30200020032015	222 noisy channels in Fast Test
30200020032011	Bad APV with CM-Noise like behavior; grade C
30200020032019	Scratch on sensor; grade C
30200020026938	Bad APV with noise and pipeline problem; grade C
30200020027064	Too hight current in Fast Test (V125) 0.765A
30200020027058	Noise too low in deconvolution mode; grade C

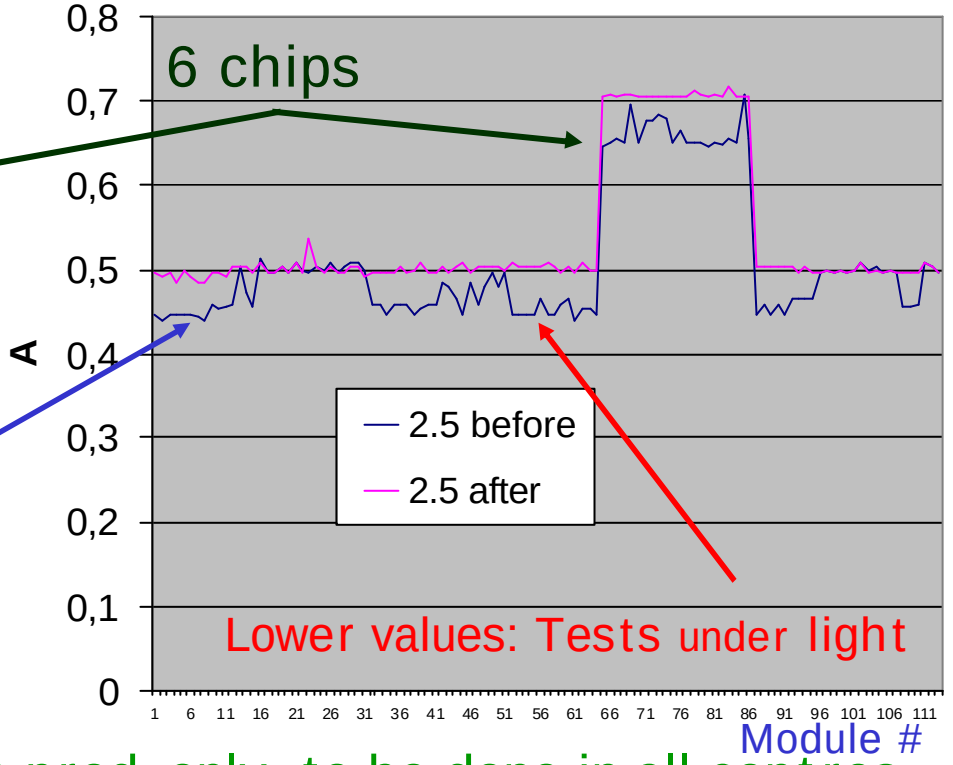
V250?

Studies of LV Currents in ARC

C. Marchettini

- There is no significant variation in LV current before and after strips bonding.
- Currents on 1.25 V are exactly the same
- Currents on 2.5 V show small differences mainly due to whether the module has been tested under light or not before bonding





Sample of 110 modules, Firenze prod. only, to be done in all centres

Today's Picture

The SW used in the test centres: DAQ

- ARCS 7.0 is widely in use (100% in TIB) for production
  - ROOT files ~ good, minor bugs to be corrected, request made to ARC team
  - Xml parser: output not DB compliant
- ARCS 7.1 (and maybe ARCS 7.2?) are presently working only in VERY few (ETHZ) centres, ✍ limited use for production
  - Xml parser: output DB compliant or not?
- LT_1_24: latest release, in use for production
  - ROOT files good, Tool-ID missing
  - Xml parser: output not DB compliant

Analysis tools (1)

DefAna, L. Neukermans

Well advanced status, good progress since last Tk Week

- Defect Analyzer package is a tool fully integrated within the LTStruct software framework which allow:
  - The module qualification
  - Extensive analysis
- Some analysis skeletons are already available
  - More will come (for cuts tuning)
  - Already useful for building dedicated analysis
- Petals/Rods qualification in progress
- Integration within the LTStruct gui as a button or scenario

Analysis tools (2)

- xFLAG available since 2 months
- In use by all TIB centres + ETHZ, Hamburg, Vienna...
- All requested bug fixes implemented (version 1.5.1 on May 31st)

- How many modules in DB?
  - 468 ARC MODVALIDATION (372 TIB all xFLAG, 86 TEC mixed + 10 TOB to be determined)
  - 202 LTSUMMARY after thermal cycles (all from TIB)

Xml Files for DB

- Since at present xFLAG is (the only?) working tool, go on using it to produce xml files
- NO stops to production, at least until petal-rod integration

- If next ARC and LT releases will produce good xml files they can be used as well, provided the results are fully compatible with present ones

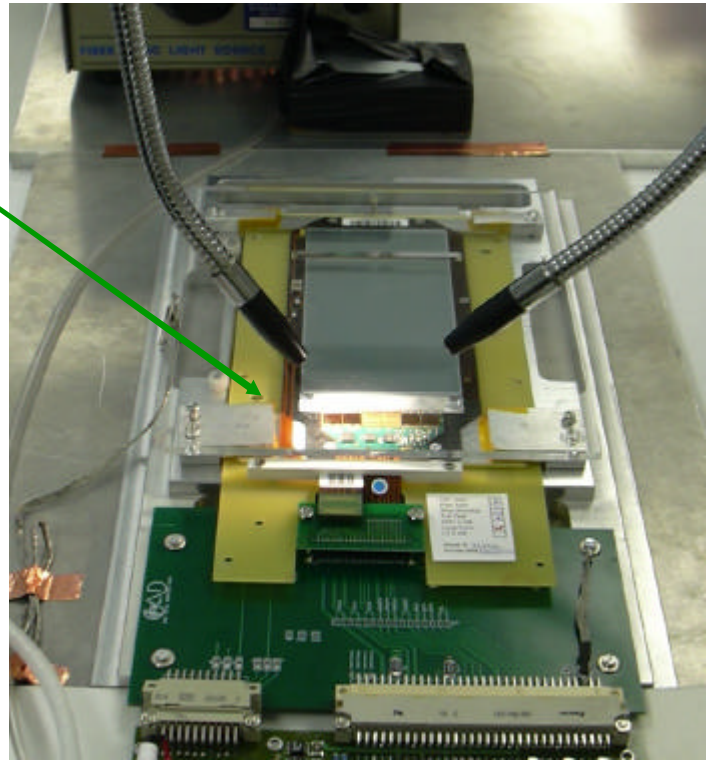
Other Selected Topics

- IV problems in TIB (G. Sguazzoni) detectors traced back to one problematic batch: **mishandling** or Hamamatsu process?
- Cut on module if Imod@450V > 5 x IsensDB. It seems reasonable from Sguazzoni analysis
- 2 TIB modules 4 and 6 APVs to Imperial College for APV parameter optimization (cold/warm), TOB and TEC should do the same. A LV current consumption increase seen in cold: could it be recovered with suitable parameter tuning?
- Pretty good use of ROOT files available at each testing site. Let's continue on having data easily available!

Via problem

The problem has been reproduced in TIB to verify that ARCS is capable of spotting it

Hybrids are exposed to intense light for about one minute



Bari	104
Catania	88
Firenze	105
Padova	116
Perugia	60
Pisa	100
Torino	80

653 modules with hybrids of different batches have been retested under light with ARCS in TIB community

And this is what happens…