

Updates on the Large Tile Tester Prototype

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Reminder

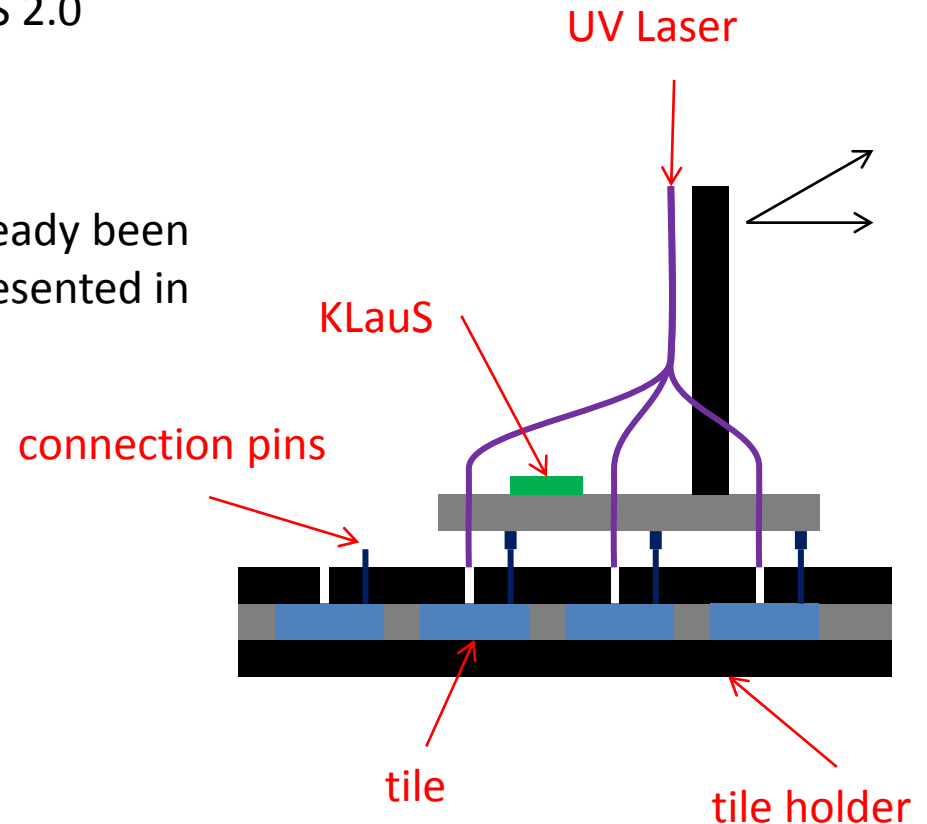
- Quality assurance and characterization of ca. 8 mio tiles

⇒ Scalable tile tester prototype:

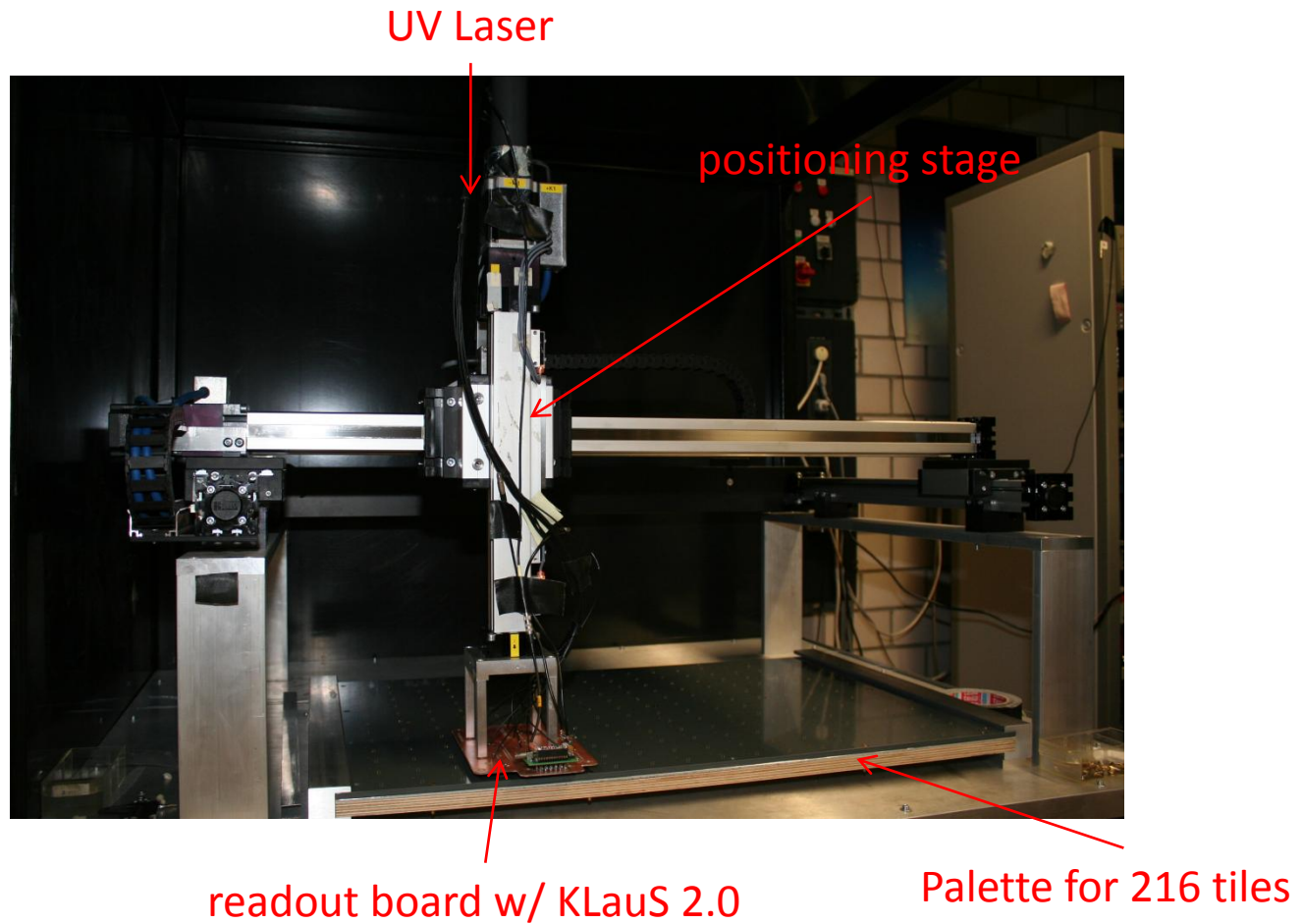
- Measure $V_{\text{break-down}}$, gain, noise, saturation curve, MIP response → operation voltage
- 8 mio tiles in 1 year → ca. 1 second per tile
 - ⇒ Parallelization needed!
- MIP response with Sr90 is much too slow
 - ⇒ Use UV-Laser (+Sr90 for calibration)

Tile Tester Concept

- Palette with $18 \times 12 = 216$ tiles
- Positioning system with measurement head
 - 12 channel parallel readout with KLauS 2.0
 - UV laser via optical fibers
- Readout & UV fiber system concept has already been used for the temperature measurements presented in Shinshu

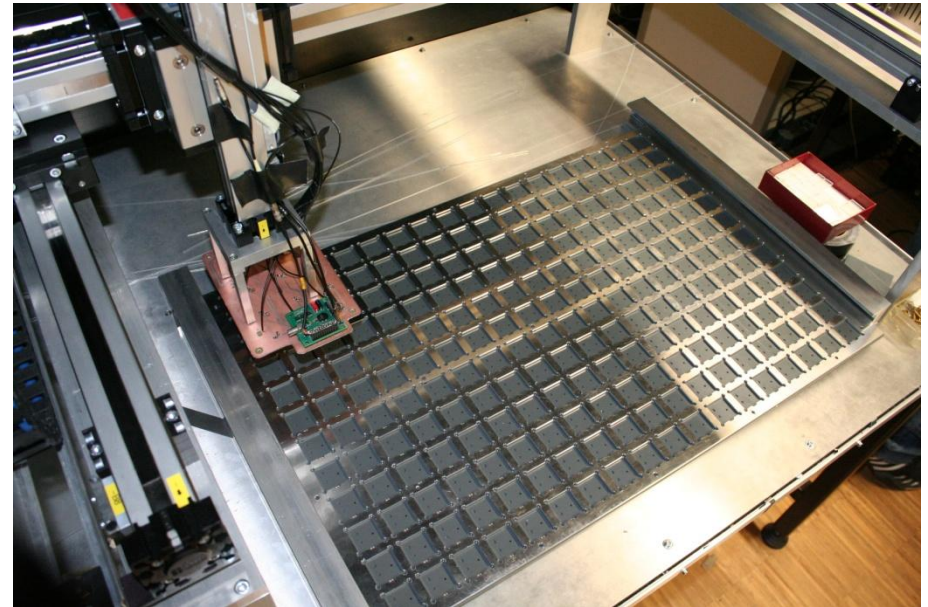


Tile Tester Prototype



Tile Palette

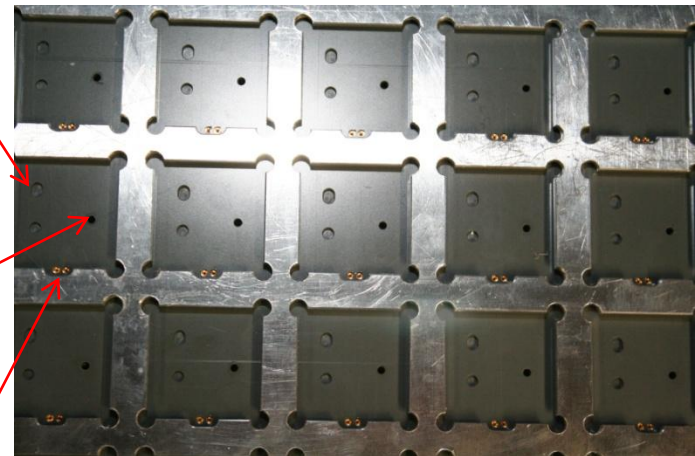
- Palette with $18 \times 12 = 216$ tiles
- Tiles have to be placed manually
 - Could probably be automated
 - Or arrange tiles accordingly at production



alignment pins

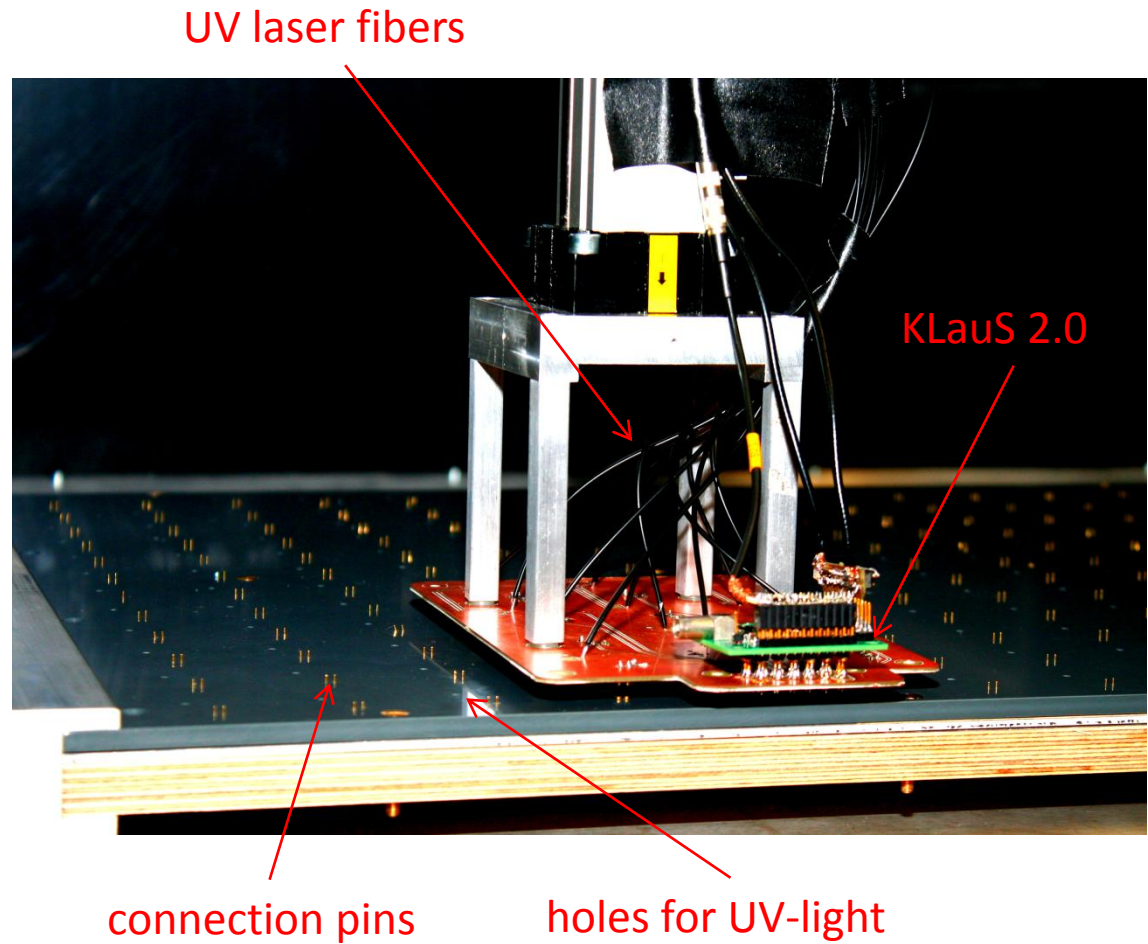
hole for UV-light

pin connector



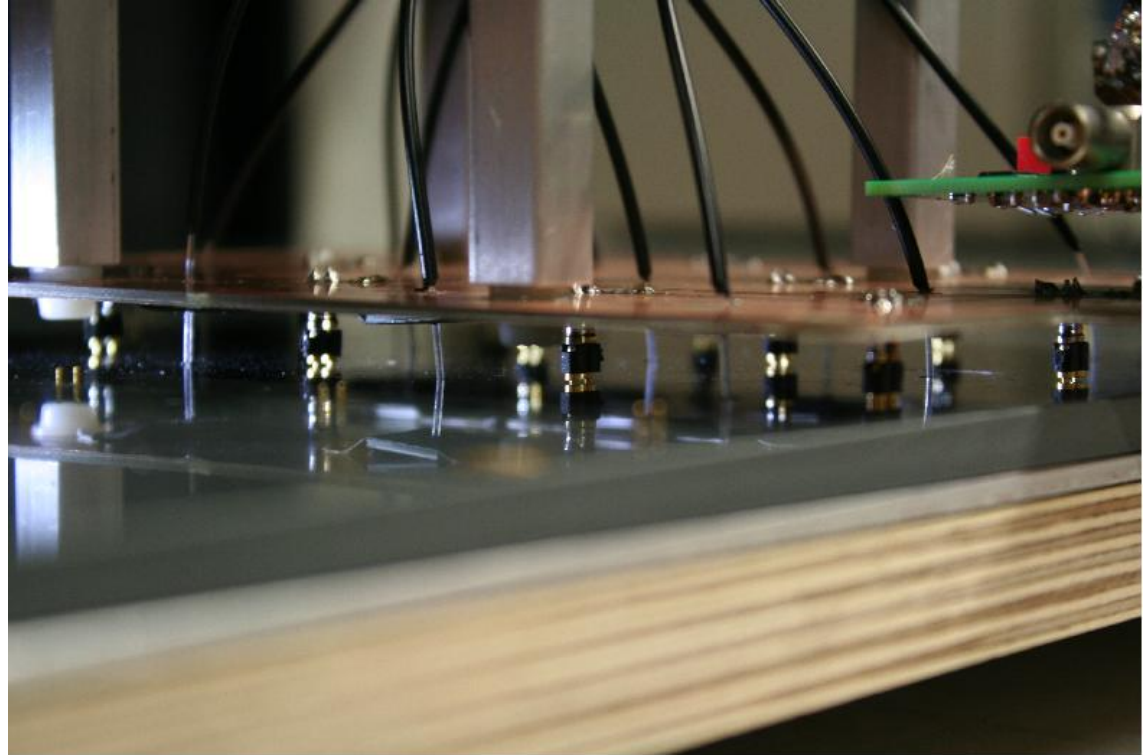
Tile Connection

- Measurement head connects to 12 tiles via pins



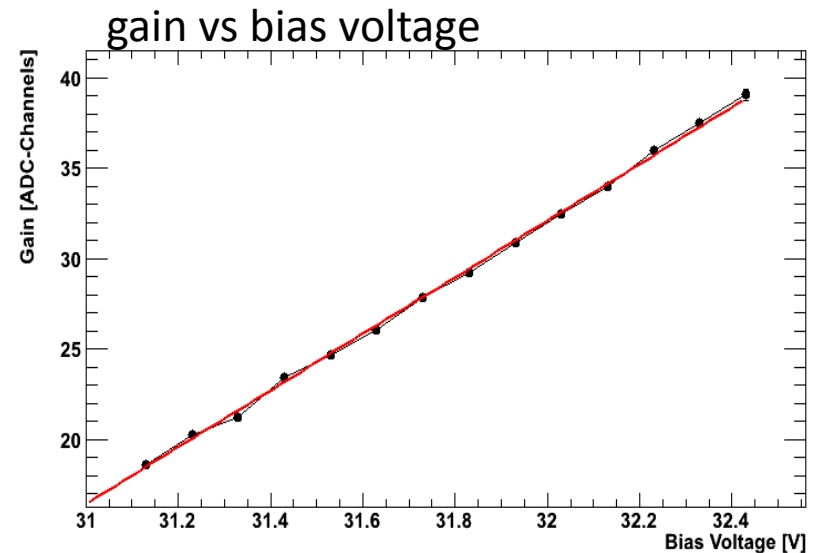
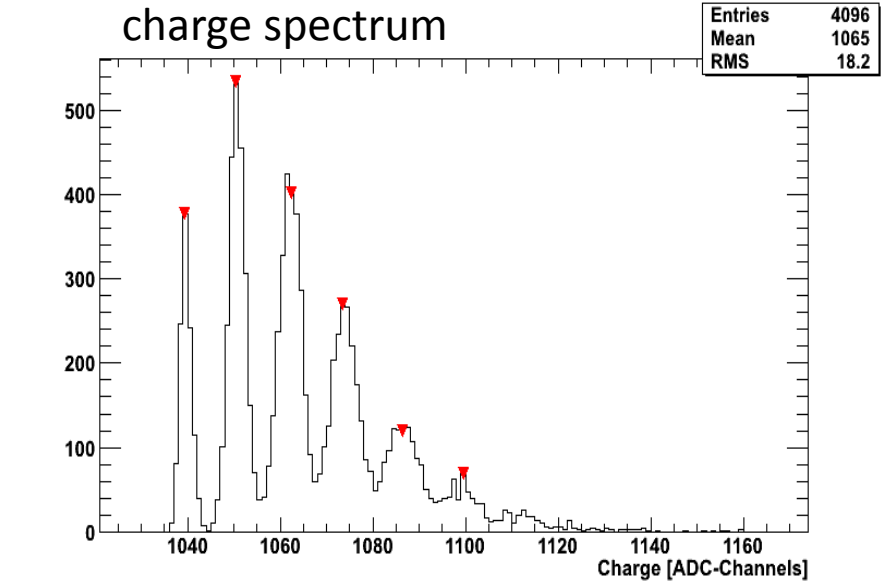
Tile Connection

- Connectors and pins have to be well aligned
- Applicability and reliability in larger system has to be tested
- (Maybe a refined solution is necessary)



Readout

- Readout basically identical as in setup for temperature measurements (presented in Shinshu)
- Charge spectra can be clearly resolved
- Some minor optimizations necessary



Summary & Outlook

- Mechanical construction of tile tester prototype done
- Readout works – still needs some optimization
- First measurements planned in the near future
- Measurement procedure has to be optimized
- How long does it take for a complete characterization of 216 tiles?