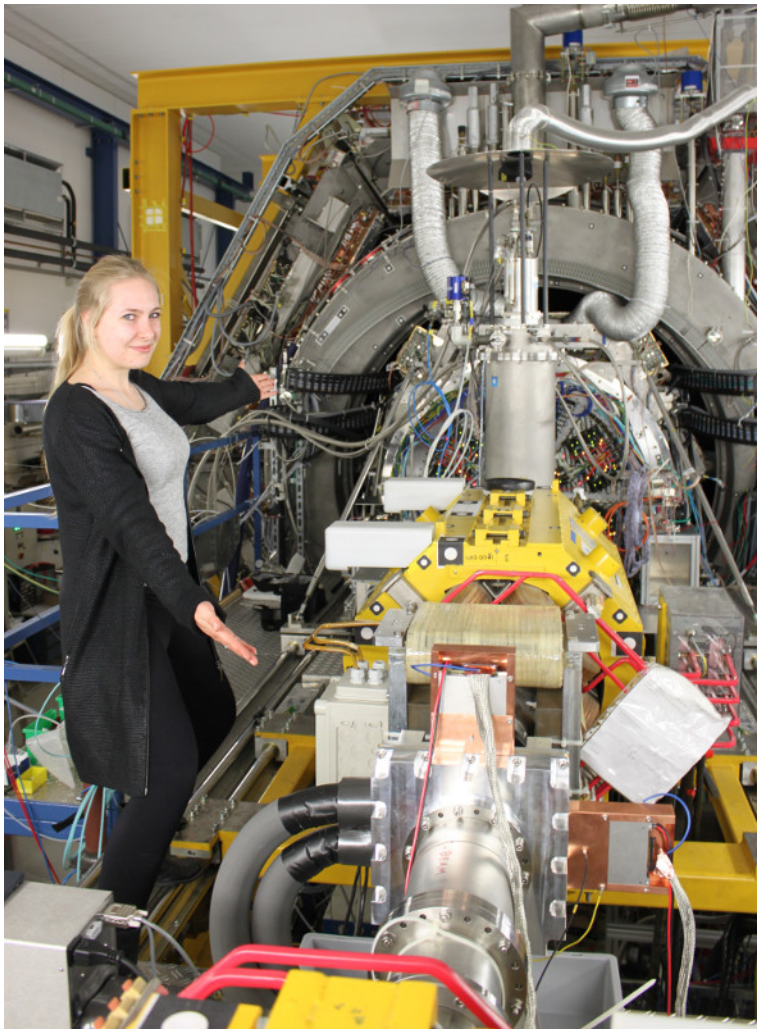
Rate problem investigation

Joana Wirth & Rafał Lalik
for SCAT

April 09, 2014

Status

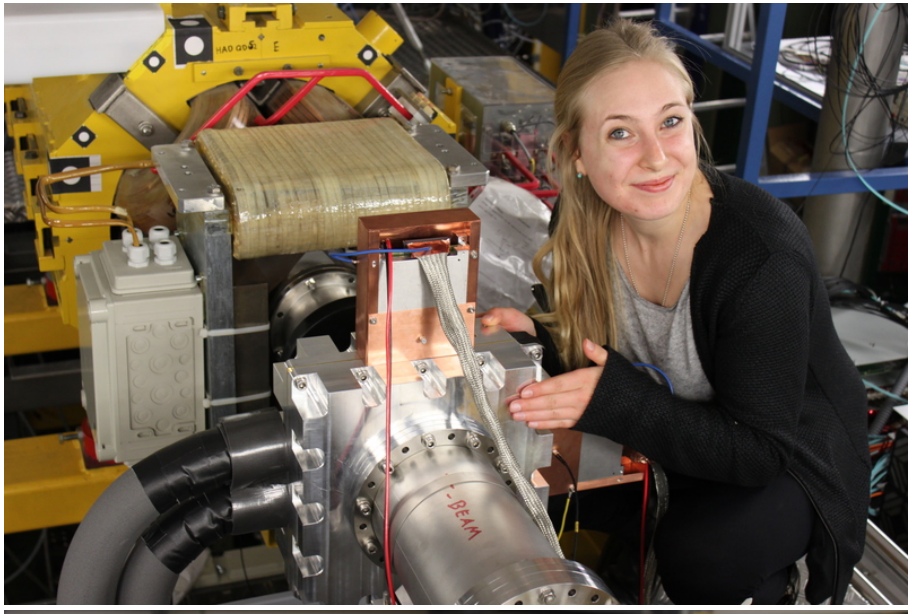


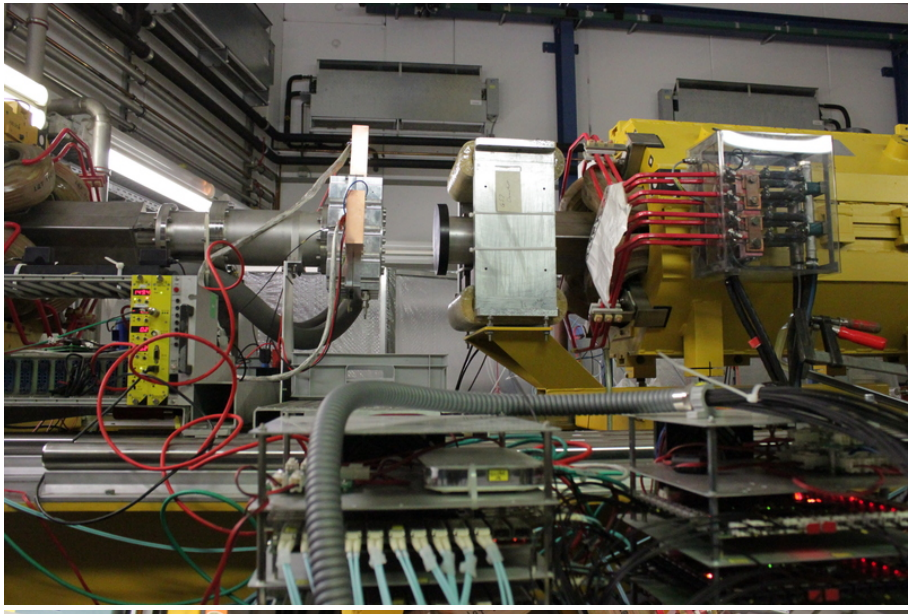
Second Chamber Assembling Team:

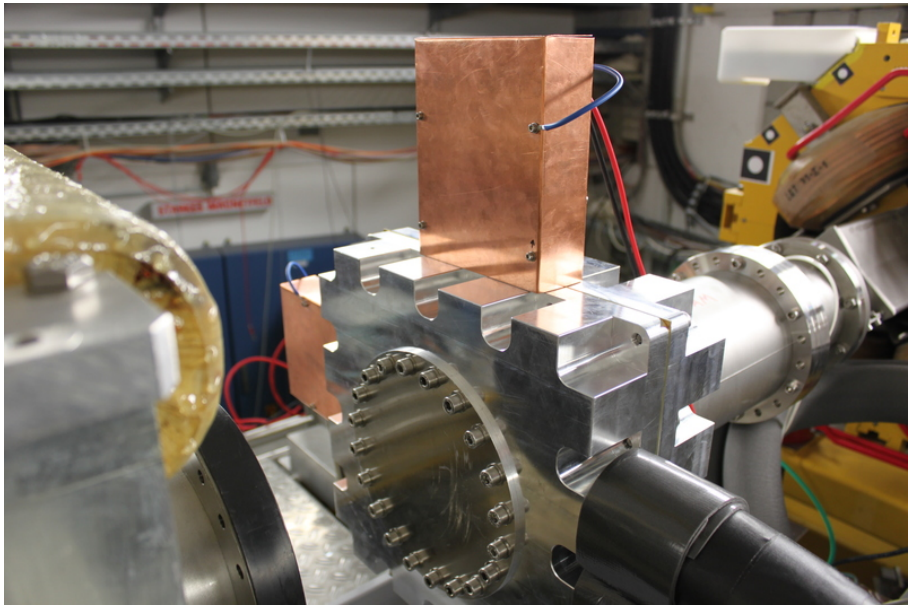
- Erwin Schwab
- Michael Traxler
- Jan Michel
- Joana Wirth
- Rafal Lalik
- Philip Louis

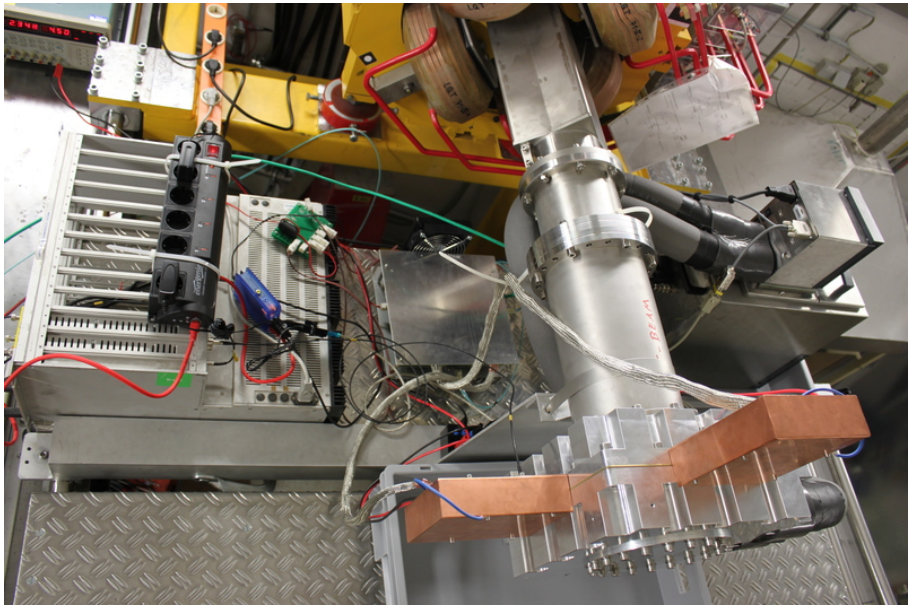
Status:

- Detector assembled in final position
- Pipe vacuum (Friday evening): 1.16×10^{-7} mbar
- Cooling on at $-20\,^{\circ}\mathrm{C}$ (chiller set point)
- Bias on at 160 V with 1.014 µA leakage current
- Noise rate: 100 hits/s to 2000 hits/s
- TRB3 included in TrbNet, DAQ tested









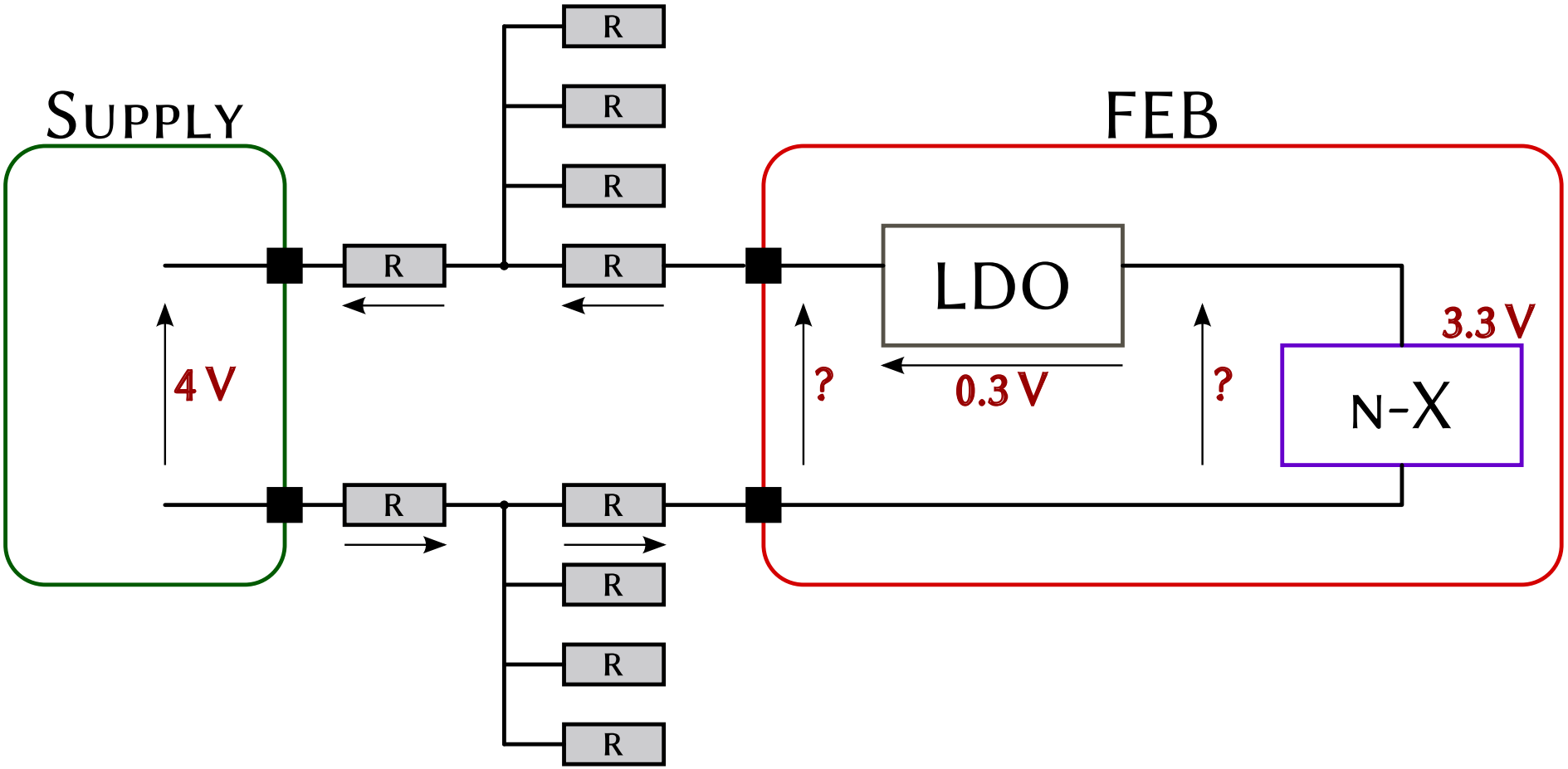
Problems

Problems:

- Cooling block temperature monitoring (HadCon2 + 1-wire sensors) introduces huge noise ($\approx$ 30 kHz), better grounding improves situation, this sensors are optional.
- Detector biasing shows higher leakage current than during 1st week of January (before NE5 action), this needs some investigation.
- The n-XYTRE firmware needs some debugging, problem with synchronisation of TS and ADC – this influences only ADC value, strips, hit rate and time stamps are OK.

Rate problem

Voltage drop along power cables



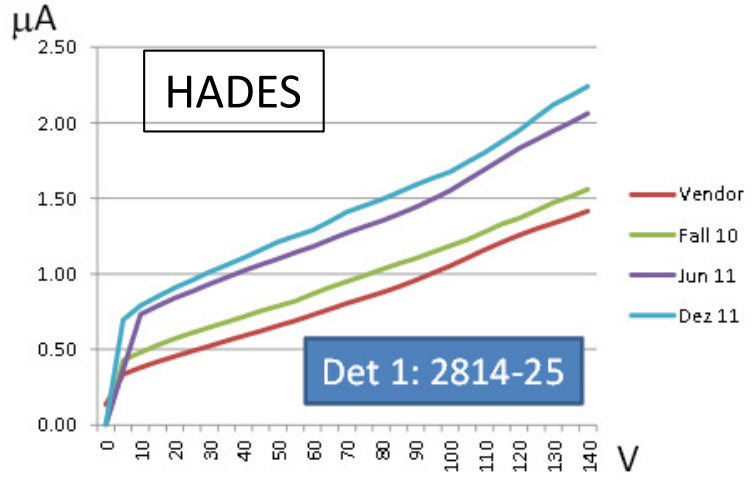
Hydra 2

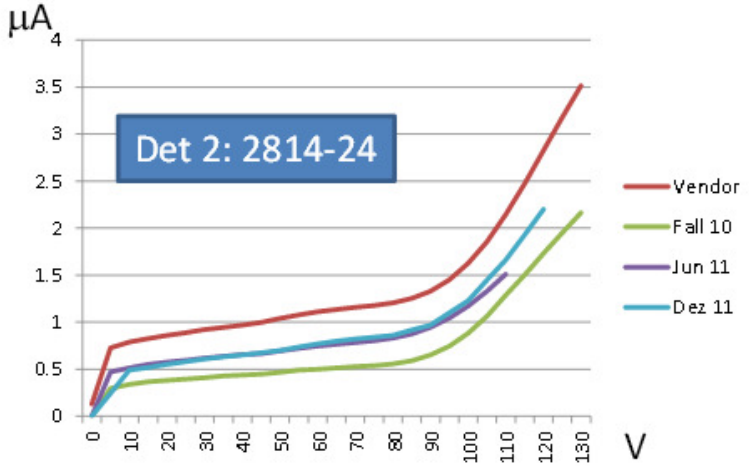
Pion tracking implementation

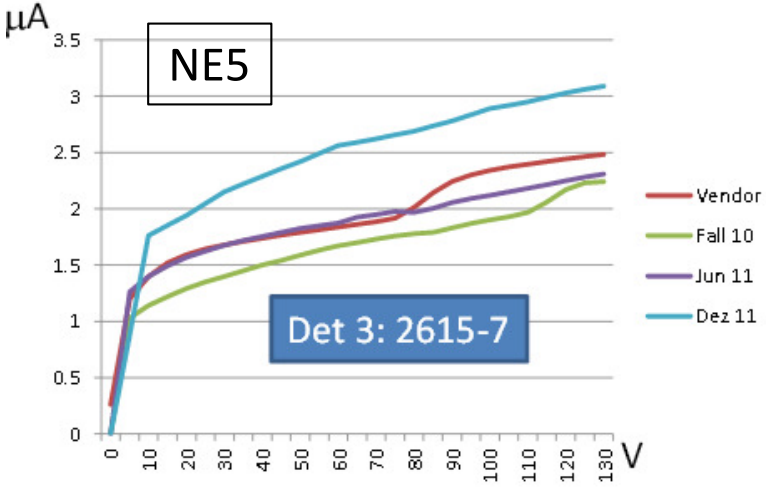
- The Hydra2 svn code and Pion Tracker code are synchronised in my local svn copy.
- Ilse and Jochen are checking it.

Leakage current

Leakage current



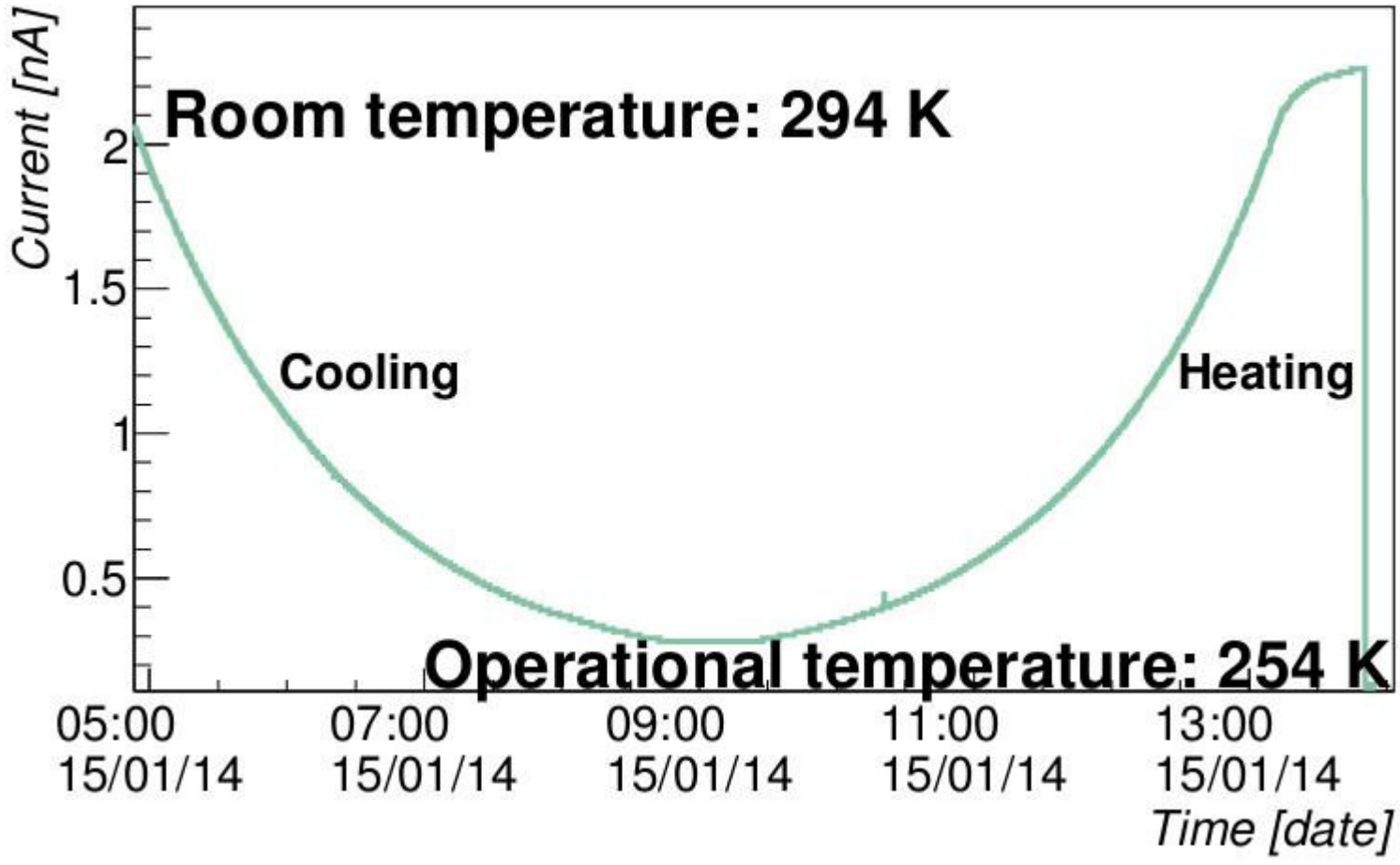




Det 3: Used for Munich Beamtime (Jan11)
Det 2: Used for Julich Beamtime (Mar11)

Further checks of Det 3

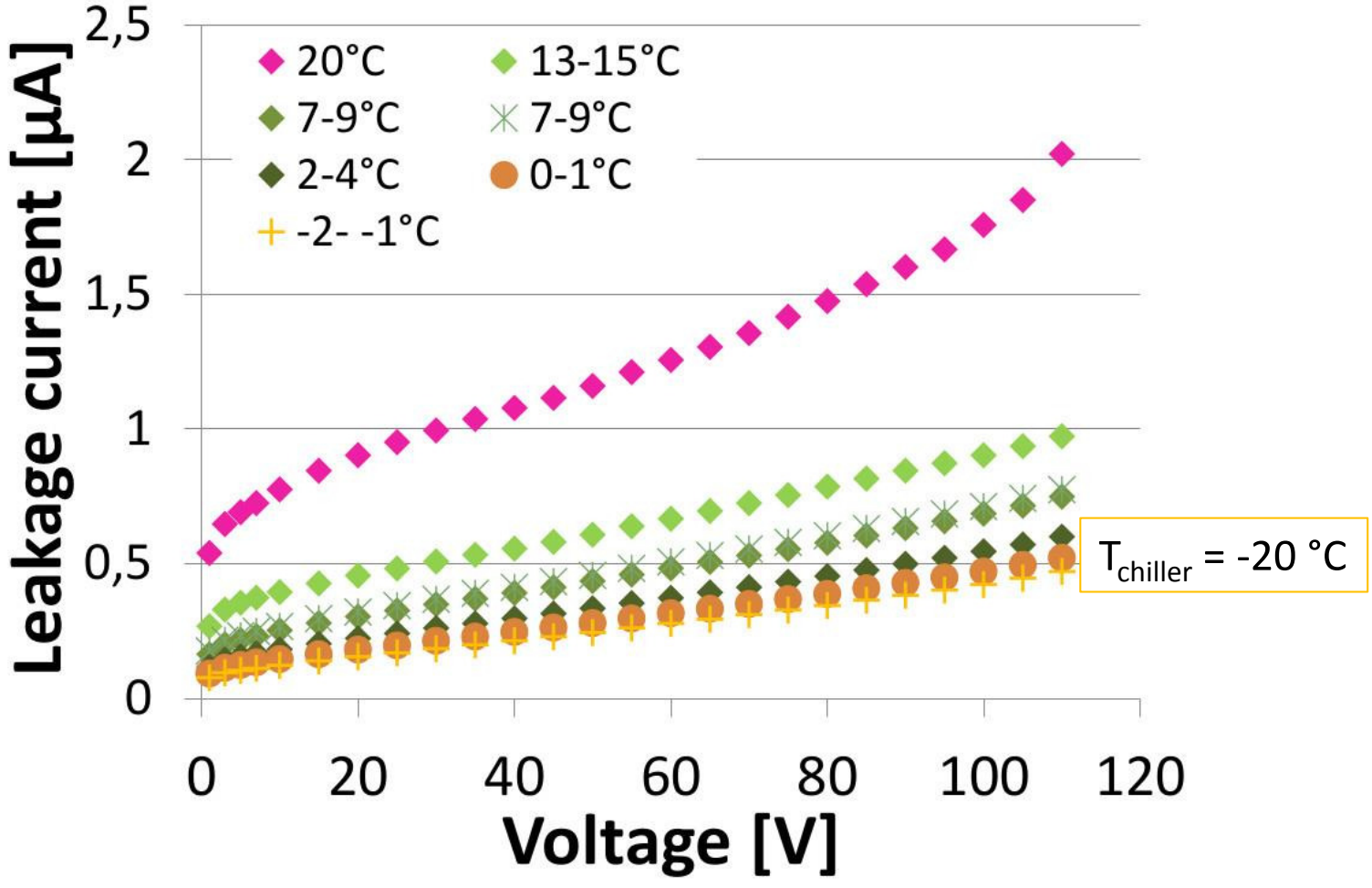
NE5 detector



→ no leakage current/voltage curve before mounting in NE5 due to leak problem...

HADES detector

before humidity problem/kindersarg



HADES detector

Kindersarg/Prototype

- 20 °C: leakage current ≈ 2 µA
- -20°C: leakage current ≈ 0.5 µA

Final system

- 20 °C: leakage current ≈ 2.5 µA
- -20°C: leakage current ≈ 1 µA

Further check needed...

- After bathing no curve was written down? (after 15.11, end of Nov, beginning of Dec)
- Check data between 6.-12.1