

PS IPM news

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PS LIU meeting
CERN, 2014-07-29

Outlook

1. News from designers meetings
2. Timepix1 vacuum measurements

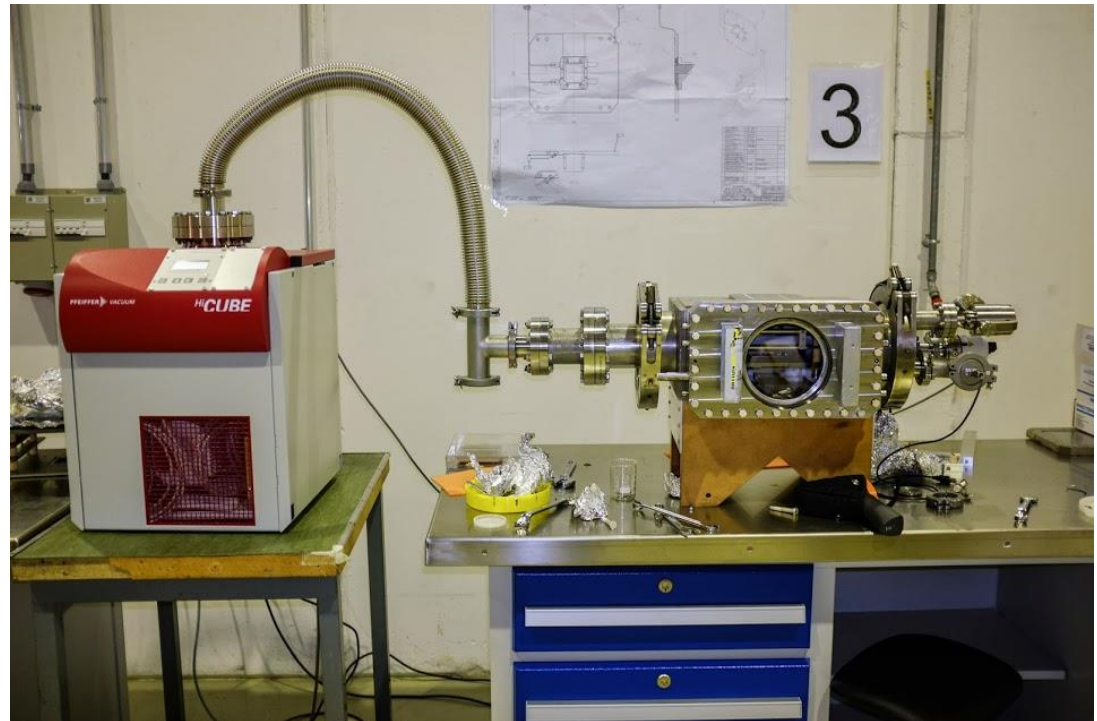
Designers meetings

1. Didier Steyaert organizes weekly designers meeting on Mondays.
2. Participants: Didier, Romain Ricol, BI/ML representative, myself.
3. Romain designed a first version of vacuum tank based on dimensions defined by aperture and HV requirements.
4. A company making feedthroughs capable to send high-speed signals was found (Positronic).
5. After discussion with cooling experts: cooling of the detector needed down to about 0 centigrades, peltier elements or simple fluid cooling. In any case a chiller needed in the tunnel – another radiation-sensitive element.

Vacuum measurements

Proof of principle:
measurements of
3-5 keV electrons
using 100 μm sensor
with Timepix1

Lab setup

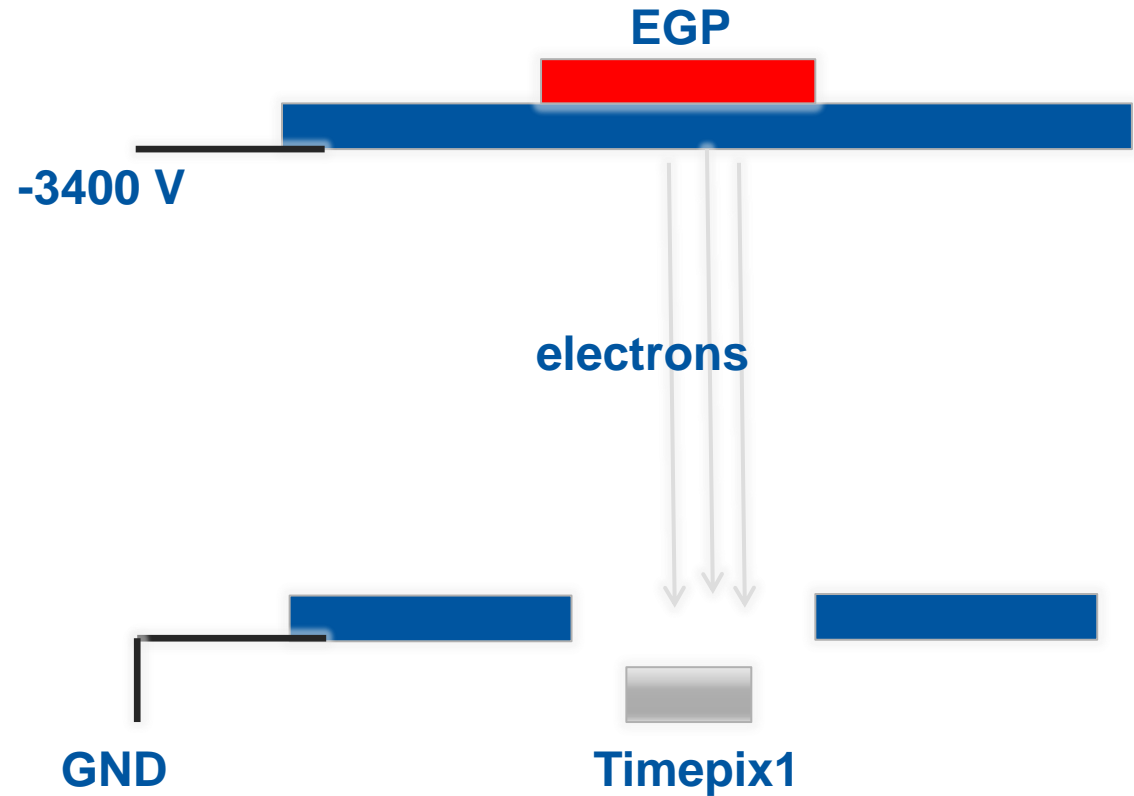


Vacuum measurements

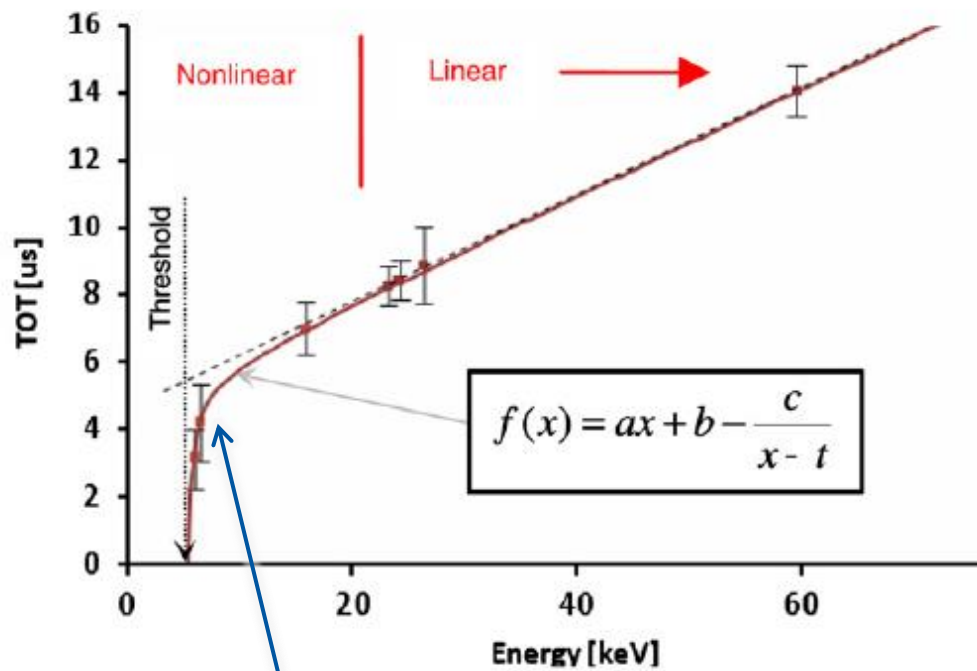
Operational conditions:
-20 kV, cannot be
achieved with our setup

Some structures inside
vacuum were activated:
- background

Timepix read via USB
feedthrough



Vacuum measurements



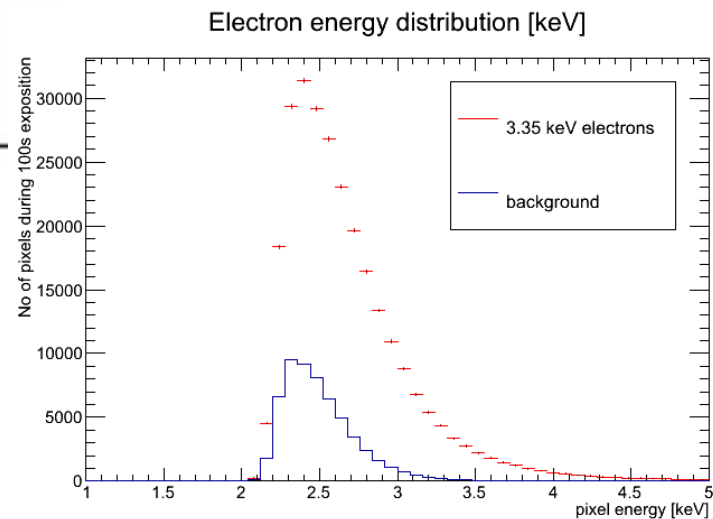
Large uncertainty of low energy calibration
Jakubek, Precise Energy Calibration of Pixel
Detector Working in Time-over-Threshold
Mode. NIMA (May 2011).

First results: electron clearly
visible, also after 16 hours
(stability)

Why energy shift?

- bad vacuum,
- calibration?

We work close to the detection
threshold!



Thank you for your attention