



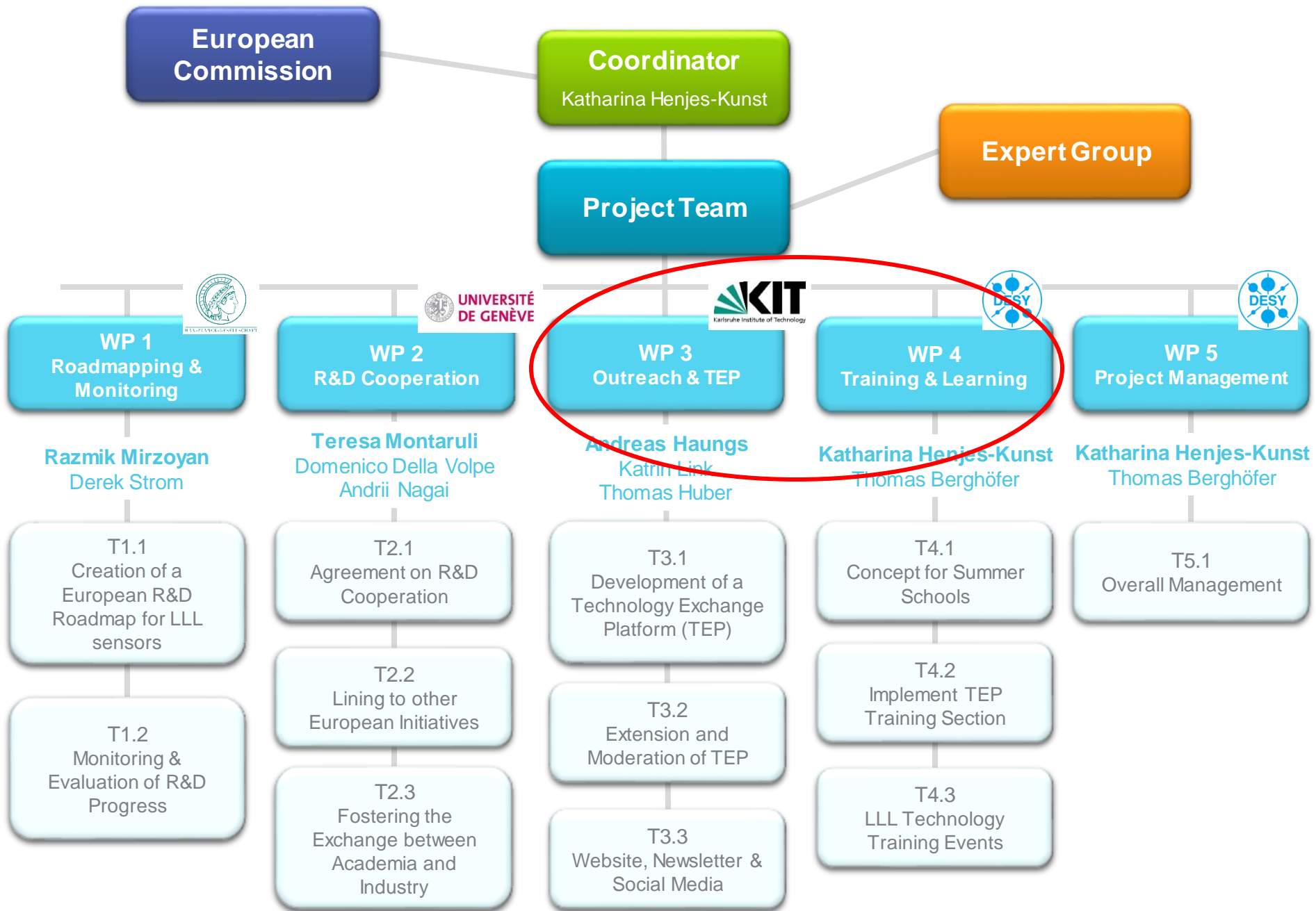
Ultimate Low Light-Level Sensor Development



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Outreach & Communication

Katrin Link, KIT & Katharina Henjes-Kunst, DESY



Website

Maintenance needed

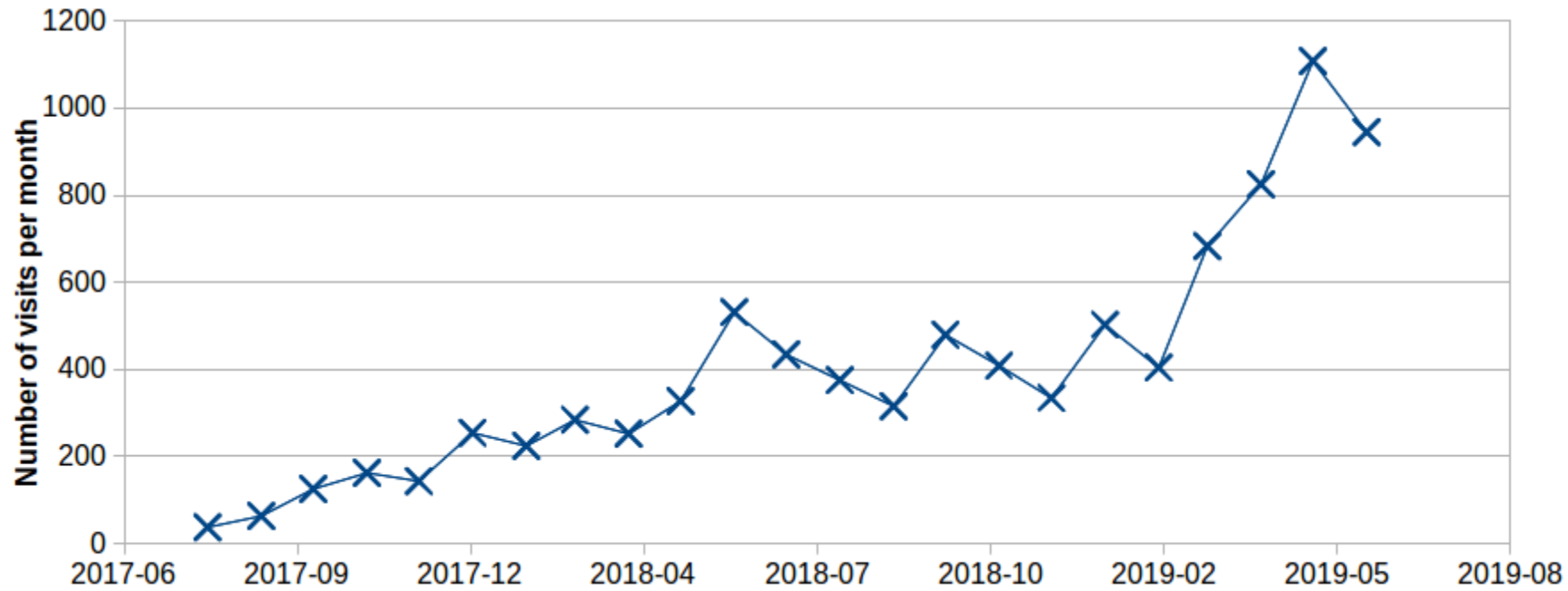
Static information

- Home
- News – News, Events, Calendar
- LLL sensors – A coordinated approach, Photomultiplier Tubes (PMT), Silicon photomultipliers (SiPM), More LLL sensors
- About – Objectives, Organisation, Experts Group
- Portraits – Experiments, Test Facilities, Initiatives, Experts Group
- FORUM
- Documents – Roadmap, Roadmap Flyer, Brochure, SiPM database








Website - Usage

- Website www.sense-pro.org



Website - Usage

- Most visited pages: **News**, LLL sensors (PMT) and Forum

COUNTRY	CONTINENT
 Germany	Europe
 United States	Asia
 India	North America
 Italy	Africa
 Russia	South America





Newsletter

- 5+1 Newsletters - <https://www.sense-pro.org/newsletter/archive>
 - Portraits
 - News
 - Events
 - Papers
- 80 subscribers

5th SENSE Newsletter

This e-mail contains graphics, if you don't see them » [view it online.](#)



Ultimate Low Light-Level Sensor Development

Newsletter 10 April 2019

Dear Visitor,

we are currently busy with the preparations for the SENSE Detector Mini-School. The school will take place from 19 – 22 June at the Ringberg Castle in Germany. It aims to inform about the forefront developments on low light-level detectors and the participation of 25 PhD students is sponsored by SENSE. Please promote the school to your students and colleagues. Application for the school is open until 3 May 2019 with a letter of motivation, more information here: <https://indico.cern.ch/event/791832/>

We are also planning the final meeting of SENSE, which will take place on July 10th – please save the date since we have less than 5 months left... We are currently deciding on the location.

In February we had a very successful Experts Meeting with discussions on the Roadmap and on the continuation of SENSE. We got new input for the Roadmap which will be implemented for the final version.

We also want to use this newsletter to introduce three of our experts: G. Bonanno, A. Formozov, and S. Vinogradov.

You can find a portrait of the detector and front-end laboratory of the ICCUB, where our expert David Gascon from Barcelona is working.

Colleagues from Geneva built a Mini-Telescope for Cosmic Rays which they use for Outreach and for testing their large SiPMs.



Conferences, Schools ... Participation

- TecDays, Geneva
- NDIP
- Mount Elbrus Conference: from Deep Underground up to the Sky
- LIGHT '17
- PRISMA school
- DPG 2018
- CERN school for Ukranian Teachers
- Pisa Meeting
- ICSiPM
- MAGIC Hardware School
- Extended European Cosmic Ray Symposium (E+CRS 2018)

- TESHEP summer school
- TeVPA
- Nuclear physics in stellar explosions Workshop
- Astroparticle Physics in Germany
- Astroparticle School Obertrubach
- IEEE
- International Workshop on New Photon-Detectors PD18
- DPG 2019
- Baksan School "Particles and Cosmology"
- ICRC 2019



Conferences, Schools ... Participation



Published Papers

- *SENSE: A comparison of photon detection efficiency and optical crosstalk of various SiPM devices*, A. Nagai et al., NIM A, Volume 912, 21 December 2018, Pages 182-185, <https://doi.org/10.1016/j.nima.2017.11.018>
- *SENSE - Ultimate Low Light-Level Sensor Development*, G. Bonanno et al., J. Phys.: Conf. Ser.1181 012082, 2019, <https://doi.org/10.1088/1742-6596/1181/1/012082>
- *Characterisation of a large area silicon photomultiplier*, A. Nagai et al., arXiv:1810.02275
- *SENSE, a roadmap for the ideal low light-level sensor development*, Henjes-Kunst, Link, Montaruli et al., Impact, Volume 2018, Number 5, August 2018, pp. 42-44(3) <https://doi.org/10.21820/23987073.2018.5.42>



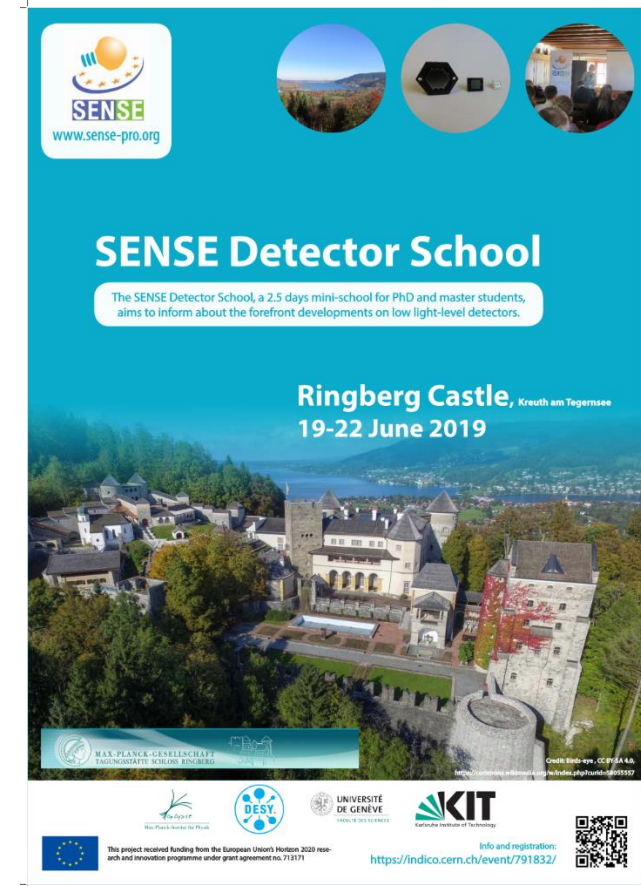
Training & Learning - Summer schools etc.

- Lectures/practical sessions :
 - MAGIC hardware school
 - TESHEP summer school
 - Baksan School
 - Astroparticle School Obertrubach
- SENSE introduction:
 - PRISMA school
- TecDays and IceCube Masterclass, Geneva



SENSE Detector School

- 2.5 days mini school at Ringberg Castle
- Lectures and practical sessions, mainly by SENSE members and Experts



Thanks to all speakers!!



Training & Learning – experiments

- Show case experiments for students & pupils measuring cosmic muons
 - Setup with scintillating bars in Geneva
 - Setup with thermal cans in Karlsruhe, set of 10 cans and electronics for lending to schools or summer schools currently under preparation



Training & Learning – experiments I

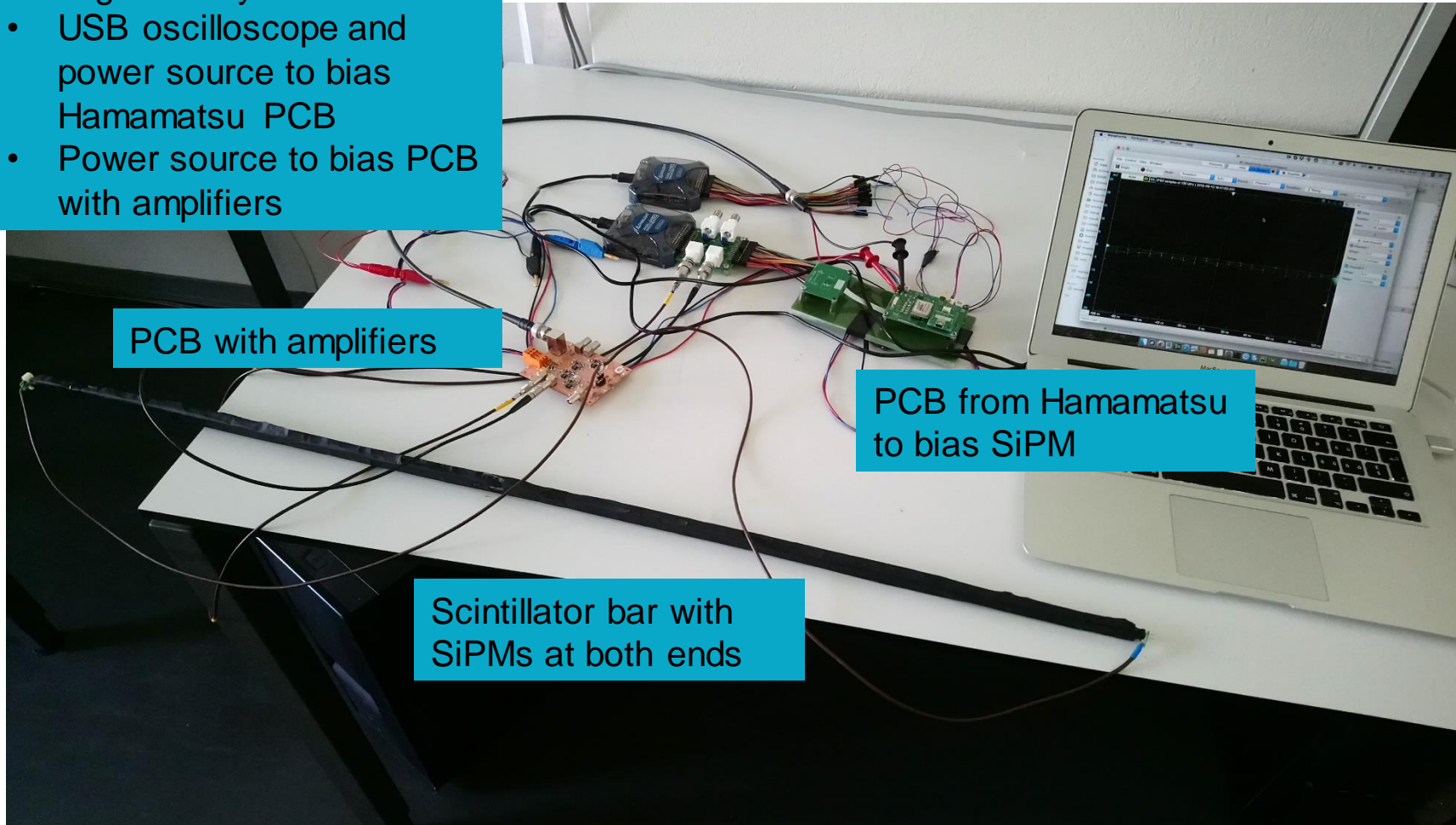
AnalogDiscovery 2

- USB oscilloscope and power source to bias Hamamatsu PCB
- Power source to bias PCB with amplifiers

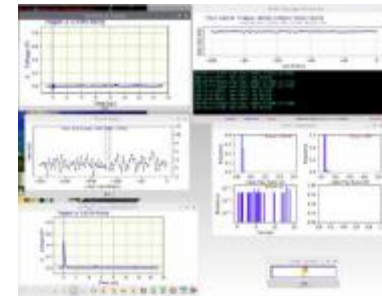
PCB with amplifiers

PCB from Hamamatsu to bias SiPM

Scintillator bar with SiPMs at both ends

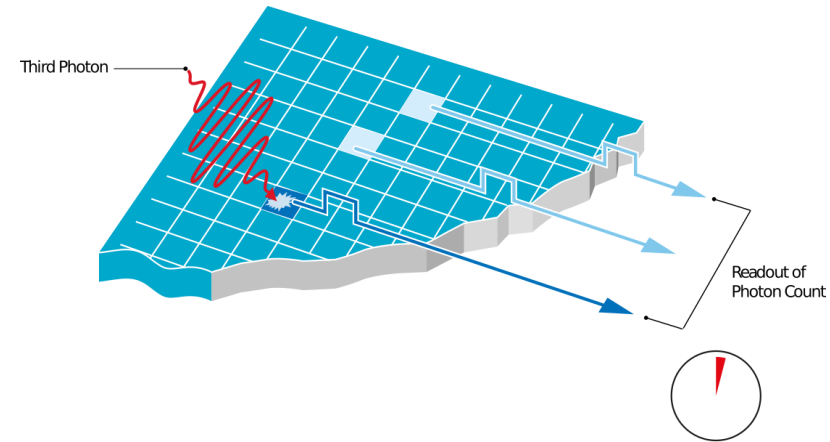
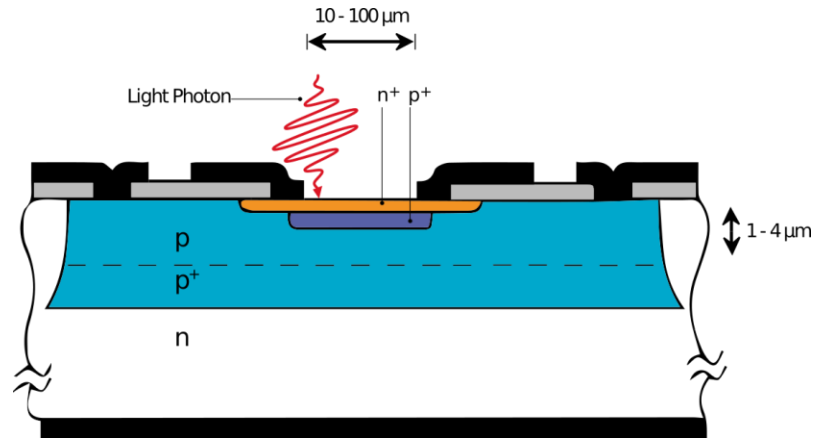


Training & Learning – experiments II

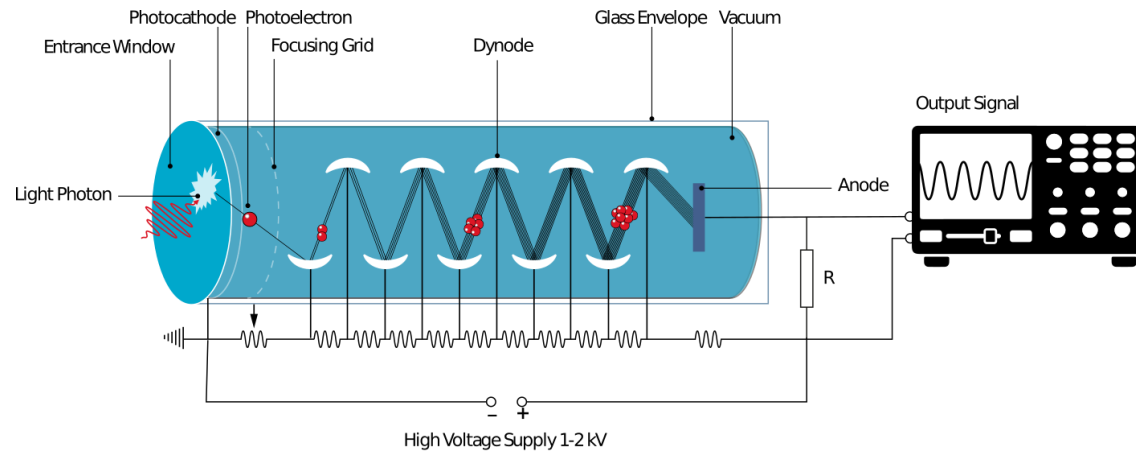
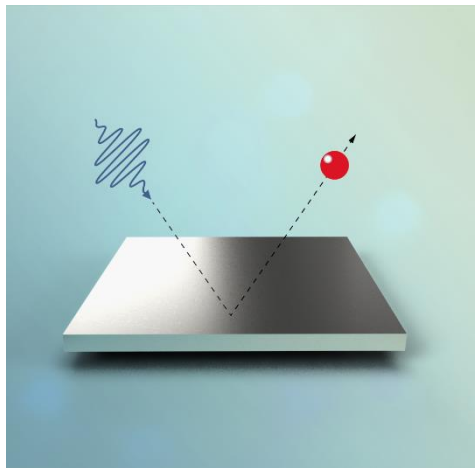


Training & Learning – Videos

SiPM



PMT



Still under preparation... should be published on the website



Training & Learning – How to continue

- Add Training & Learning section to website with
 - Lectures
 - Contact information
 - Videos



Training & Learning – How to continue

- Provide lecture about photosensors (from Baksan School or Detector School) for download
 - Talks from Detector School on specific topics
 - Talk from Baksan School as overview
 - Record talks and provide videos?
- Provide contact to experts for summer schools
 - Table of experts who are willing to give talks at schools with contact information
- Provide show case experiments for practical sessions, schools, other Outreach events
 - Set of thermal cans from KIT can be borrowed



Training & Learning – How to continue

- Continue regular Detector Schools?
- PhD network with regular meeting?
- How could this be organized?

