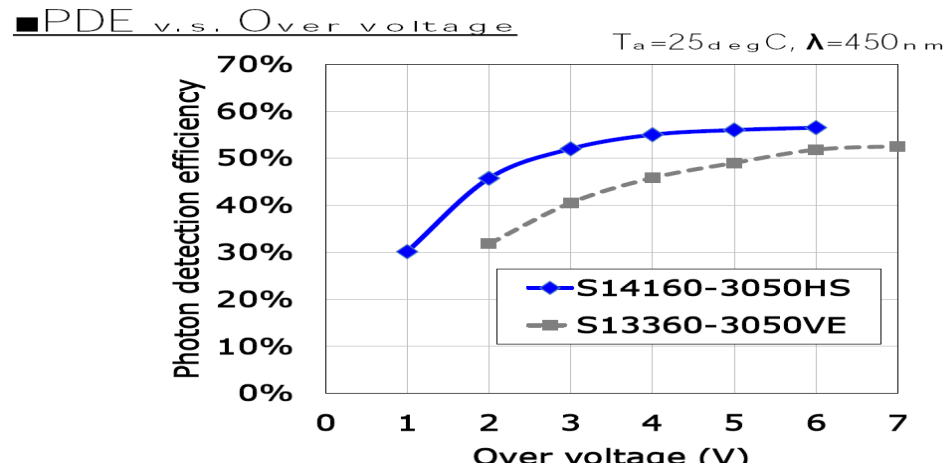
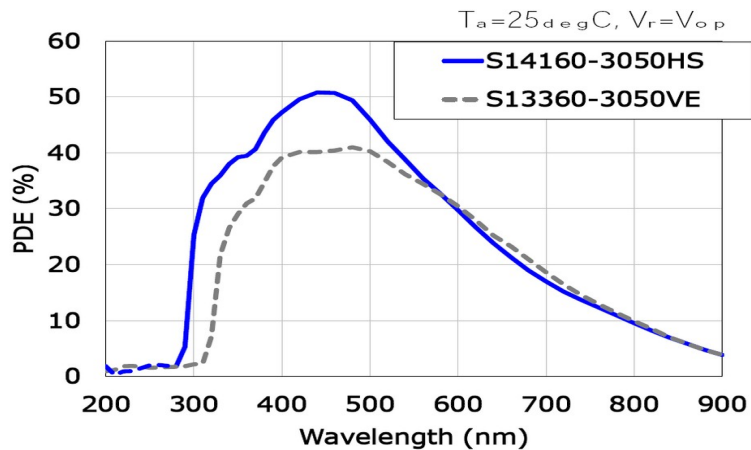
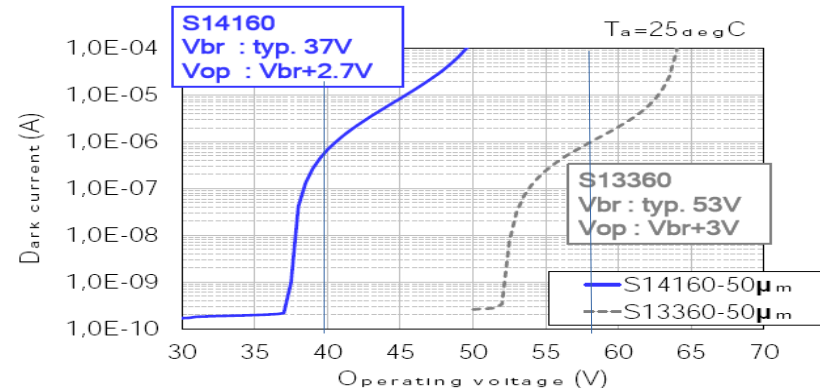
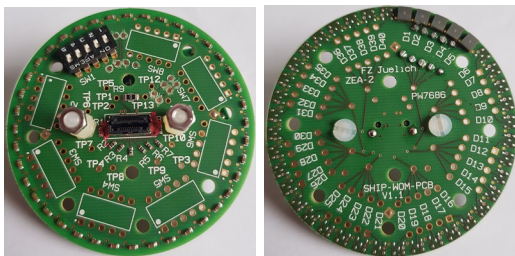


Increase of Signal-over-BG: SiPMs

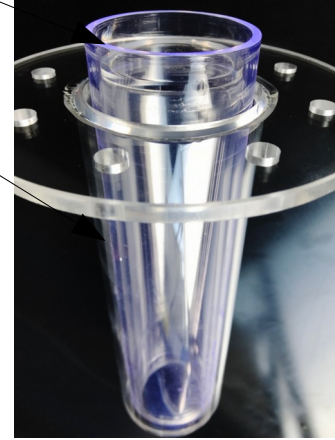


First full S14160-3050 SiPM PCB by Jülich under testing since beginning 2021



WOM and PMMA vessel design

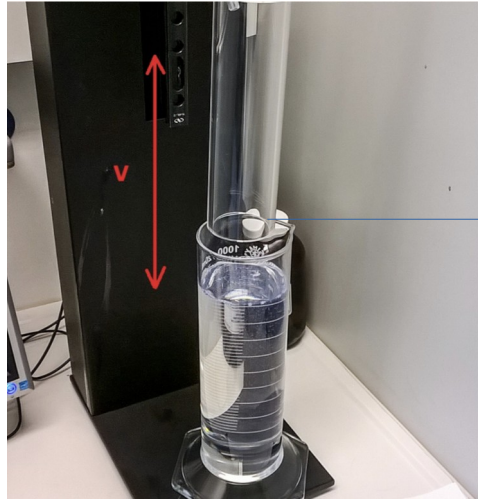
- **Transparency of WOM tube for visible light**
- **UV-transparency of PMMA vessel material**
- **PMMA vessel from one piece**
 - minimize risk for LS leakage
 - needed for pressure resistance in final detector
 - quite expensive for R&D phase: converge first for final design
 - Need to decide what to use for
 - a) 4-cell test detector
 - b) Full-ring demonstrator



Length depends on LS thickness



WOM and PMMA vessel design



WOM dip-coating with WLS dye

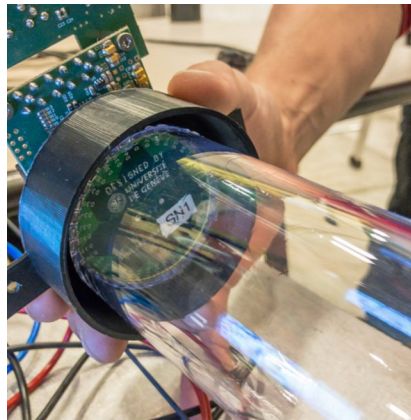


Dip-coated WOM tube

- * Sufficient dye thickness (Measurement?)
- * WOM capture efficiency measurements
- * Optimal PMMA material and treatment
- * Optimal coating procedure (also wrt stress)
- * Dye for alternative blue→green WLS

*** Optical coupling:**

- So far, optical gel
- Will try silicon gel pads
- For final detector: optical glue?



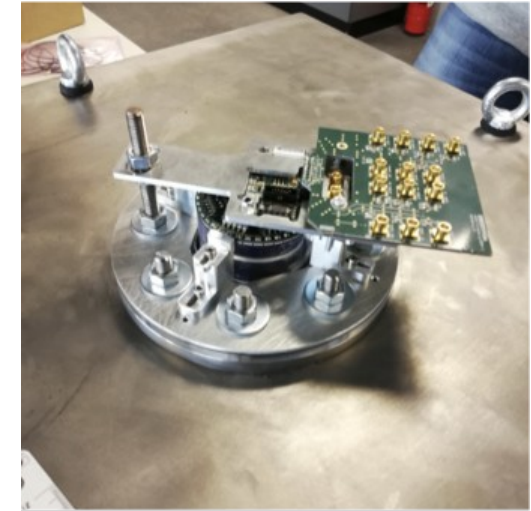
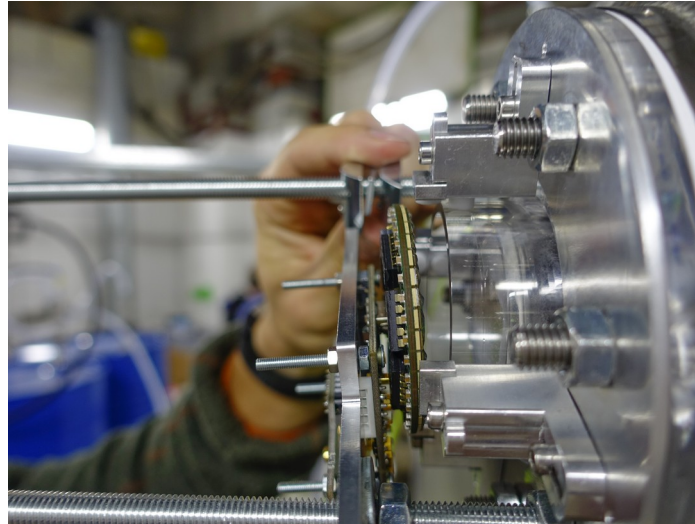
Optical coupling to 40-SiPM ring array

WOM/PMMA mechanical couplings

- **Defined WOM position inside PMMA vessel**
Better & controllable optical SiPM-WOM coupling
 - 1st solutions at DESY 2019 testbeam
 - Better „engineer“ solution for R&D phase needed
- „Mechanics“ in general (SiPM → FEE; cabling; heat removal; light-tight cover)



Bottom fixation of
WOM



Top fixation of WOM,
SiPM PCB and Music-board