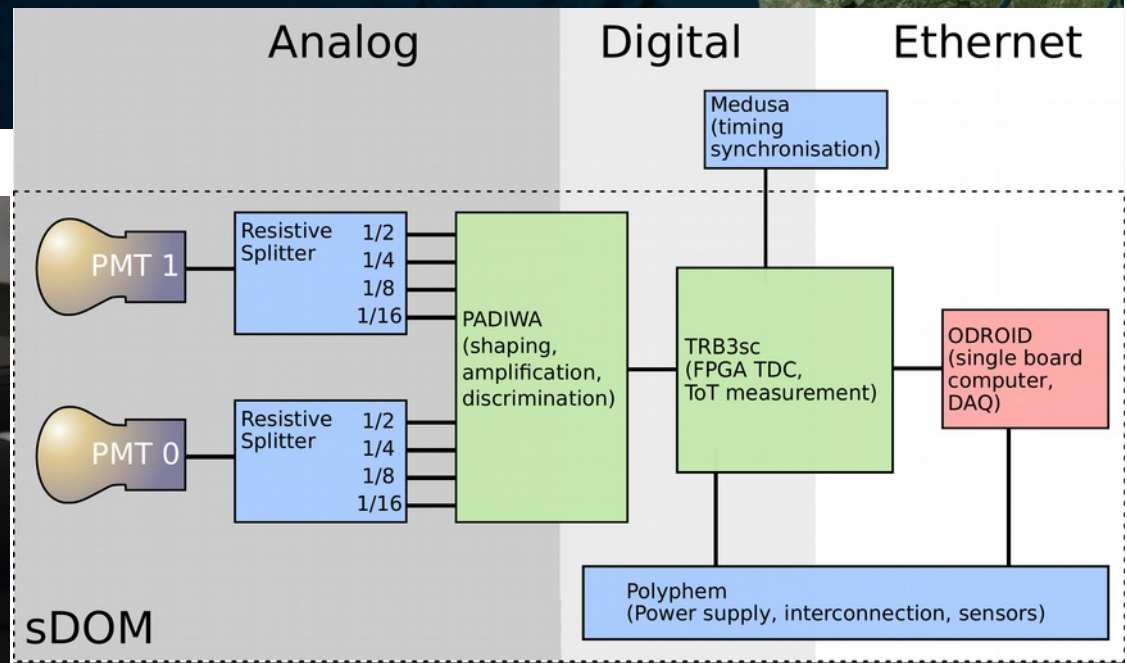
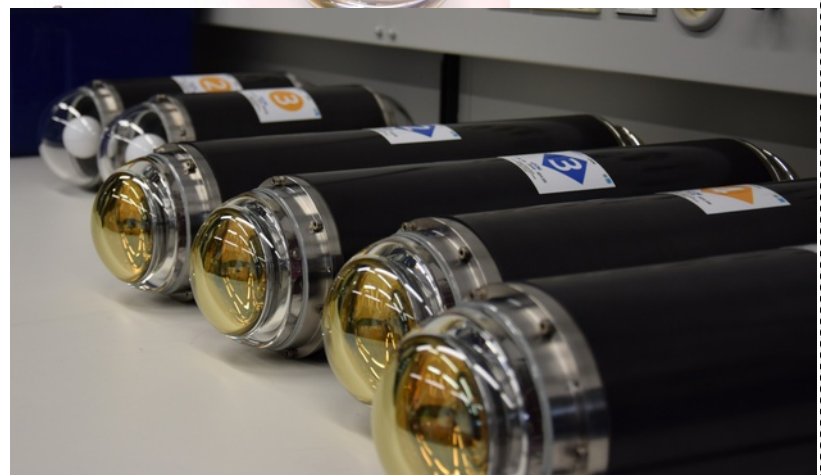
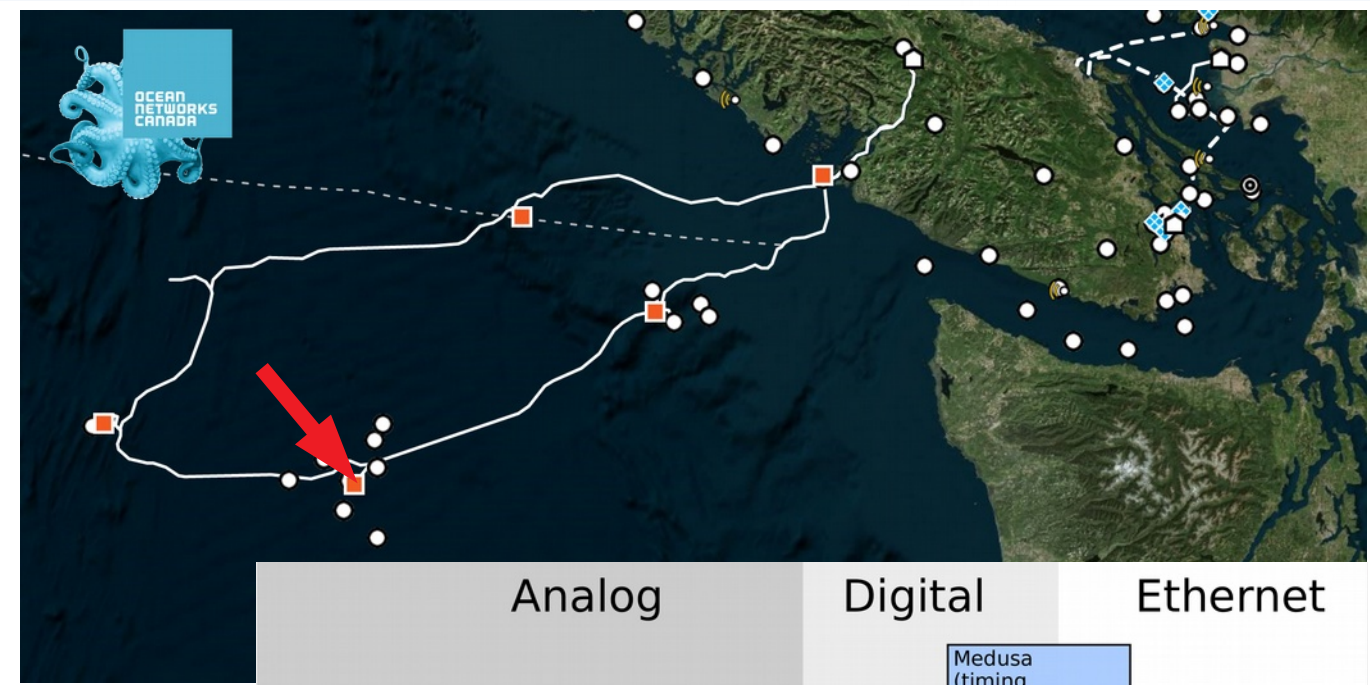
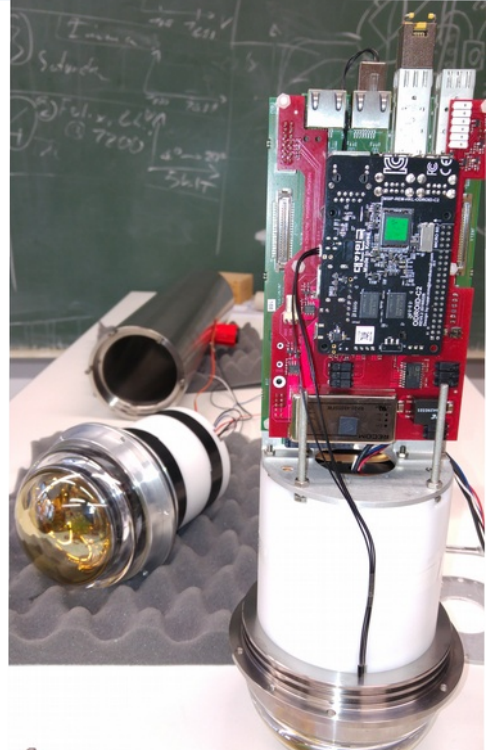
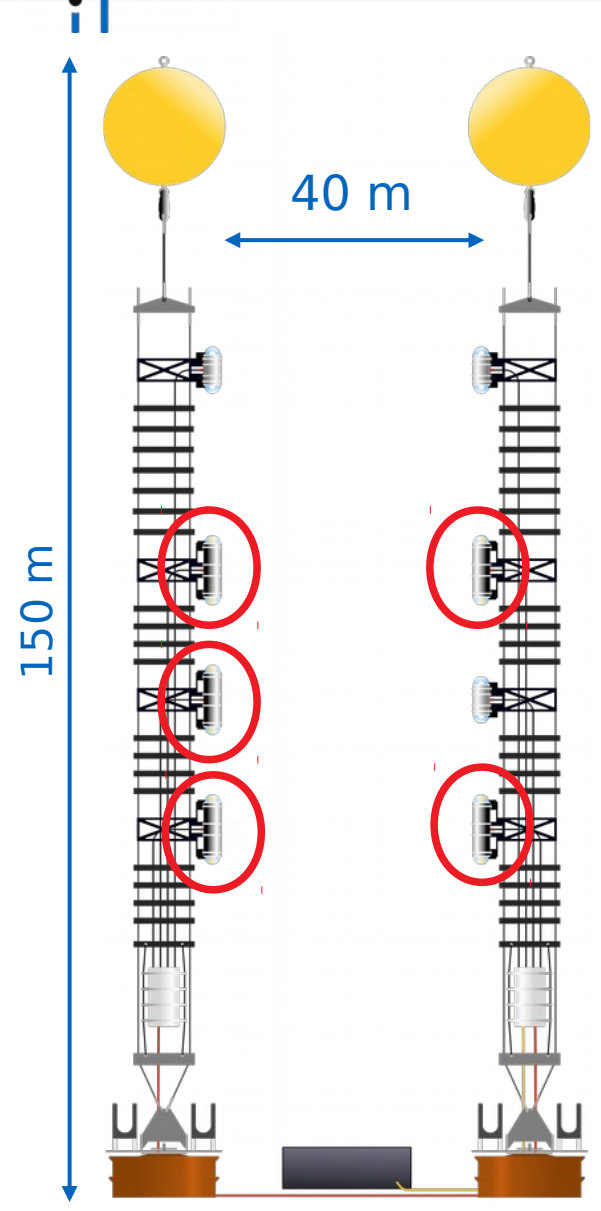


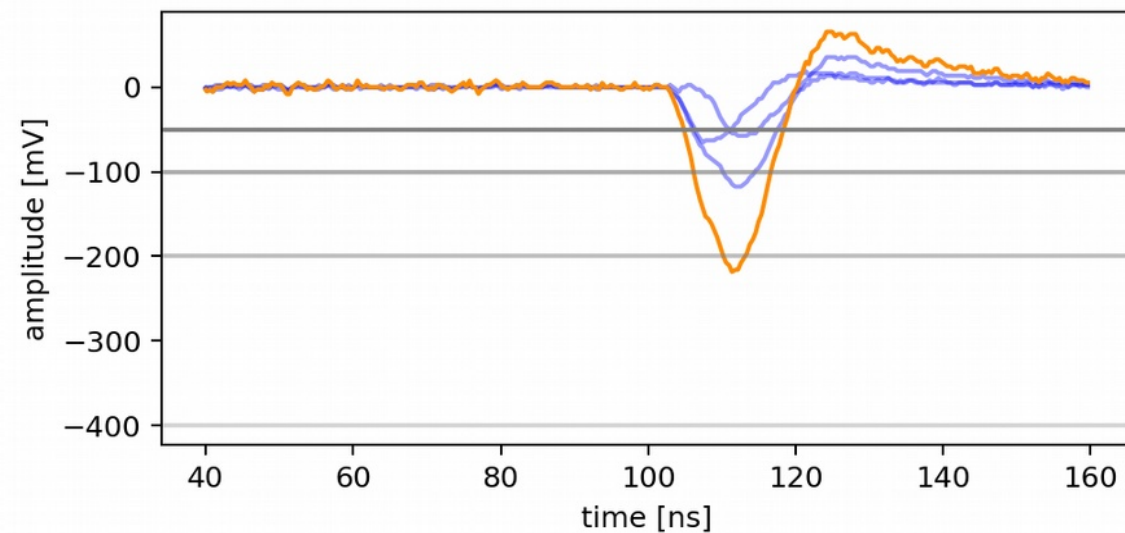
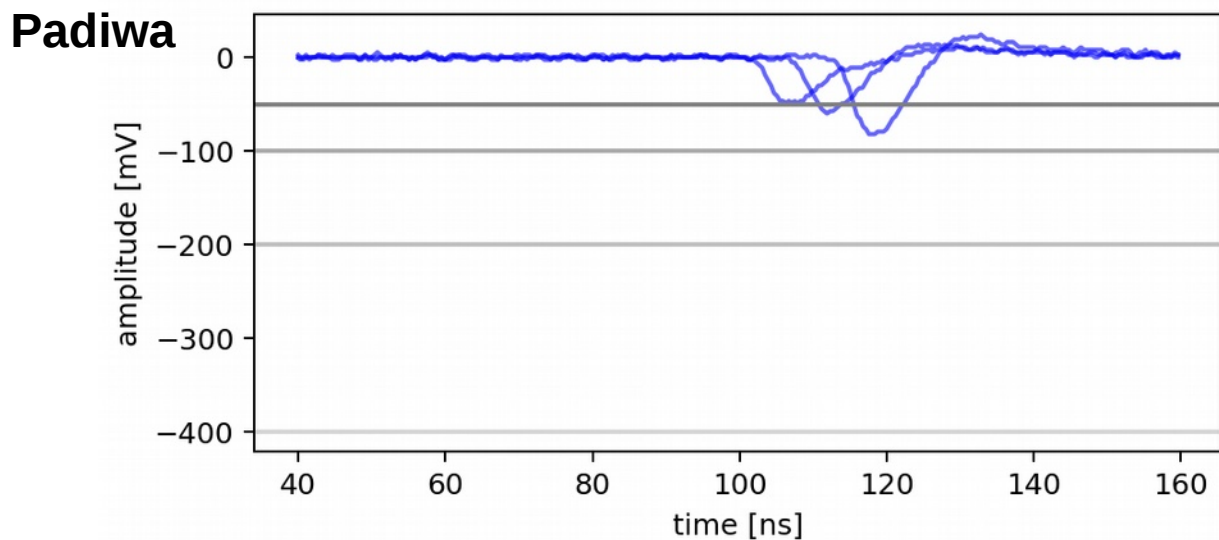
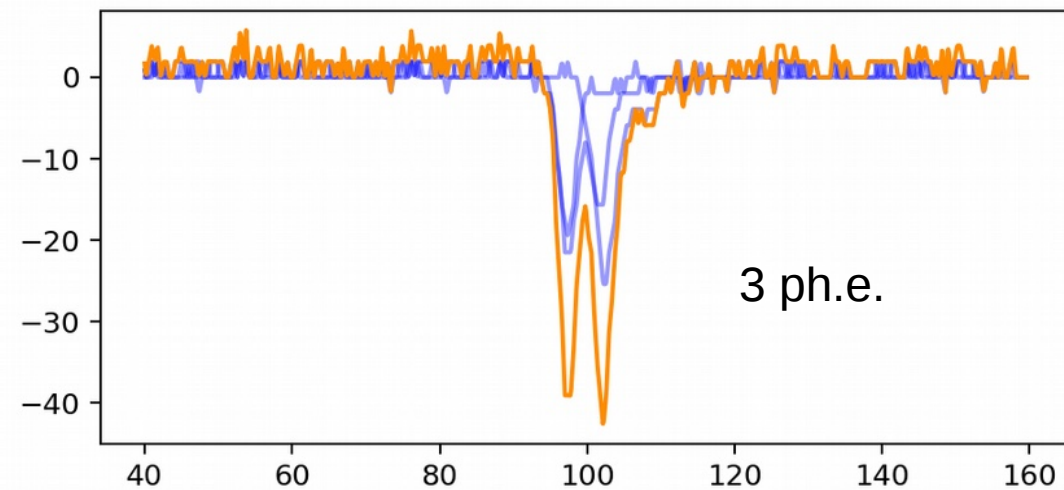
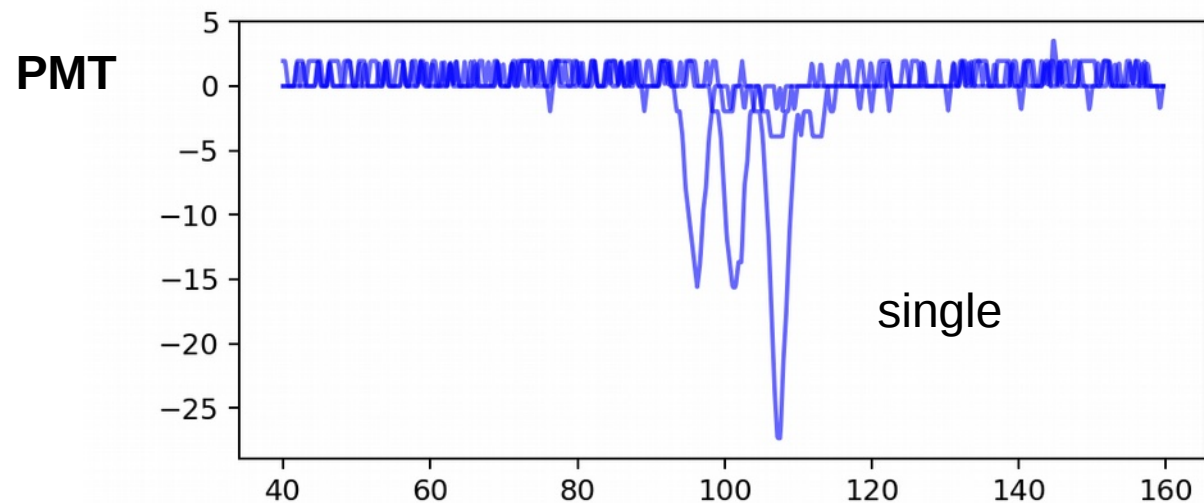


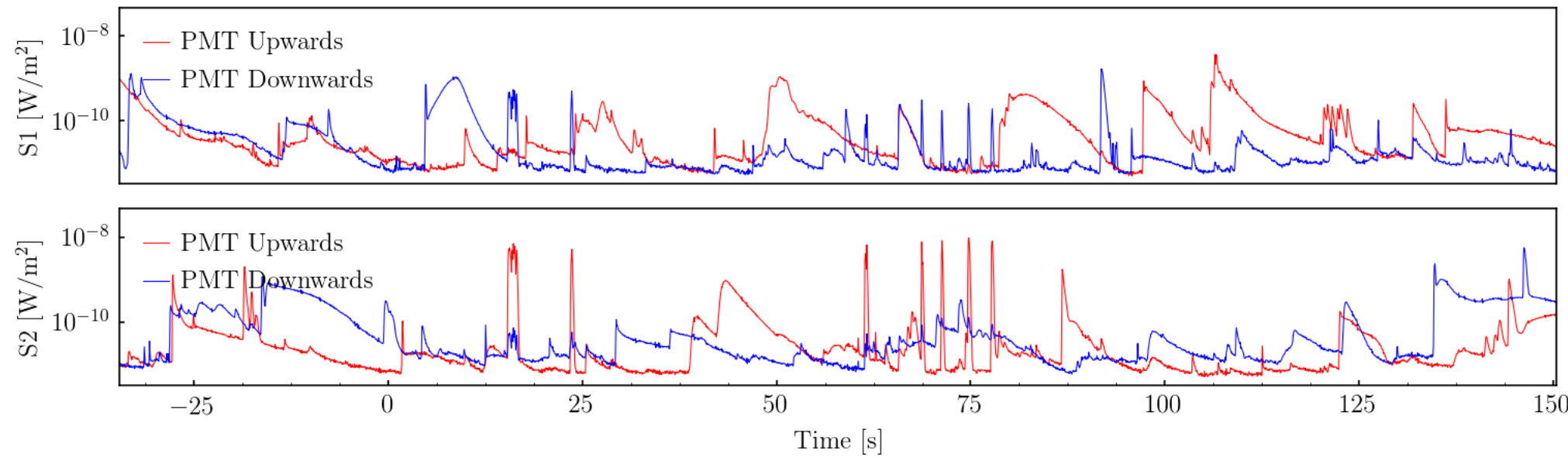
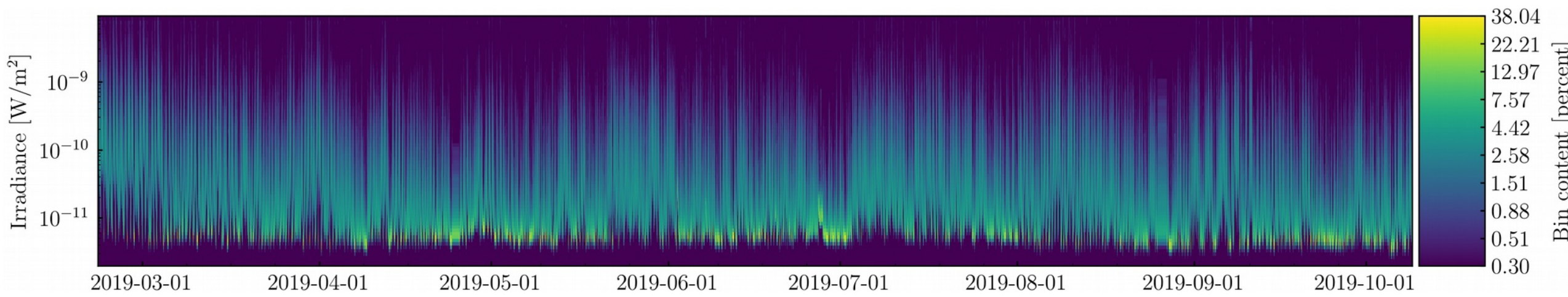
STRAW – STRings for Absorption length in Water

Bioluminescence

Christian Fruck
for the Munich STRAW team

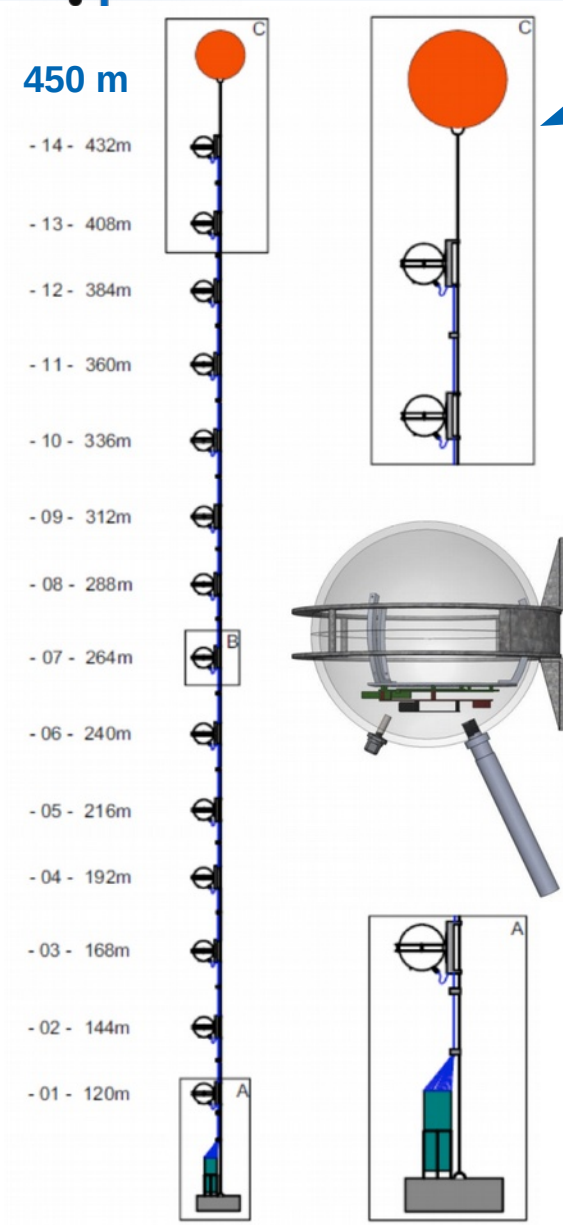






- (sub-)second scale time structures of different shapes

- flashes seen over tens of meters in different sensors

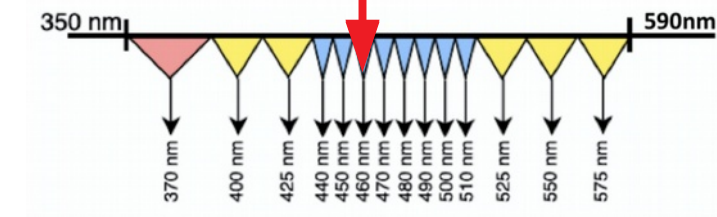
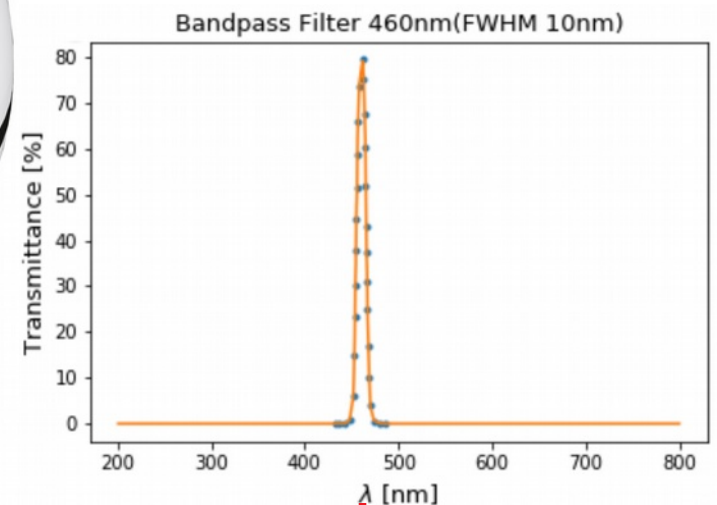


CMOS Camera:

- Originally developed for IceCube
- modified version of ArduCam
- 35 x 35 mm

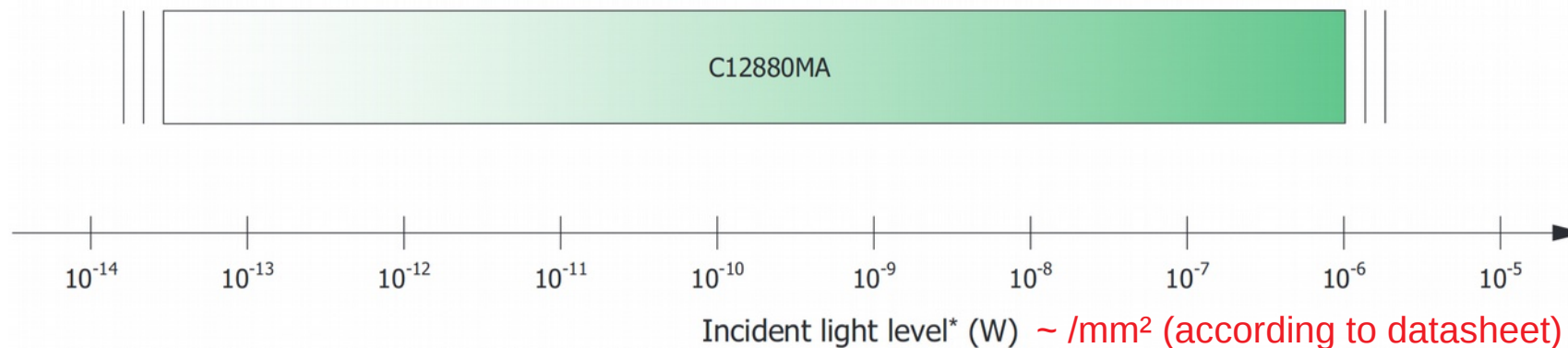
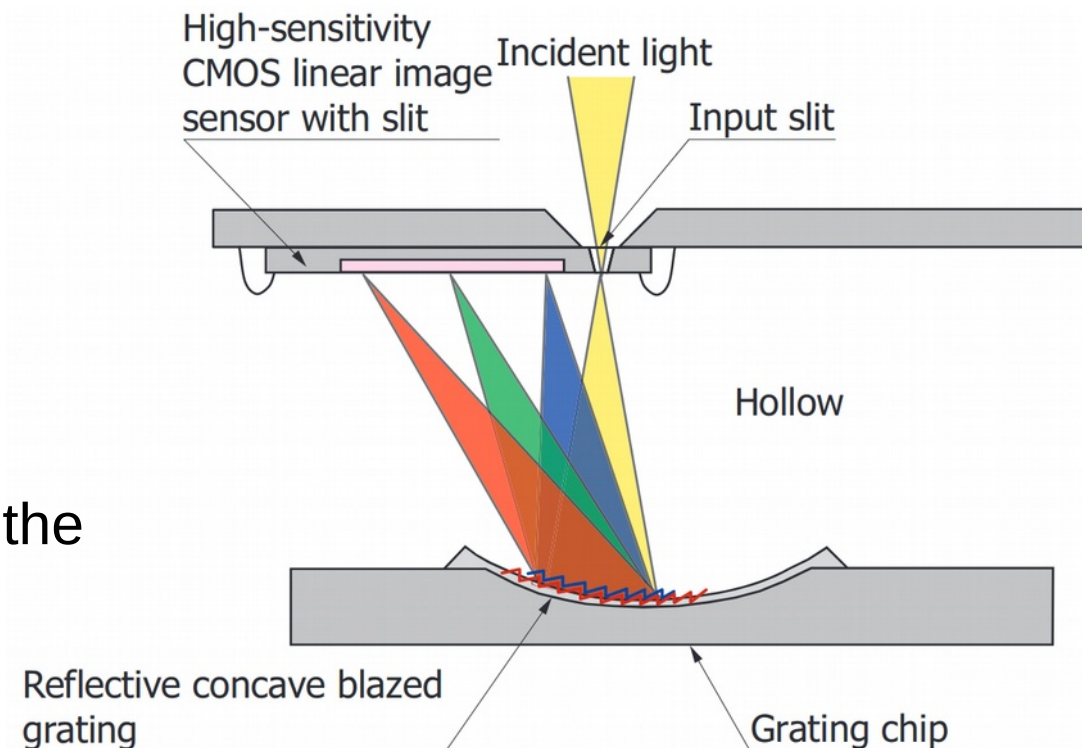
PMT spectrometer:

- 12 band-pass filters
- HAMAMATSU R1924/5 PMTs
- TDC readout





- Will be included in **all** of the STRAW modules
- Only sensitive to **bright bioluminescence**, where the PMT spectrometer already starts to saturate
→ **increasing dynamic range**
- range **340 to 850 nm**
- **15 nm** resolution





- If you are working on bioluminescence and are interested in **long-term measurements** with **excellent sensitivity** and **sub-second time resolution**, get in contact with us!
- We can also do minute to hour-scale runs with **nano second precision** if that makes any sense for that purpose.
- Micro-spectrometers might add additional information about the brightest phenomena.
- Details on our Hardware:
STRAW (STRings for Absorption length in Water):
pathfinder for a neutrino telescope in the deep Pacific Ocean
(M. Boehmer et al 2019 JINST 14 P02013)

