

Technische Universität München



258 Neutrinos Dark Matter Messengers

STRAW – STRings for Absorption length in Water

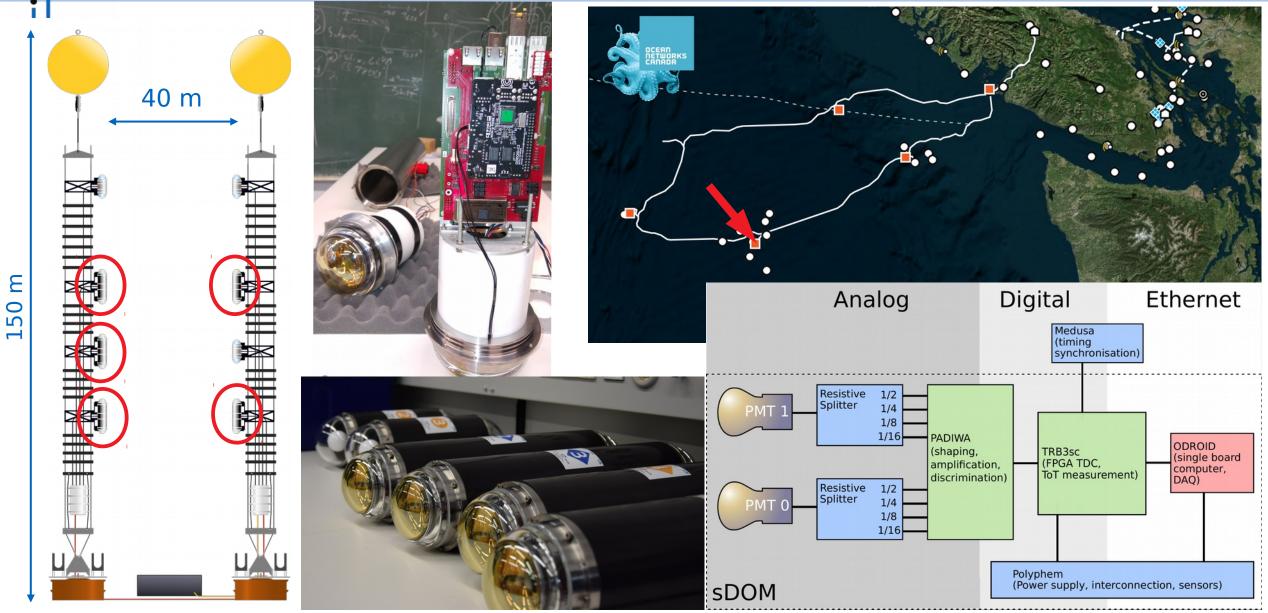
Bioluminescence

Christian Fruck for the Munich STRAW team



The STRAW light sensors (sDOMs)





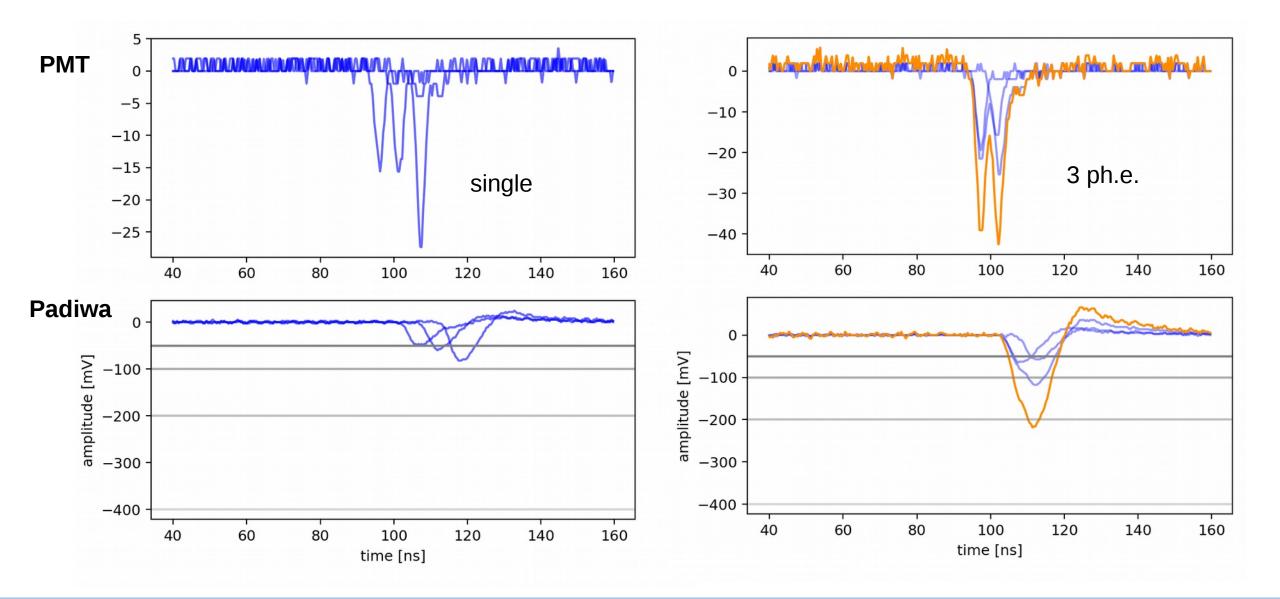
2019-07-22

Christian Fruck et al. – STRings for Absorption length in Water – P-ONE General Meeting, Edmonton, Alberta, Canada

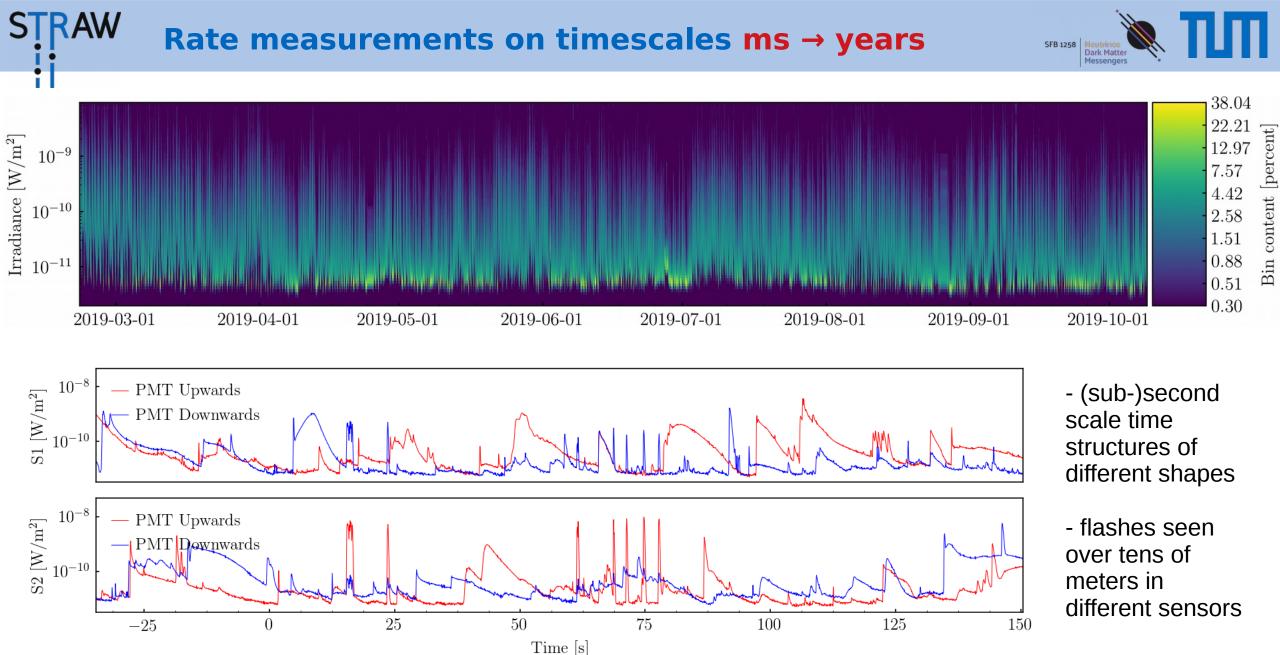
RAW

4-level ns precision TDC measurements





2019-07-22



2019-07-22



The **STRAW-b** PMT spectrometer





-12-384m

-11-360m

- 08 - 288m

- 07 - 264m

-06 - 240m

- 05 - 216m

- 04 - 192m

- 03 - 168m

- 02 - 144m

-01 - 120m













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renders:

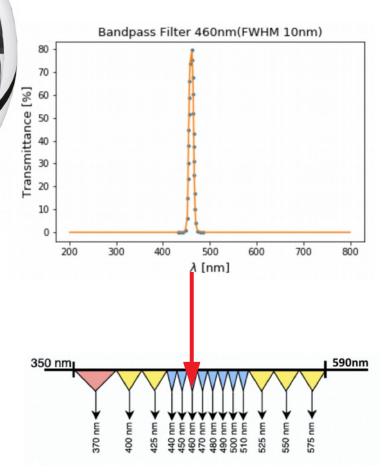


CMOS Camera:

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

PMT spectrometer:

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



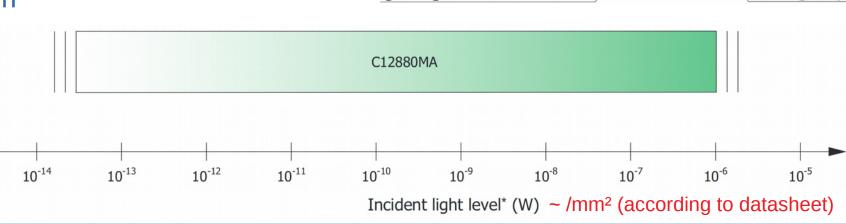
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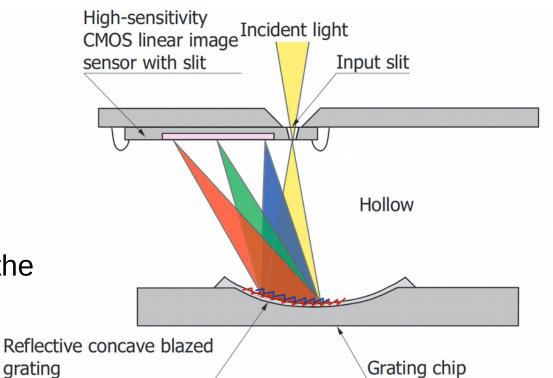
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The STRAW-b HAMAMATSU micro spectrometer



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





SFB 1258 Neutrinos Dark Matter Messengers



- 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.

Conclusions

- 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)



