PEN + ESR status update

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Funding

- Submitted request to the Foundation for Polish Science for:
  - 1.2M PLN (~275 kEUR) for the veto reflectors, PEN wavelength shifting film and production of the laminate
  - 0.5M PLN (~115 kEUR) for the vacuum evaporation hardware for general R&D (could be used for the TPB-based option if necessary)
- Decision expected at the end of 2019 or beginning of 2020
- Need to go through public tenders (should start Q1 2020)

PEN availability

- Up to 60 EUR/kg for Teonex Q83 (the most expensive grade): 13.5 kEur for 3285 m^2

Material	Thickness (um)	Standard width (mm)	Standard length (m)	Standard weight (kg)
Q53	25	670	3000	68.3
		1200	3000	122.4
	50	1370	3300	307.4
Q81	38	1260	4050	263.7
	50	1260	4050	347
Q83	25	1260	3000	128.5
	50	1095	3000	223.4

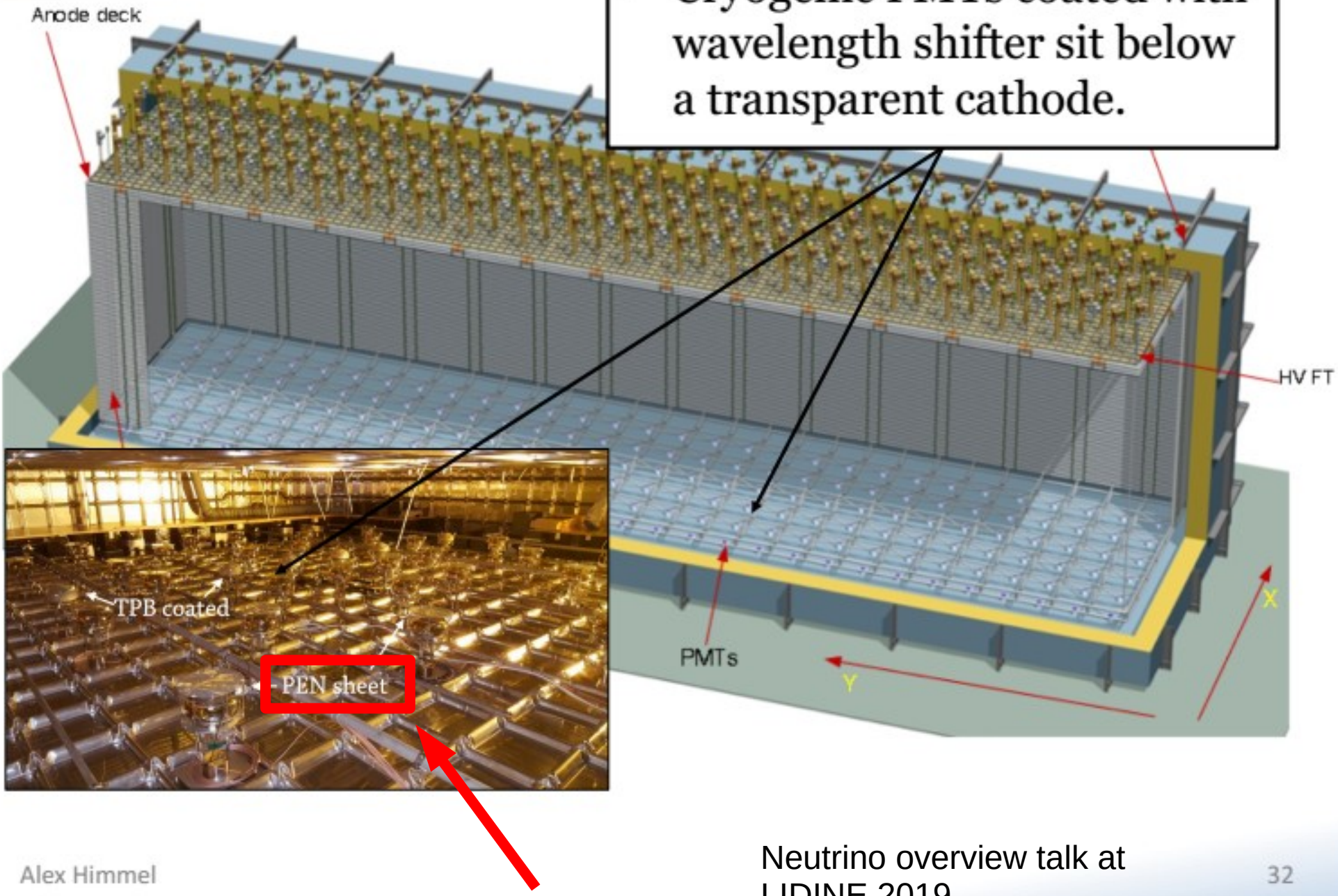
- Q83 (Q81) has the lowest heat shrinkage and is exclusively made to order by off-line annealing of Q53 (Q51)
- Which grade is the best for light yield / radiopurity and mechanical stability purposes?
  - Asked a local supplier for a set of samples

Large scale lamination

- Contacted a local manufacturer capable of setting up customized production
  - Starting from large format rolls
  - Orders in excess of 1000 m^2 are processed routinely
- Plan to visit their plant within the next couple of weeks to
  - discuss available options
  - provide sample for initial tests
  - ... which we could cryotest and assay for radiopurity then

Dual Phase Far Detector

- Cryogenic PMTs coated with wavelength shifter sit below a transparent cathode.



Alex Himmel

Neutrino overview talk at LIDINE 2019

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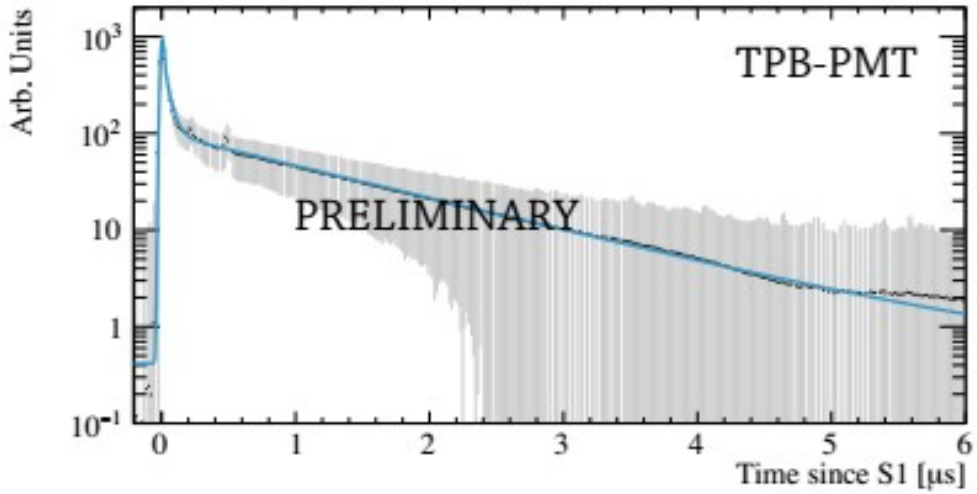
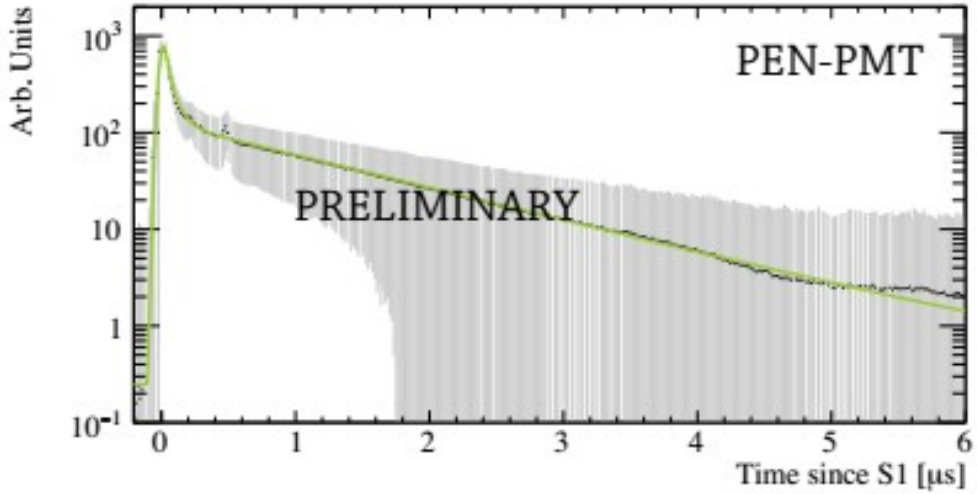
Preliminary averaged waveforms

No drift field applied



- First average waveform in LAr from PMT self trigger events - LAr purification system not yet activated

- Fitted with a gaussian convoluted with 3 exponentials [fast, intermediate and slow components]

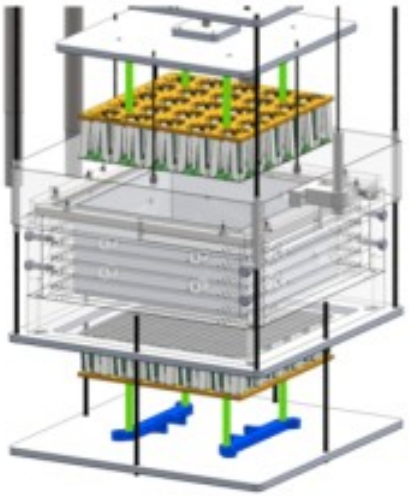


- Preliminary fit results suggest:
  - τ_{int} ~ 50-60 ns
  - τ_{slow} ~ 1280 ns

  for both WLS technology

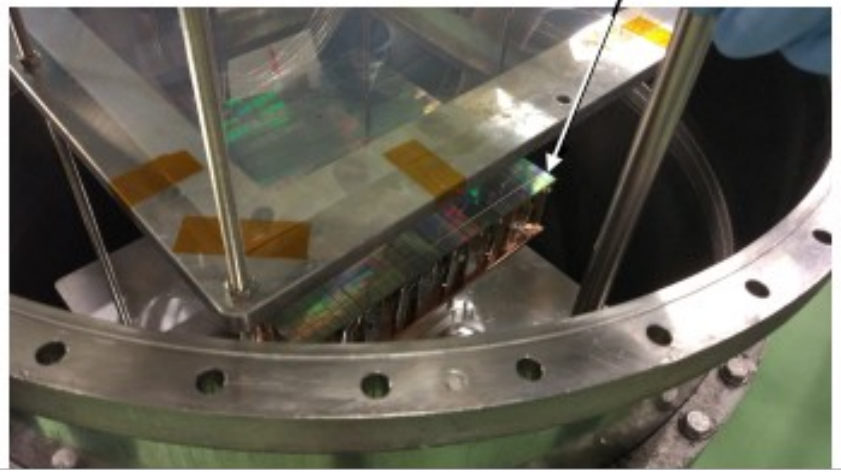
DS-Proto-0

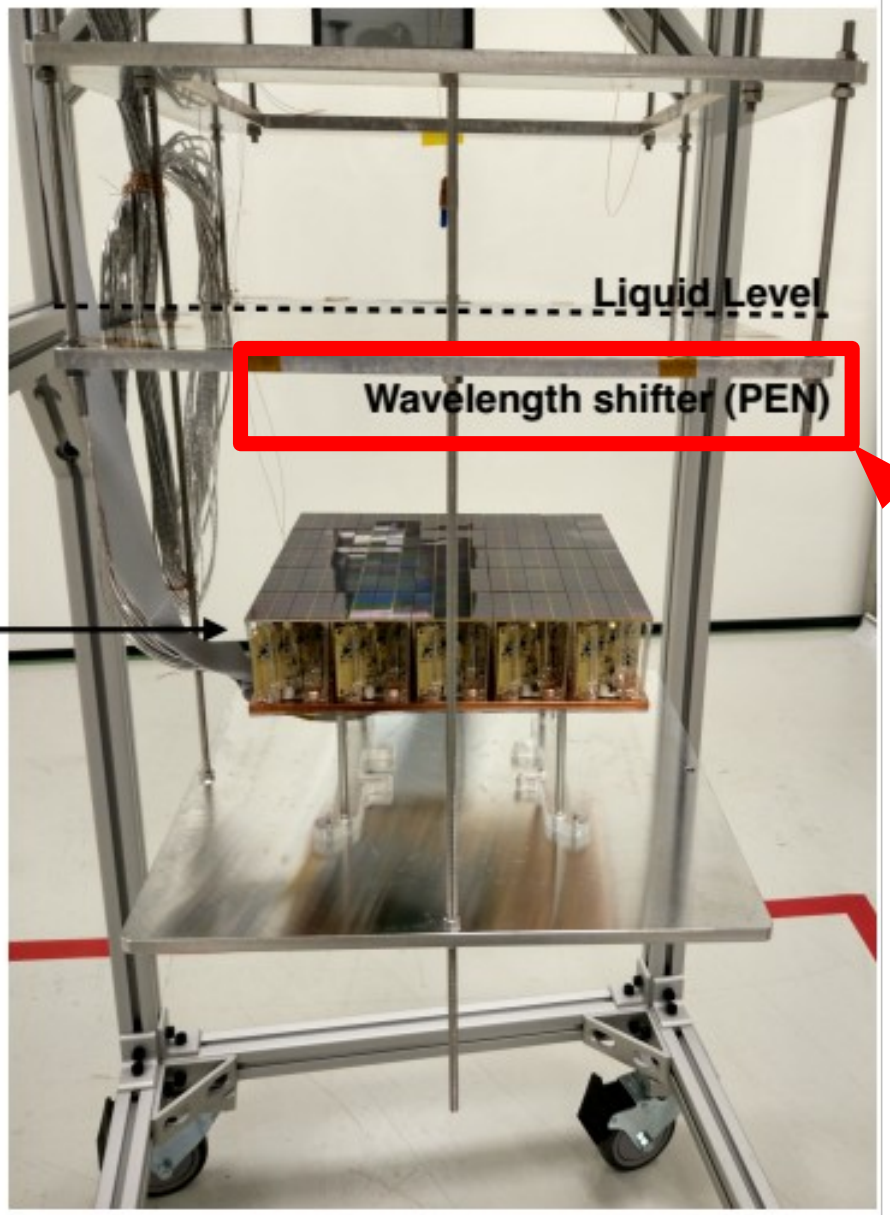
2 MB, 50 PDM,
1200 SiPM



First test: July 2019
Test of **1 M**other**B**oard
in **LAr**

MB1
NUV-HD-LF





F. Carnesecchi - LIDINE 2019 University of Manchester, United Kingdom 28-30 August 2019

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