Gaseous scintillation Proportional counters
Detectors JRA
W22.3 Status

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Barcelona
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Science & Technology Facilities Council
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Outline of Tasks

Explore options of light readout devices

Develop and provide appropriate front end pulse processing electronics

Develop and provide appropriate read-out electronics

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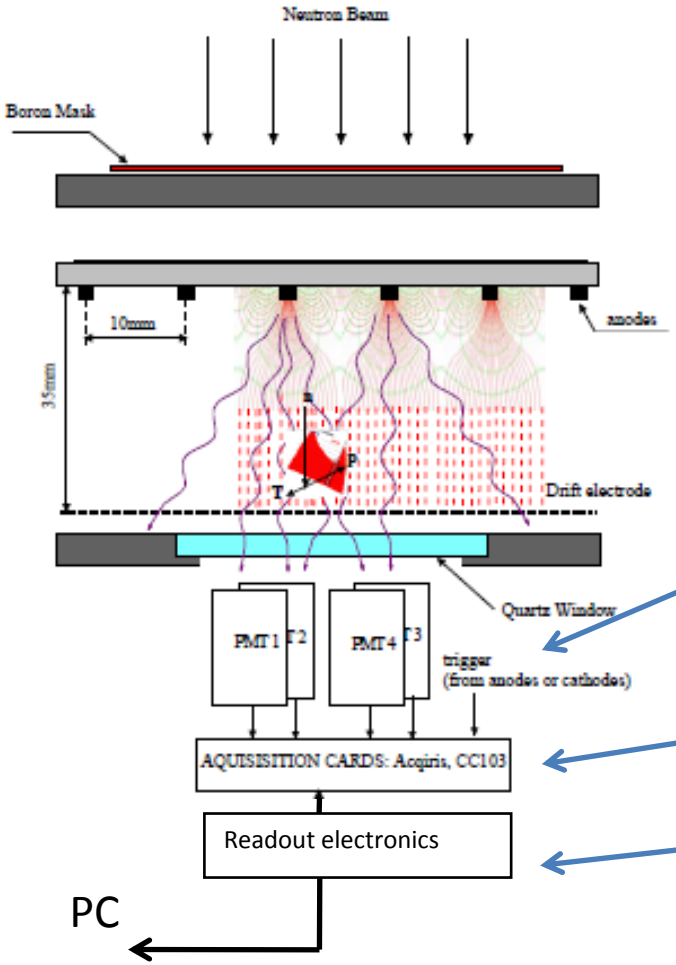
GPSC detector components



Optimise the light conversion device

Develop signal processing hardware

Develop readout electronics

Deliverable	Description	Month
22.2.6	Construction of small prototype for light readout study	10
22.3.1.1	Experimental report on PMT anger camera	28
22.3.2.1	Experimental report on PS and MA PMTs	28
22.3.3.1	Experimental report on innovative light detecting devices	36
22.3.4.1	Evaluation report on processing schemes	28
22.3.6.1	Front end pulse processing report	30
22.3.7.1	Readout electronics architecture report	30
22.3.7.2	Hardware implementation report	40

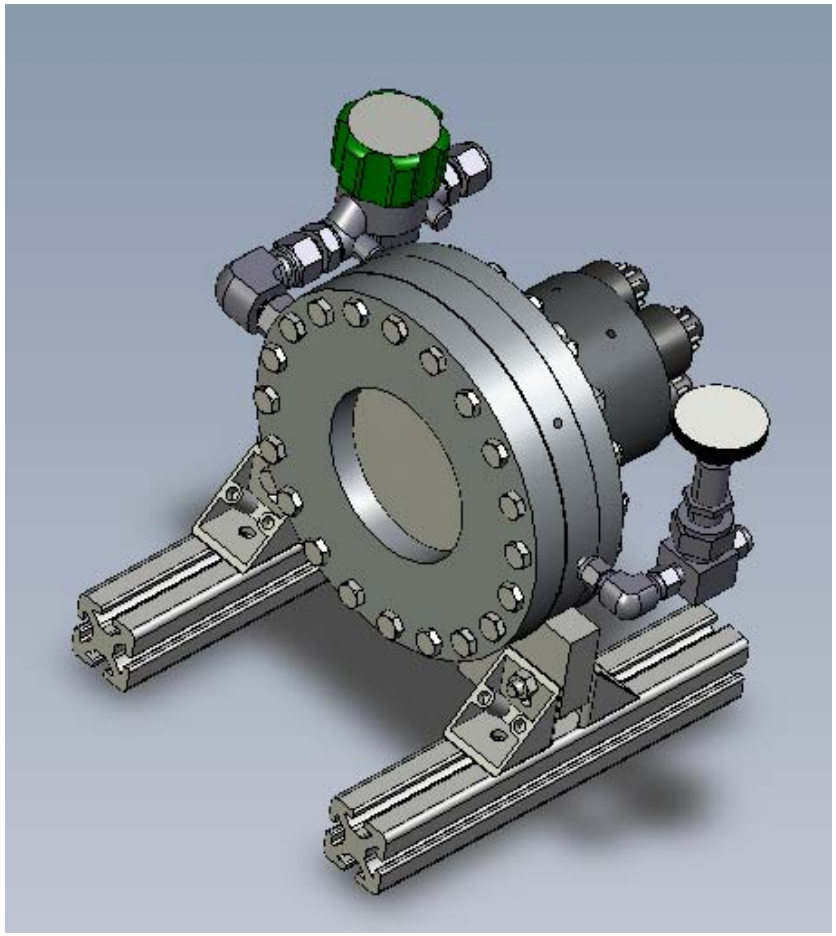
Construction of small detectors for light readout and electronic development study

Decided to construct three small detectors

To be based at Munich, Julich and ISIS

Kept detectors identical and single place for construction to improve efficiency and minimise costs

Task undertaken by TUM



The W22.3 test vessels

Design based on ILL and LIP detectors

Window just large enough to take four 38mm dia PMTs

All three vessels have been manufactured and are in the process of being commissioned.

Karl will describe in detail the current status of the vessels

Holger will describe the first test results

Almost ready to characterise the light collection devices

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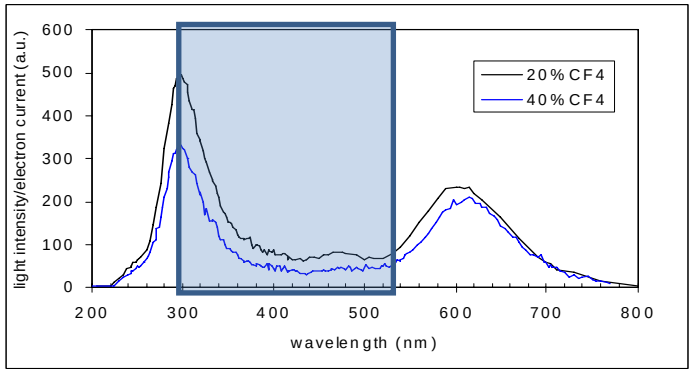
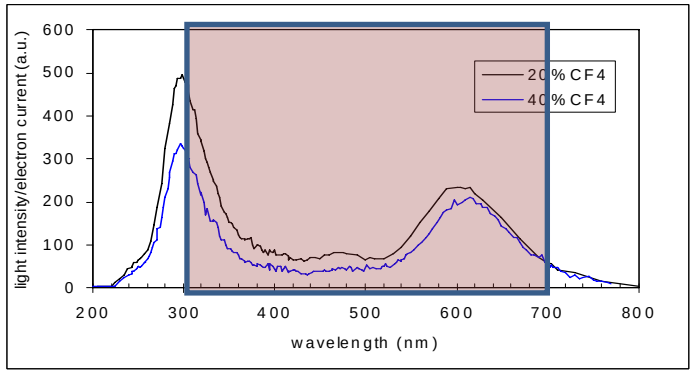
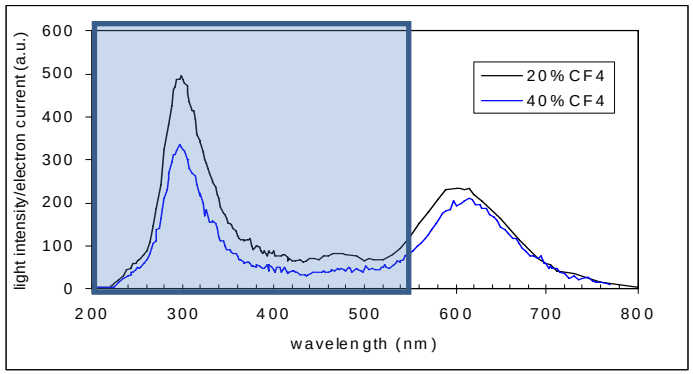
Effects of PMT type on light collection



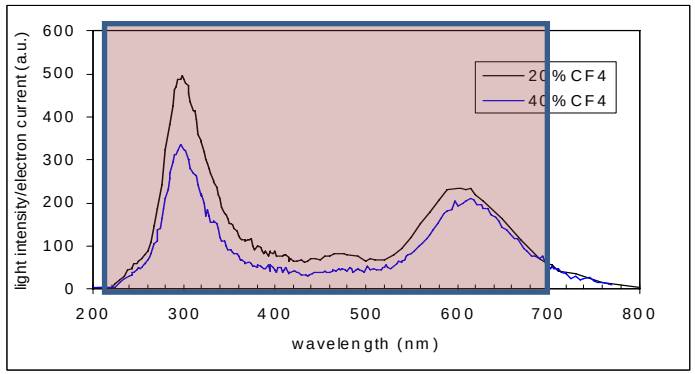
Bialkali



Trialkali



Bialkali UV window

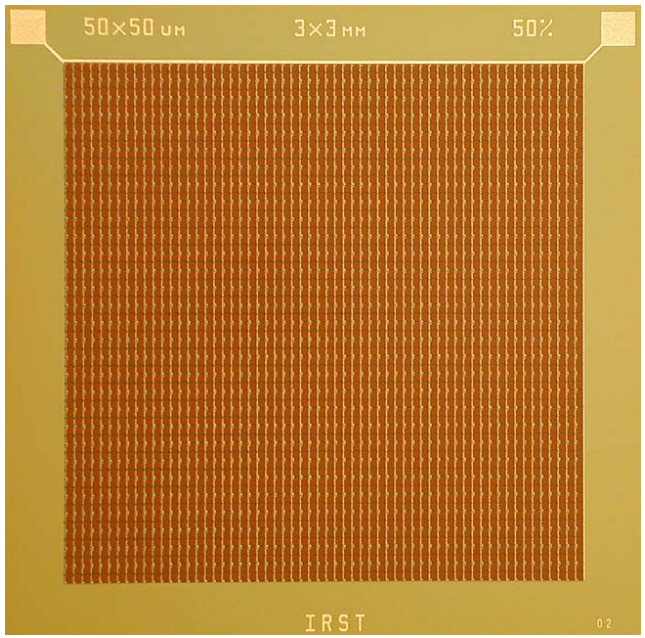


Trialkali UV window

Detector resolution related to size of PMT

PMT type	No of Pixels	Size of Pixel
↑		
ETL 9102, HR580	1	38 mm diameter
ELT 9125	1	30 mm diameter
↓		
H 8711	16	4 x 4 mm2
H8804	64	2 x 2 mm2
H8500	64	6 x 6 mm2
H9500	256	3 x 3 mm2

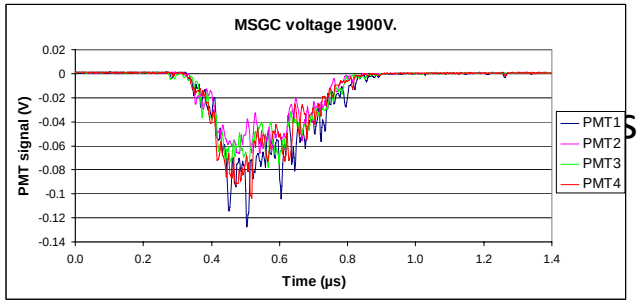
Other readout devices

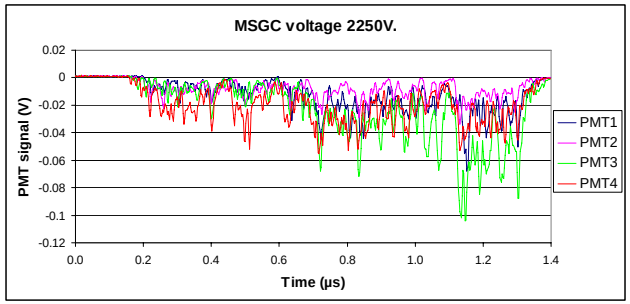


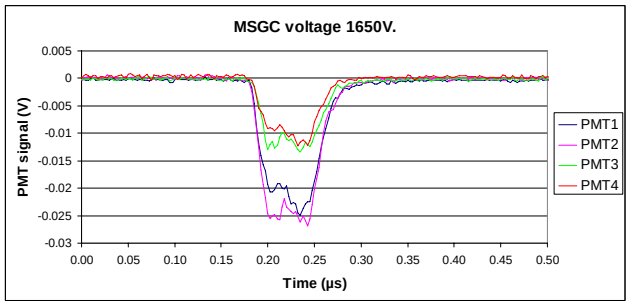
CNR investigating potential of Si PMTs

Preliminary tests carried out at FRMII

Francesco's talk will provide details.







Electronics development

To date digitised used to capture events which are processed off line

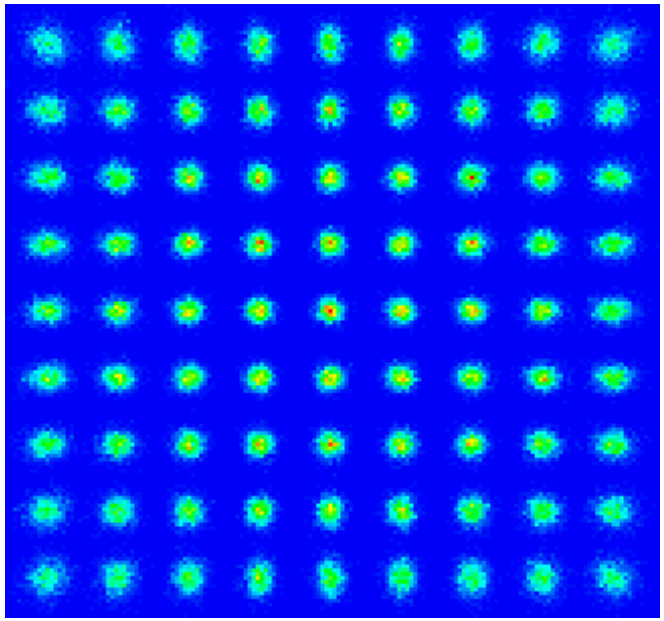
Powerful analysis tool

Replace with Real time processing electronics

Need to know:

- **How many channels**
- **What the signals will look like**

A lot of work still to do



The goal is:

a high rate,

high resolution detector

Suitable for specific applications
e.g reflectometry
high resolution SANS

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