SCIENTIFICA

NEUTRON DETECTORS

MECHANICAL DESIGN, ELECTRONICS, SIGNAL PROCESSING AND TESTS

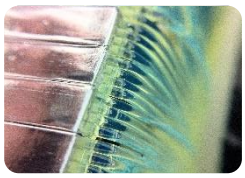
PSND Position Sensitive Neutron Detectors

POF Technology

SCIENTIFICA presents its base Position Sensitive Neutron Technology. Based in ZnS (Ag) scintillator, delivers a high resolution down to 2mm x 5mm pixel elements, within a customizable active area where different sizes and spatial shapes are possible. The modularity of the technology enables scalability and easier maintainability of the detectors. These detectors have a maximum detection efficiency in the range of thermal neutrons, specially designed for neutron sources. Some examples are shown below.

WLSF Technology

Wavelength Shifting (WLS) Fibers are used in the next evolution of SCIENTIFICA's detection technology. Also based in ZnS (Ag), although other scintillator materials can be integrated on demand. Maximum detection efficiency in the range of thermal neutrons. They are also modular (scalability and maintainability enhanced), at a lower manufacturing cost.



PEARL Instrument Detector Bank

Location: ISIS beamline S9
Neutron energy: 0.6 - 4.1 Å
Detector modules: 12 units
Geometry:
-90° (transverse)
-Backscattering
-Forward scattering
Total active area: 0.7 m2
Pixels: 1264 of 3mm width
PMTs : 196 channels
Manufactured in 2010/2011

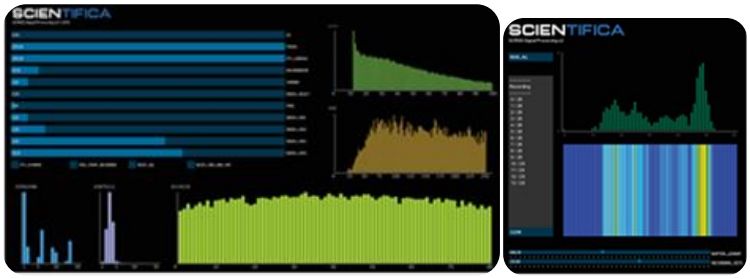
Science & Technology Facilities Council
ISIS

Read Out Electronics

SCIENTIFICA has an electronic platform for PSNDs which includes all stages involved in the neutron detection: Read-out, Digital Signal Processing and Control Software with Data Management.

KEY FEATURES

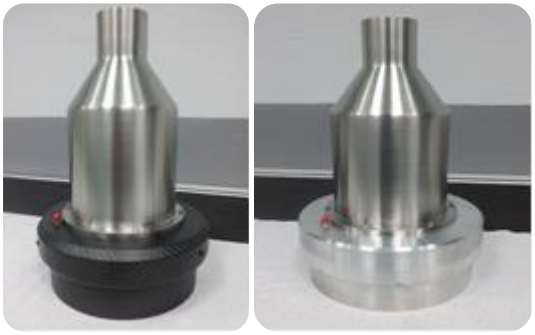
- Signal processing on FPGA
- Neutron/Gamma discrimination algorithm
- Time stamp (resolution up to 10ns)
- Multichannel architecture
- Optimized HV supply channel
- Programmable front-end
- Individual channel calibration
- Mass storage database
- Graphical user interface



Neutron Detectors for Spectrometry

KEY FEATURES

- Liquid Scintillator: EJ300, EJ301, NE213/BC501...
- Liquid expansion volume of 10%
- Zero bubbles
- Custom size
- Aluminum and Carbon Fiber cells
- Optical fiber port for gain monitoring and PMT calibration



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