

A neutron detector with WLS-fibers readout and SiPM

Content

A new neutron position sensitive detector was developed and tested. For neutron detection we use LiF/ZnS-scintillation sheet. For light readout wavelength shifting (WLS) fibers are used. Each end of these fibers is connected with SiPM. The coordinate resolution of this detector is about 1 mm. Each scintillation sheet has an efficiency of 25 % for thermal neutrons. The detector can consist of 2-3 sheets for more efficiency. A neutron coordinate is determined by the position of the SiPM with a pulse. The events are registered by gate pulses which are generated by a PMT mounted behind the scintillator sheets. This detector can be useful for small angle neutron spectrometers at continuous and at pulsed neutron sources.

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