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Position sensitive detectors of the detector group at Jülich

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The detector group of the Central Institute of Electronics at the Forschungszentrum Jülich GmbH was founded in 1968. First developments aimed at a detector system with a position sensitive BF₃ proportional counter for small angle neutron scattering, which was later used at a beamline of the research reactor FRJ2. At the end of the 70's first measurements were carried out with photomultiplier (PMT) based detector systems together with a LiI crystal from Harshaw. Based on this experience we started with the spectrum of position sensitive neutron scintillation detectors, which have been developed and designed in our institute during the last three decades comprising several high resolution linear and two dimensional detectors. The general design of those detectors is based on a modified Anger principle using an array of PMTs and a 1mm ⁶Li glass scintillator. The sensitive detector area varies on the type of the PMTs used and is related to the spatial resolution of the detector type. The neutron sensitivity at 1 μ m is about 65% and the rest gamma sensitivity is less than 10⁻⁴ with a maximum count rate up to 500kHz depending on the used detector system.

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