

Principles and fabrication of neutron detectors

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Position sensitive detectors used in neutron instrumentation to study condensed matter must be optimised for each application, for example: fast count rate capability (10^7 counts.s⁻¹) is a key parameter for Reflectometers and Small Angle Scattering instruments; a large sensitive area, up to 30 m², is required for Time-Of-Flight instruments, and a large solid angle combined with a high position resolution is required for Single Crystal Diffractometers. Basic principles for designing neutron detectors will be given, and technical aspects of their fabrication will be described through examples.