

Measurement of Low Energy Neutrons with Scintillation Detectors

Moritz Pohl¹,

J. Glorius¹, S. Kräckmann¹, C. Langer¹,

A. Krasznahorkay², R. Reifarh¹ and K. Sonnabend¹

¹Goethe-Universität Frankfurt, Max-von-Laue Straße 1,
60438 Frankfurt, Germany

²Institute of Nuclear Research of the Hungarian Academy of Sciences,
H-4001 Debrecen, P.O. Box 51, Hungary



Measurement of Low Energy Neutrons with Scintillation Detectors

Low energy neutrons are often produced
in astrophysical reactions, like:

- (p,n) reactions;
- (α ,n) reactions;
- fission experiments;
- (γ ,n) experiments.....

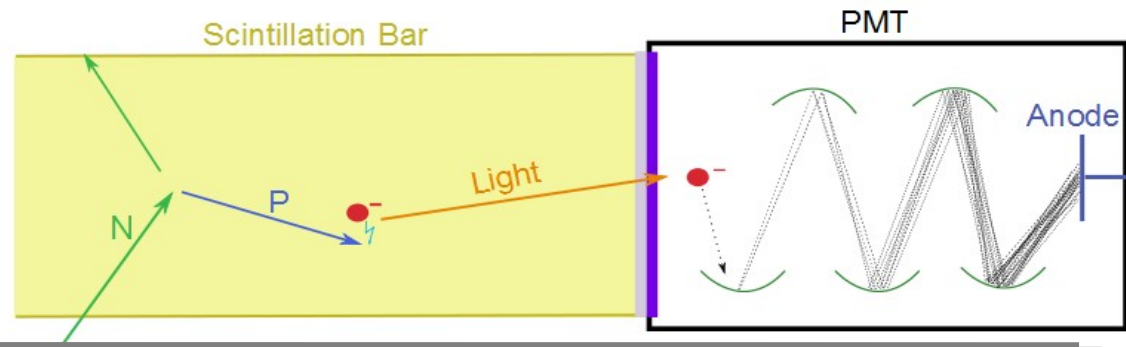
What to study:

- collective phenomena;
 - neutron source-processes in stars;
 - inverse kinematics;
 - neutron-skin thickness..... its up to you!
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Plastic Scintillation Detectors - Working Principle

- Neutron \rightarrow hadronic scattering \rightarrow proton-interaction induces light \rightarrow electron cascade \rightarrow current
- Fast rise and decay times
- Typically a time resolution below 1 ns
- Efficiency depending on material and geometrics

Sketch of a Neutron hitting a plastic scintillator (not to scale)





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- Advantages and opportunities of scintillation detectors for the measurement of low energy neutron, especially on small scale accelerators

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- Advantages and opportunities of scintillation detectors for the measurement of low energy neutron, especially on small scale accelerators
- Experiences with the Low Energy Neutron detector Array (LENA) during testing and experiments at GSI