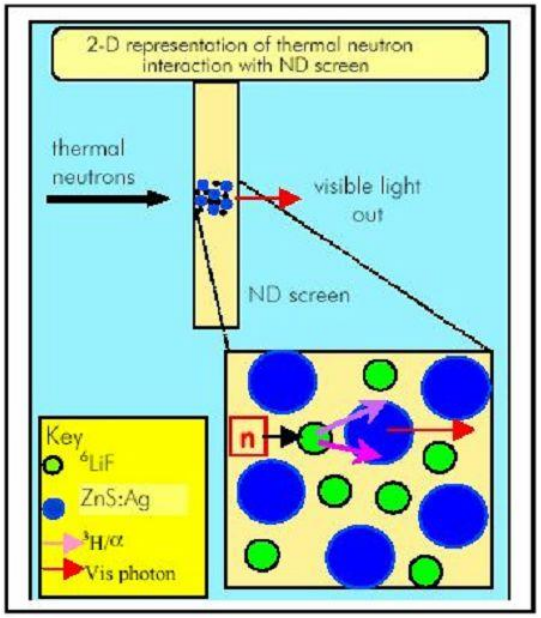
Neutron Imaging Detectors

The ZnS+^{6}LiF scintillation screen



- One detected neutron produces about 177,000 photons, roughly into 4 Pi space
- The material is opaque for its own light
  - →thickness beyond 0.3 mm makes no sense, produces less light
  - →Due to exponential attenuation, more neutrons are absorbed in the beginning of the screen
    - →less light output to the back
  - →No fixed amount of light per neutron emitted towards the back
  - →Absolute counting is not possible
- Best thickness: 0.1 mm
  Resolution about 0.08 mm
- 0.2 mm thickness producs only 1.5 times as much light

Slide courtesy: Dr. Burkhard Schillinger (FRM-II, Munich, Germany)