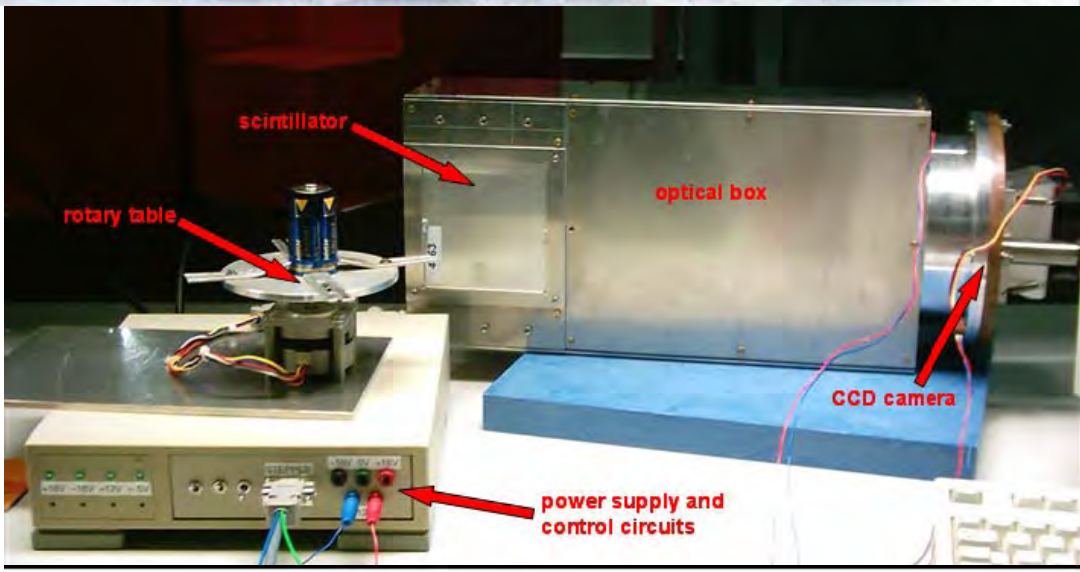
ILL CCD Neutron Alignment Camera
µTOS at ANTARES FRM-II Munich

Audine CCD electronics

Kodak KAF-0402ME CCD

768 x 512 pixels



Bau eines Entwicklungssystems
für Radiographie und Tomographie
mit Neutronen

Building μTOS

Diplomarbeit
von
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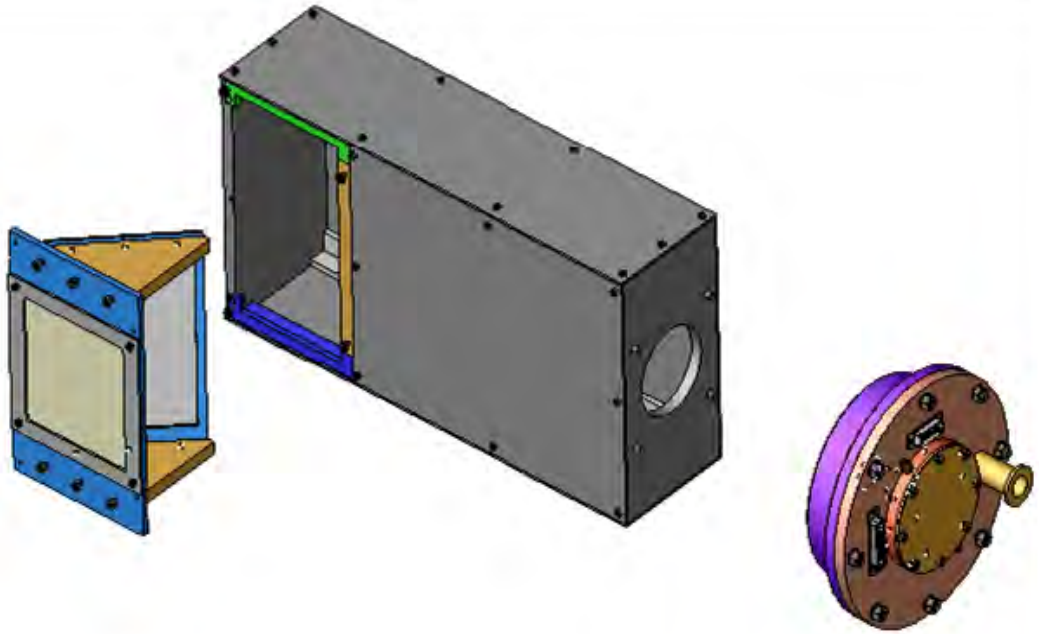
Fakultät für Physik
Institut für Experimentalphysik E21
Univ. Prof. Dr. P. Böni
Dr. B. Schillinger

17. Januar 2005

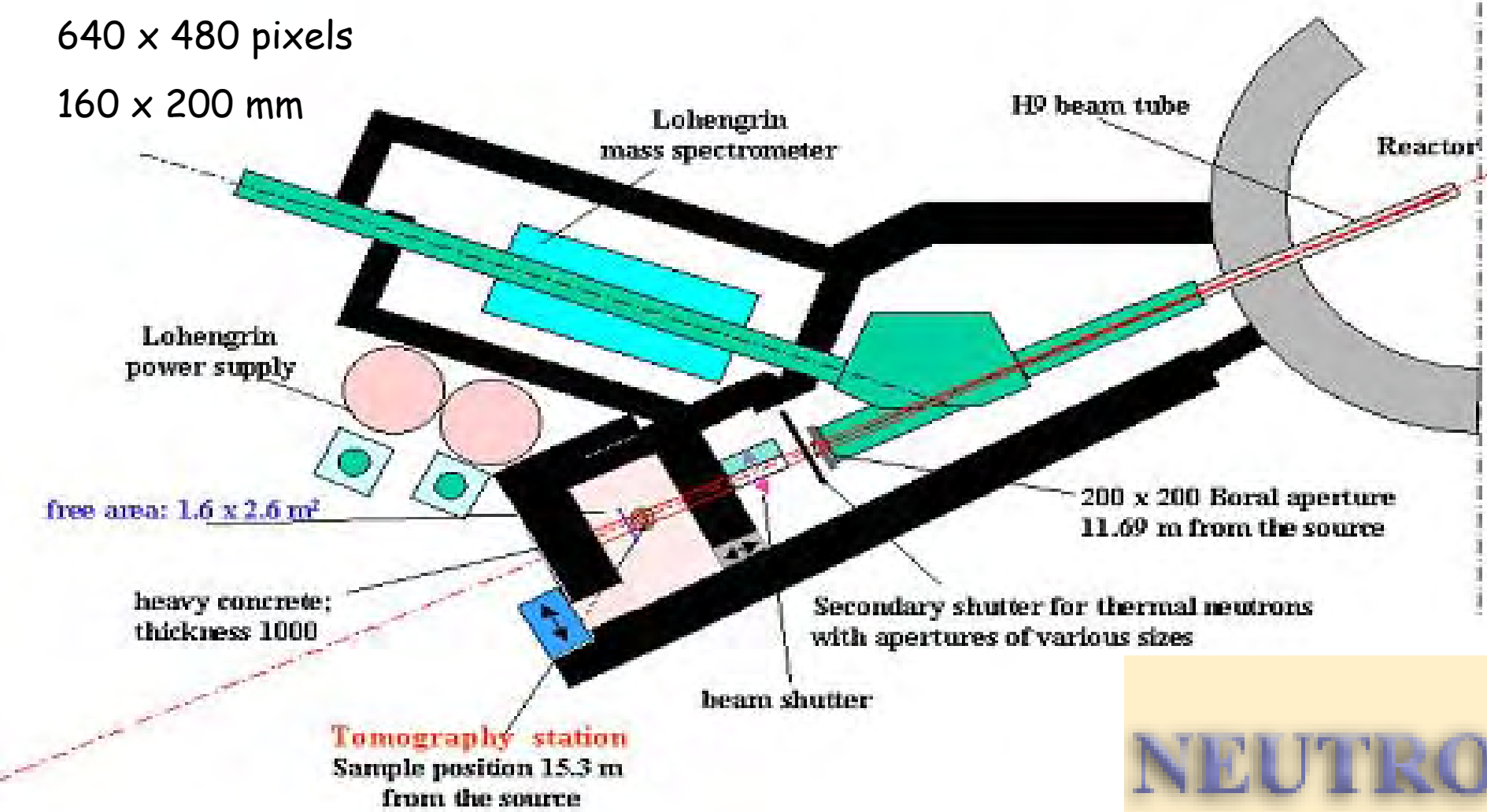


ILL CCD Neutron Alignment Camera
ILL NeutroGraph

CCD=PCO Sensicam

640 x 480 pixels

160 x 200 mm



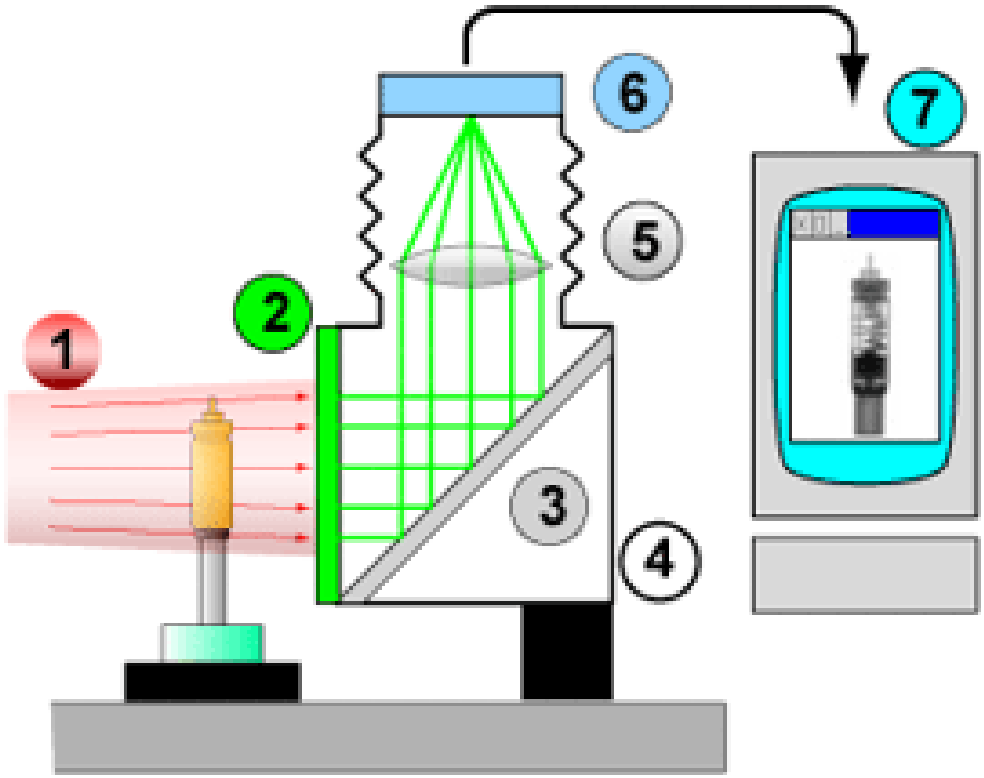
NEUTRO

ILL CCD Neutron Alignment Camera

Neutron Imaging Facility

Physics Laboratory
Major Research Facilities

NIST
National Institute of
Standards and Technology



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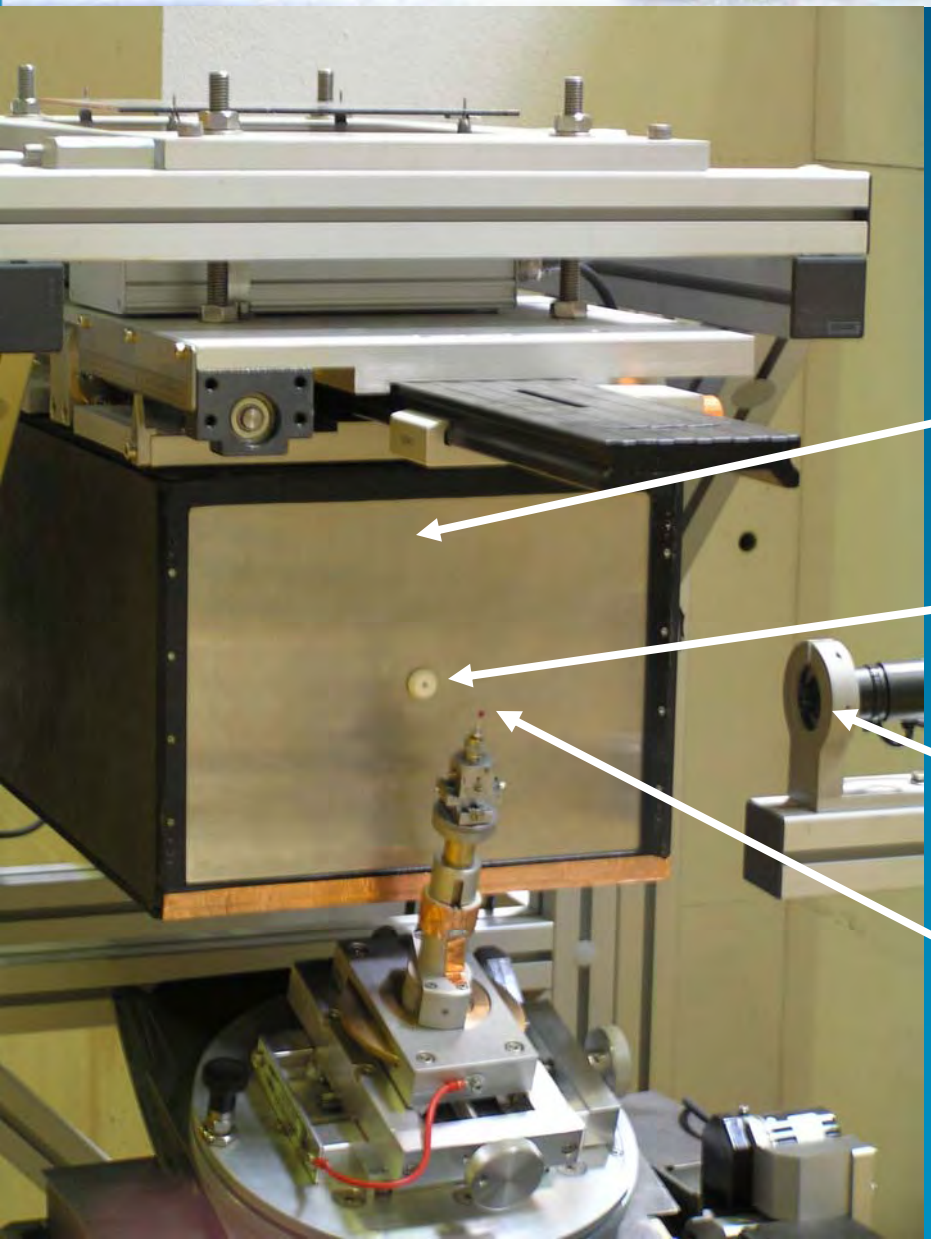


Orient Express

Proceedings of the ICNS Sydney

To appear in Physica B (2006)

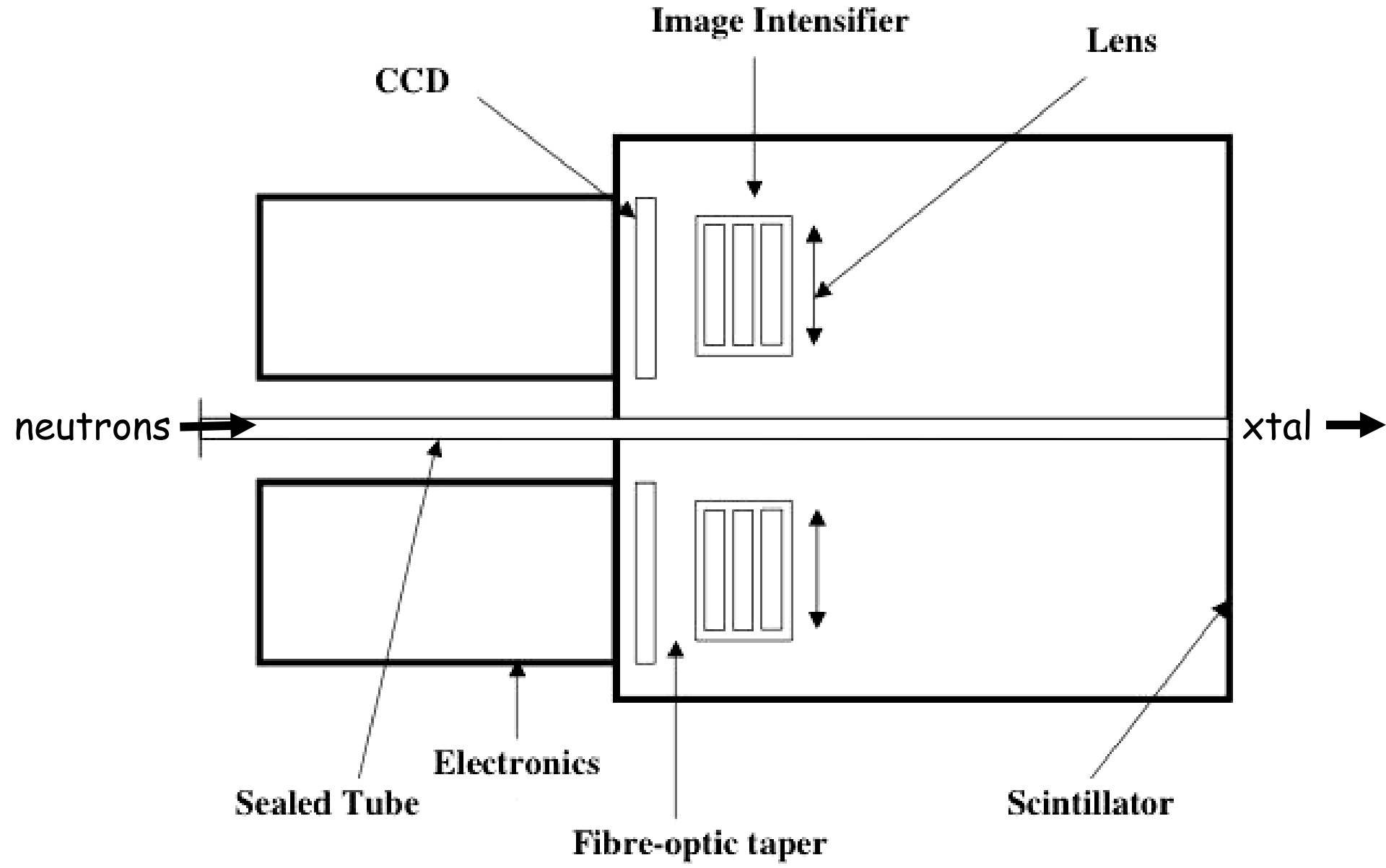
CCD detector in backscattering

Neutron beam

TV camera for crystal alignment

Crystal on goniometer

ILL CCD Neutron Alignment Camera
ILL OrientExpress CCD Laue Camera



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Inorganic thermal-neutron scintillators

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Table 1
Traditional and new thermal-neutron scintillators

Host	Dopant (conc mol%)	Density ρ (g/cm^3)	ρZ_{eff}^4 ($\times 10^{-6}$)[a]	Abs. Length at 1.8Å (mm)	Light yield photons per		α/β Ratio	λ_{em} (nm)	τ (ns)
					Neutron	MeV gamma			
^{6}Li-glass	Ce	2.5		0.52	~6000	~4000	0.3	395	75
^{6}LiI	Eu	4.1	31	0.54	50,000	12,000	0.87	470	1400
^{6}LiF/ZnS	Ag	2.6	1.2	0.8	160,000	75,000	0.44	450	>1000
$LiBaF_3$	Ce,K	5.3	35		3500	5000	0.14	190–330	1/34/2100
$LiBaF_3$	Ce,Rb	5.3	35		3600	4500	0.17	190–330	1/34/2400
$^6Li_6^{dep}Gd(^{11}BO_3)_3$	Ce	3.5	25	0.35	40,000	25,000	0.32	385,415	200/800
$^6Li_6^{dep}Gd(^{11}BO_3)_3$	Ce	3.9		1	40,000	30,000		420	200/800
$+Y_2SiO_5$	Ce				—	30,000		420	70
$Cs_2^6LiYCl_6$	Ce (0.1)	3.3		3.2	70,000	22,000	0.66	380	~1000
					—	700		255–470	3
$Cs_2^6LiYBr_6$	Ce (1)	4.1		3.7	88,000	23,000	0.76	389,423	89/2500

[a] As an indication of gamma-ray detection efficiency by photoelectric effect ρZ_{eff}^4 values are presented

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