

Fig 5.1 Schem. Aufbau eines Fixed-Target-Experiments

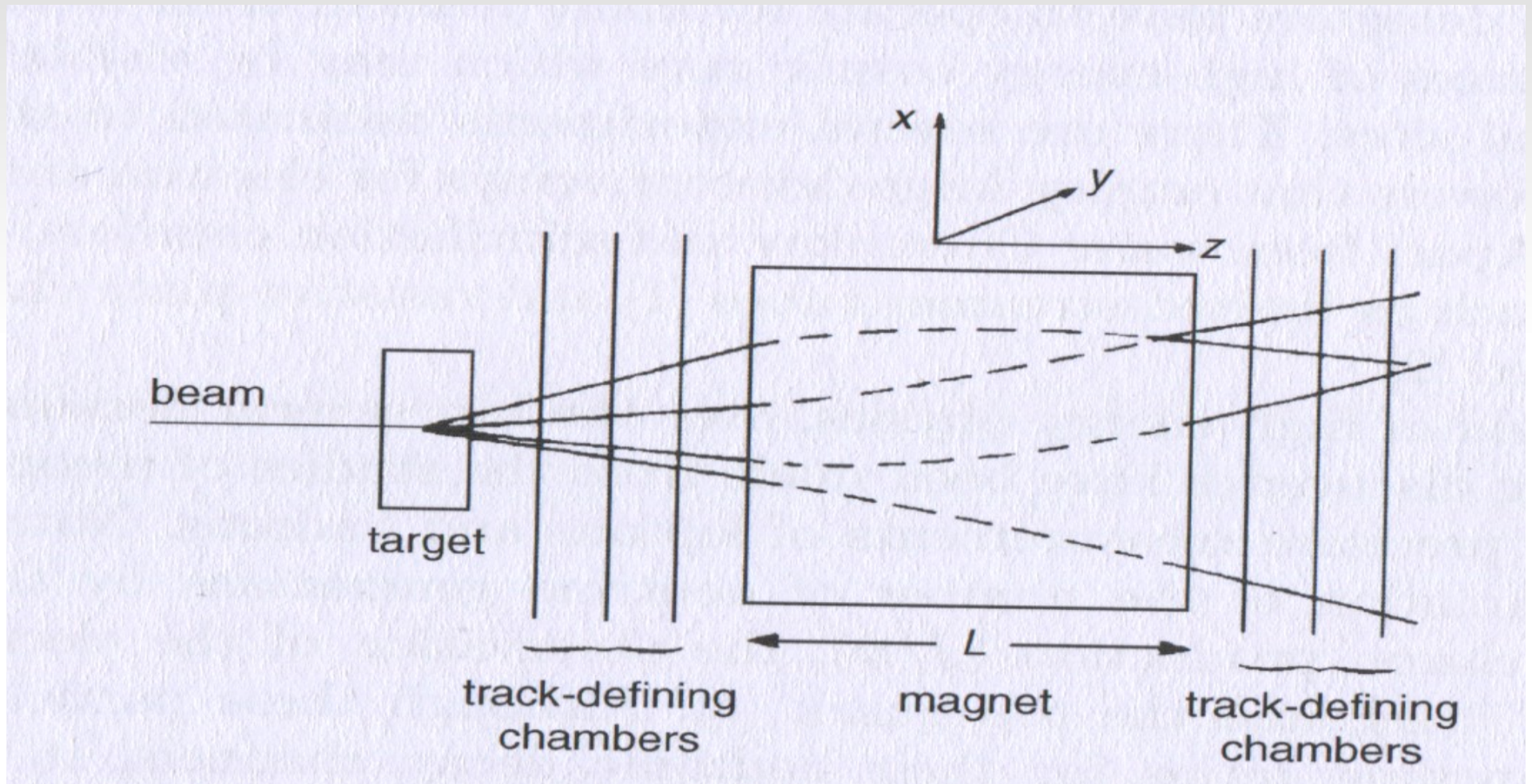


Fig 5.2 LHCb-Detektor

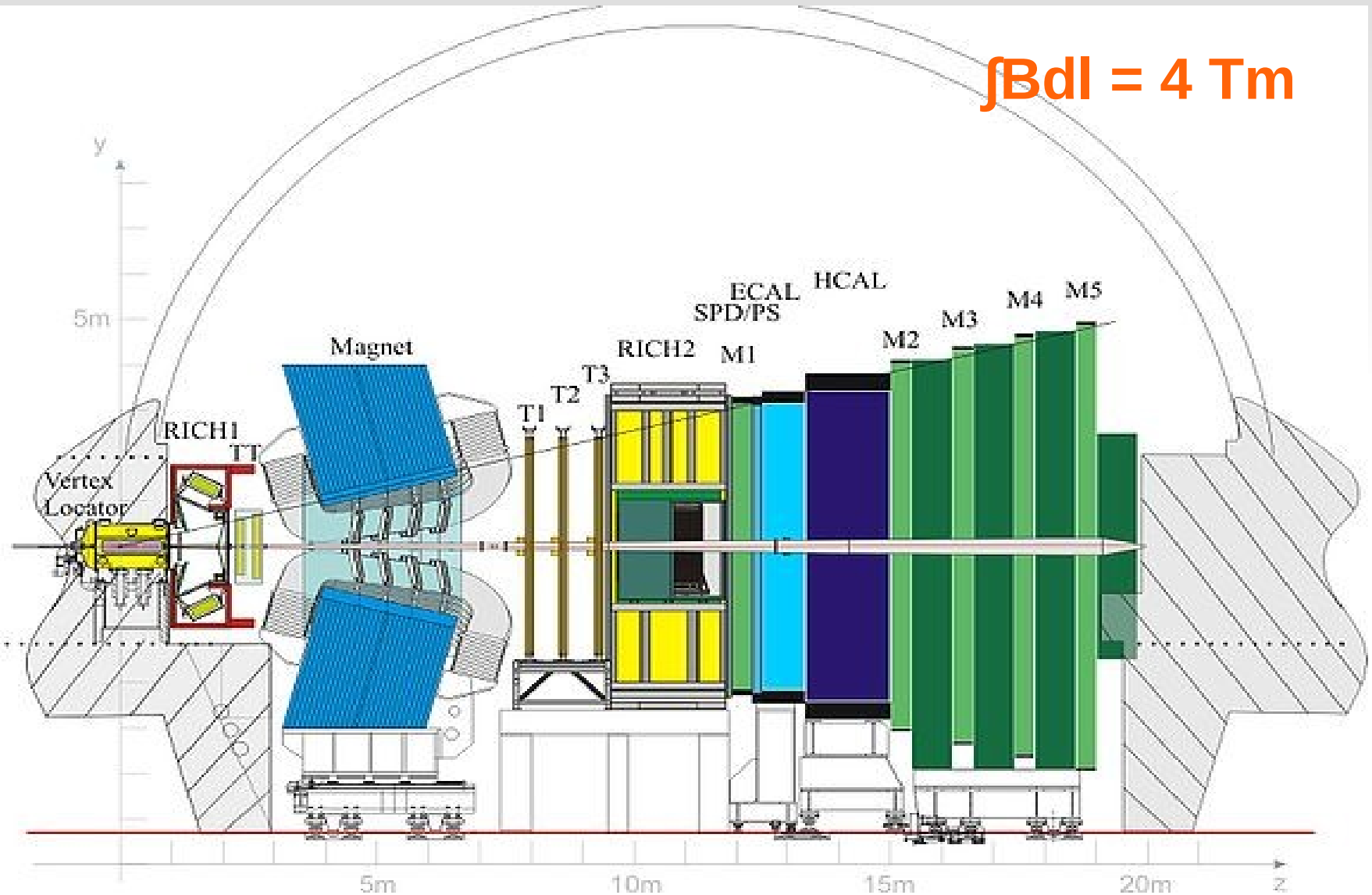


Fig 5.3 CMS Tracking-System

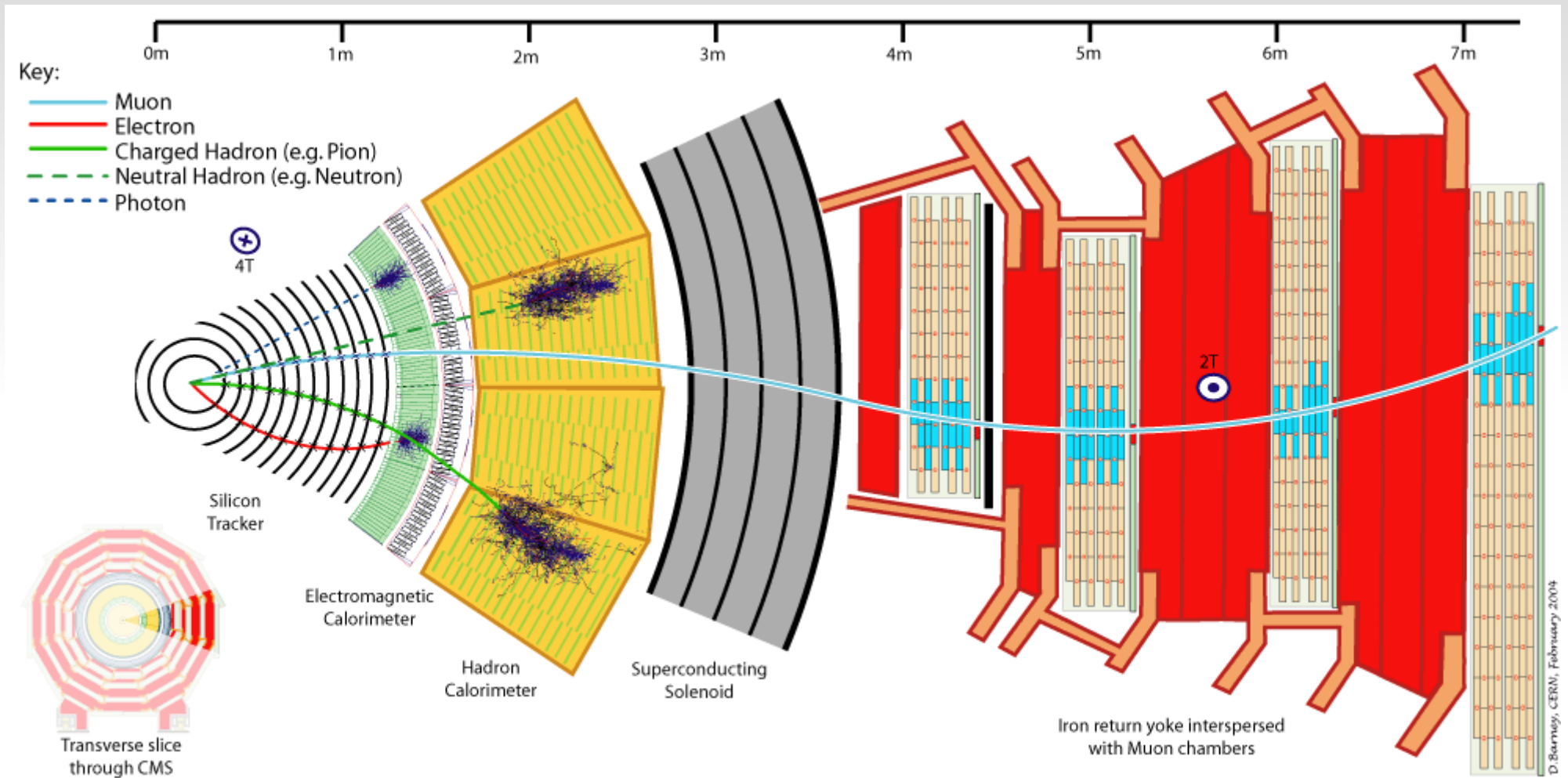


Fig 5.4 Impulsauflösung des ATLAS Inner Detector

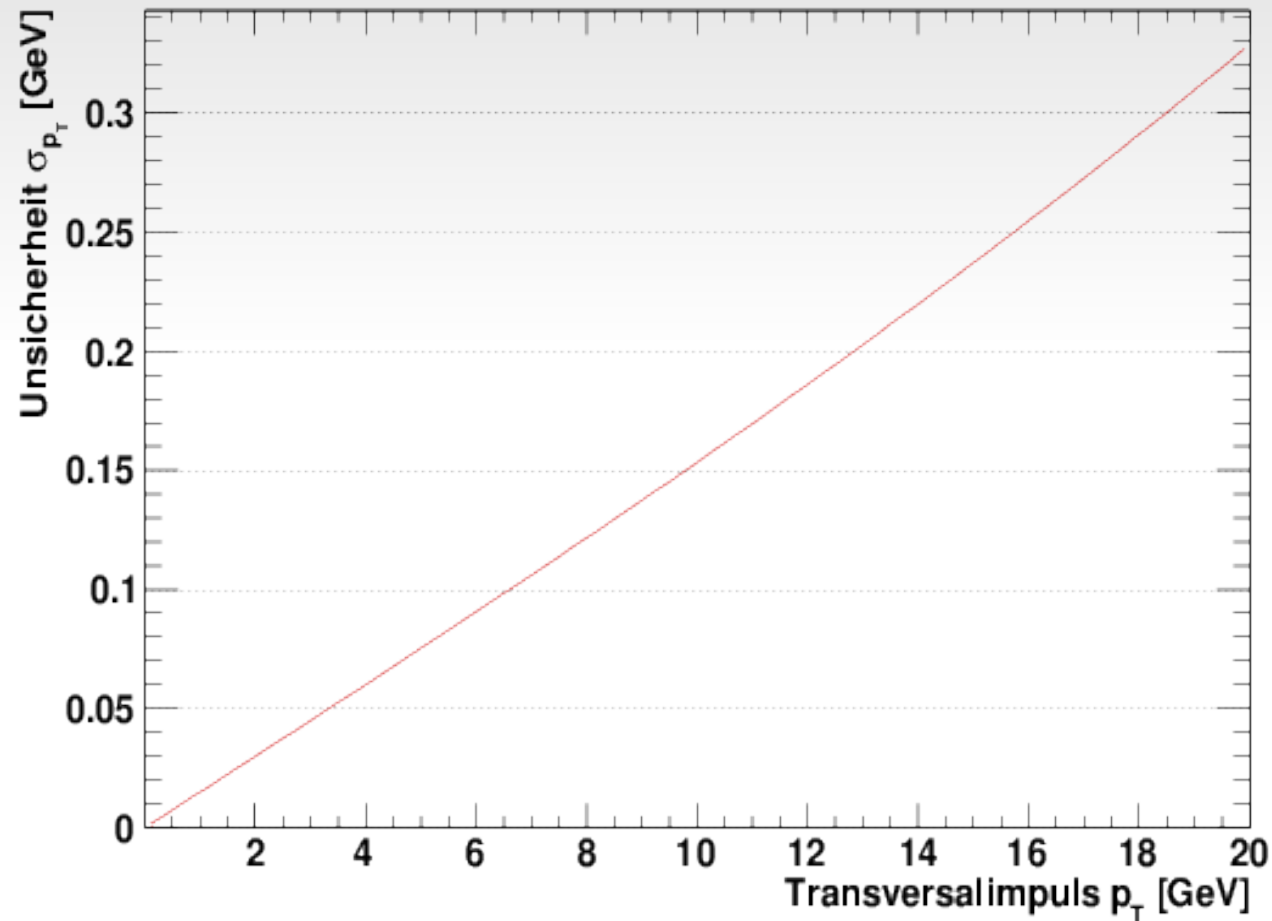


Fig 5.5 Zerfallsrekonstruktion

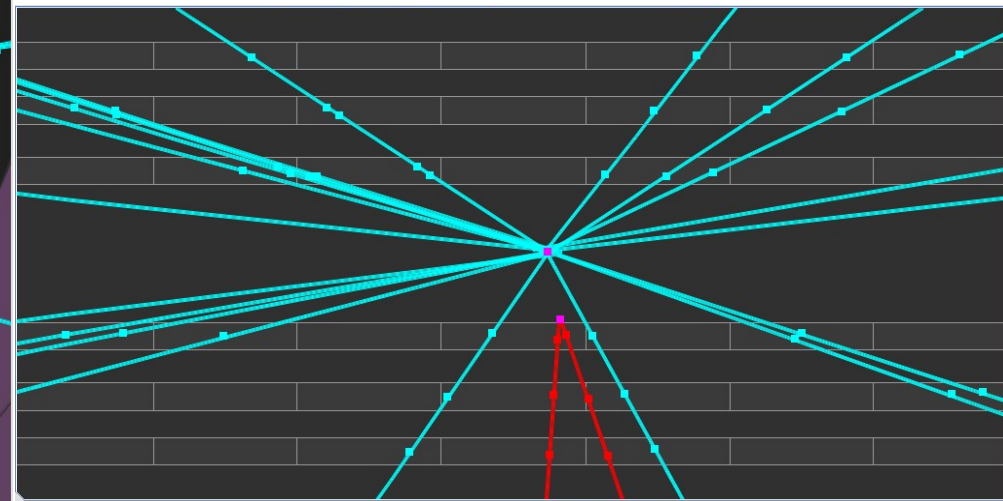
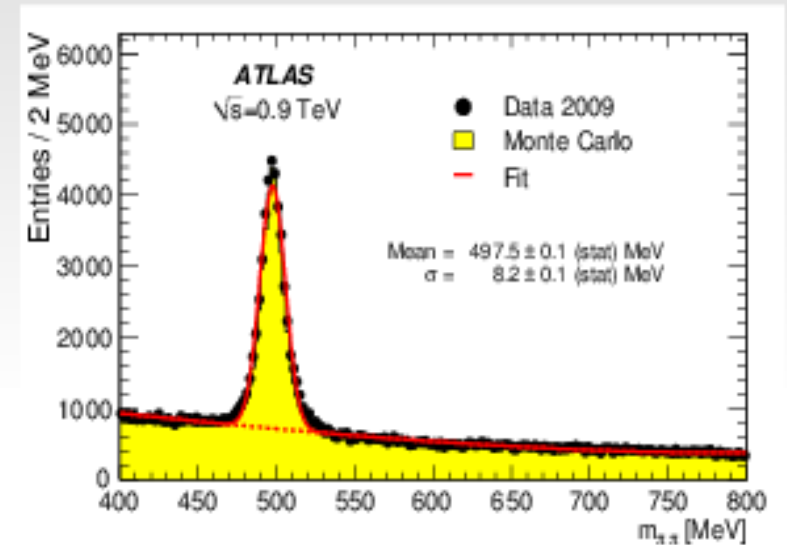
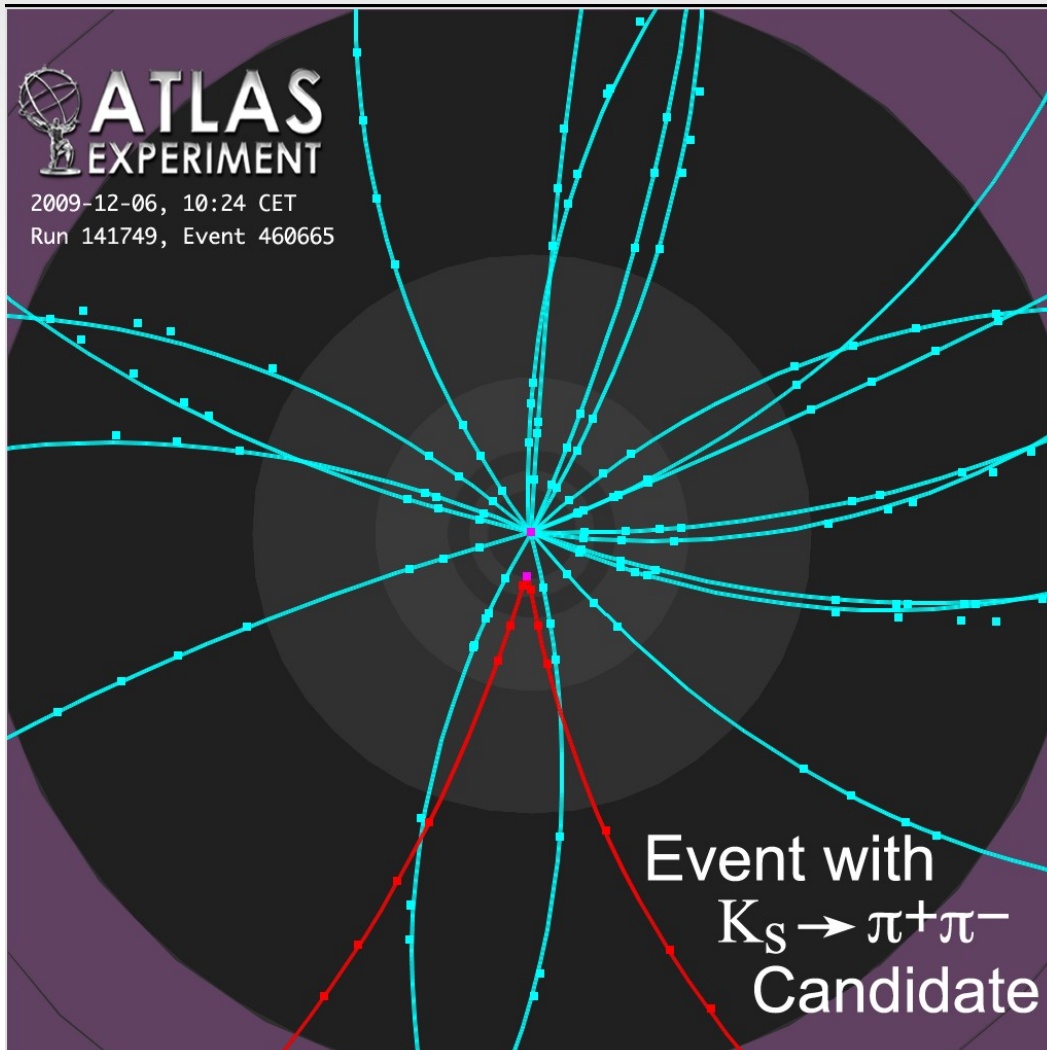


Fig 6.1 Zeitverhalten eines Szintillators

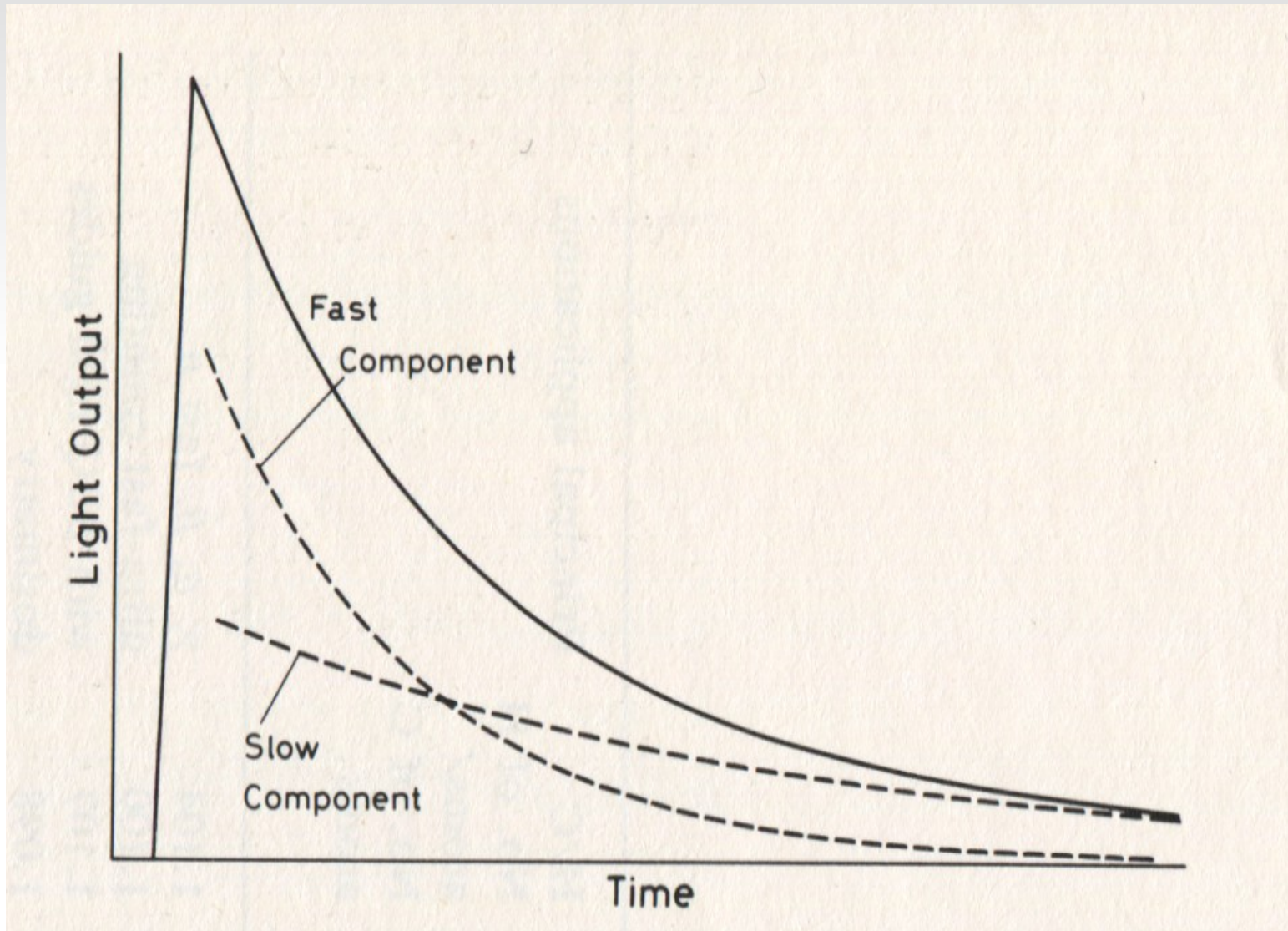


Fig 6.2 Energieübergänge eines org. Szintillators

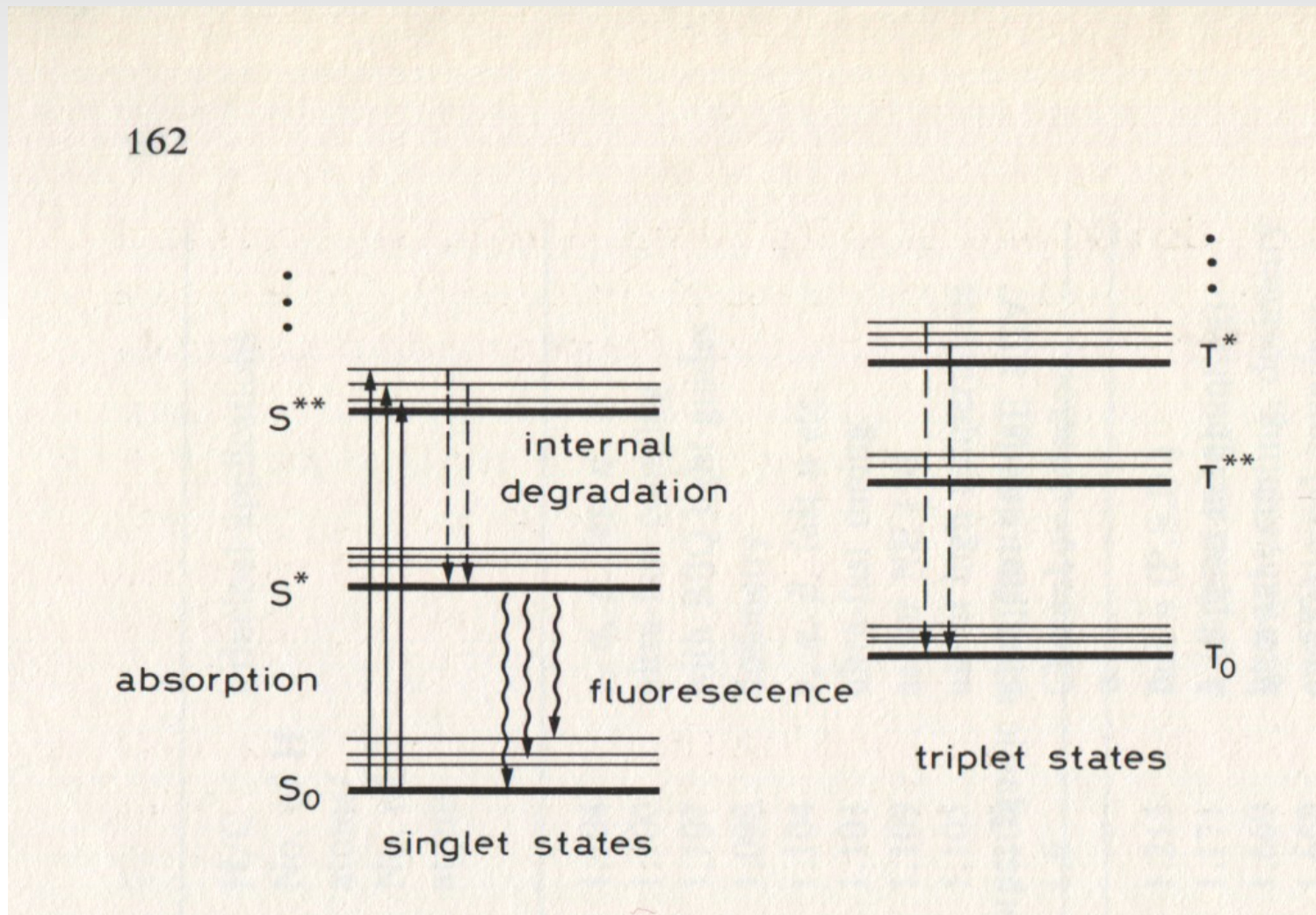


Fig 6.3a Emissionsspektren versch. Plastikszintillatoren

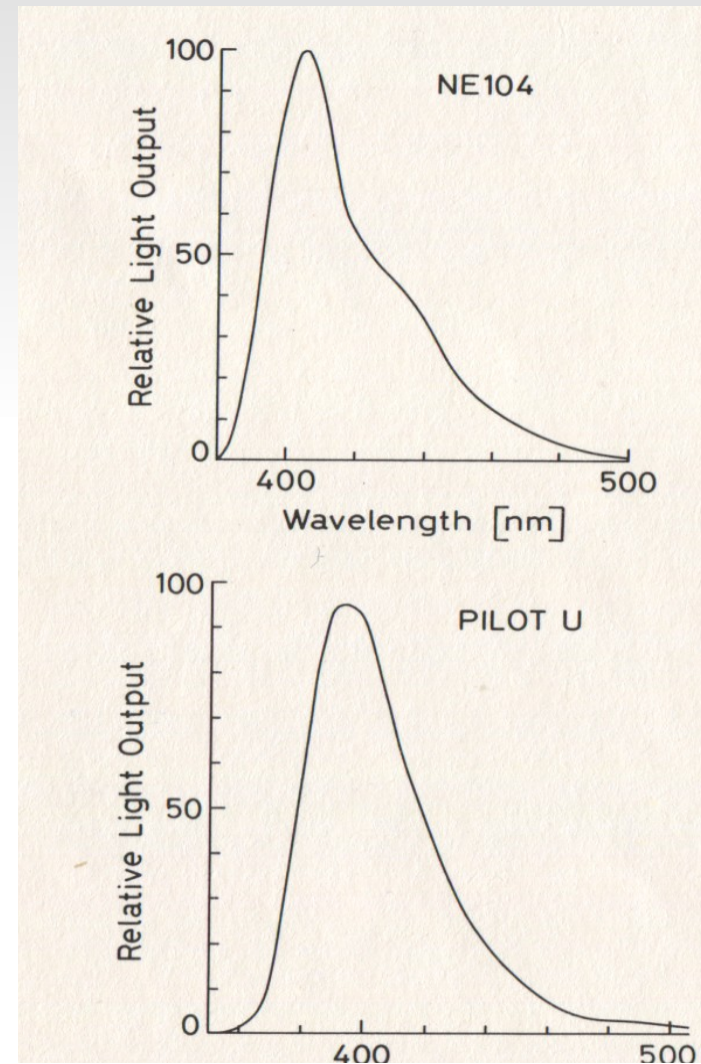
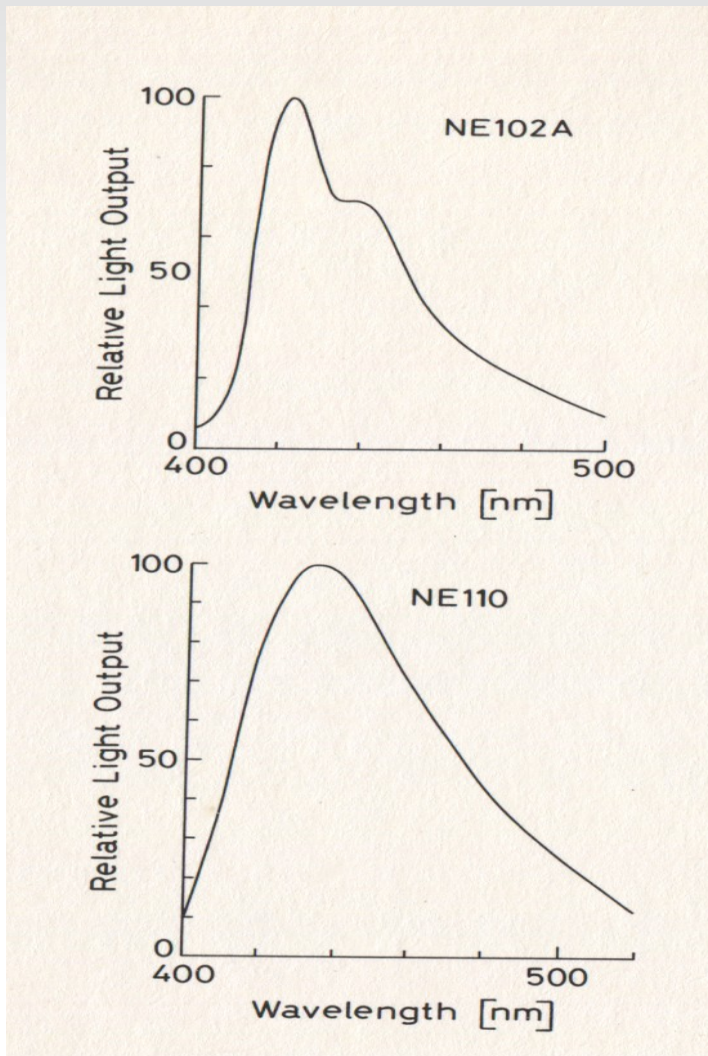


Fig 6.3b Organische Szintillatormaterialien

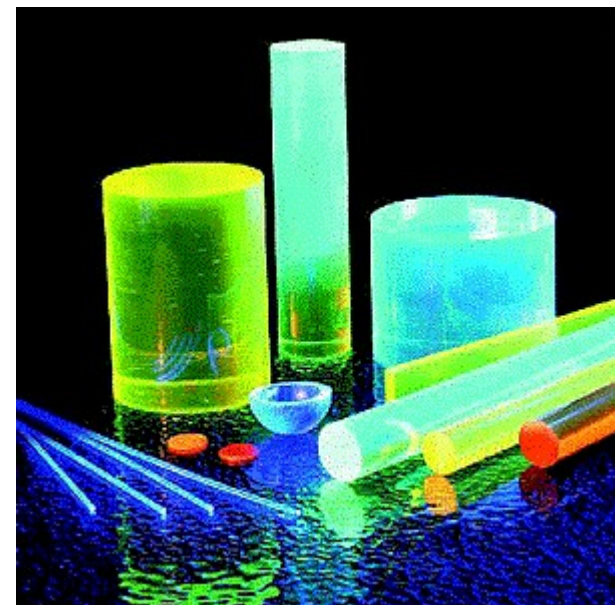
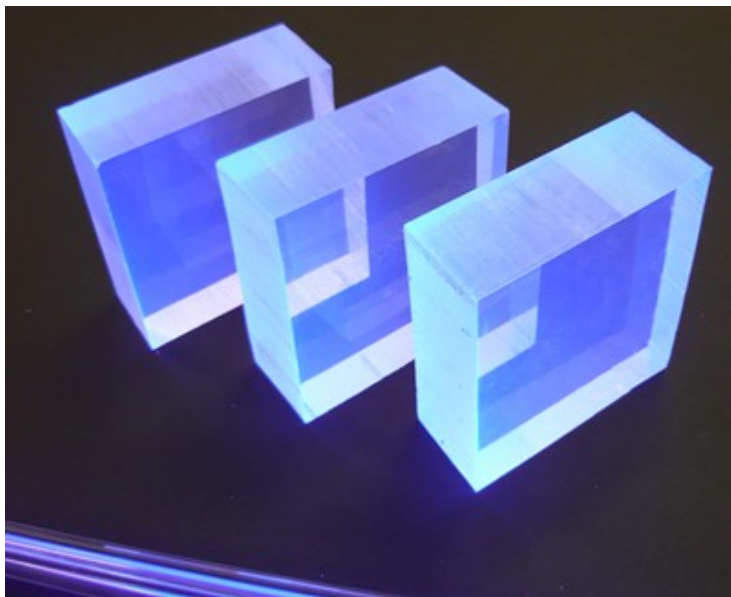
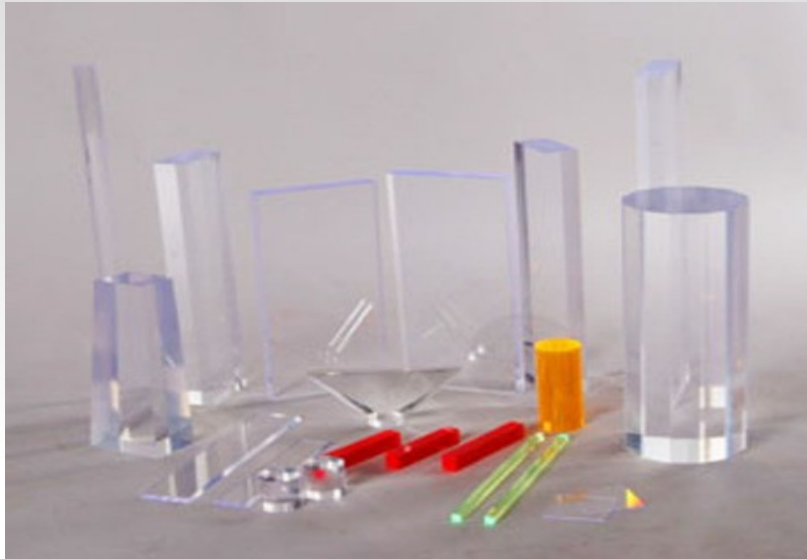


Fig 6.4 Bandstruktur bei inorg. Szintillatorkristallen

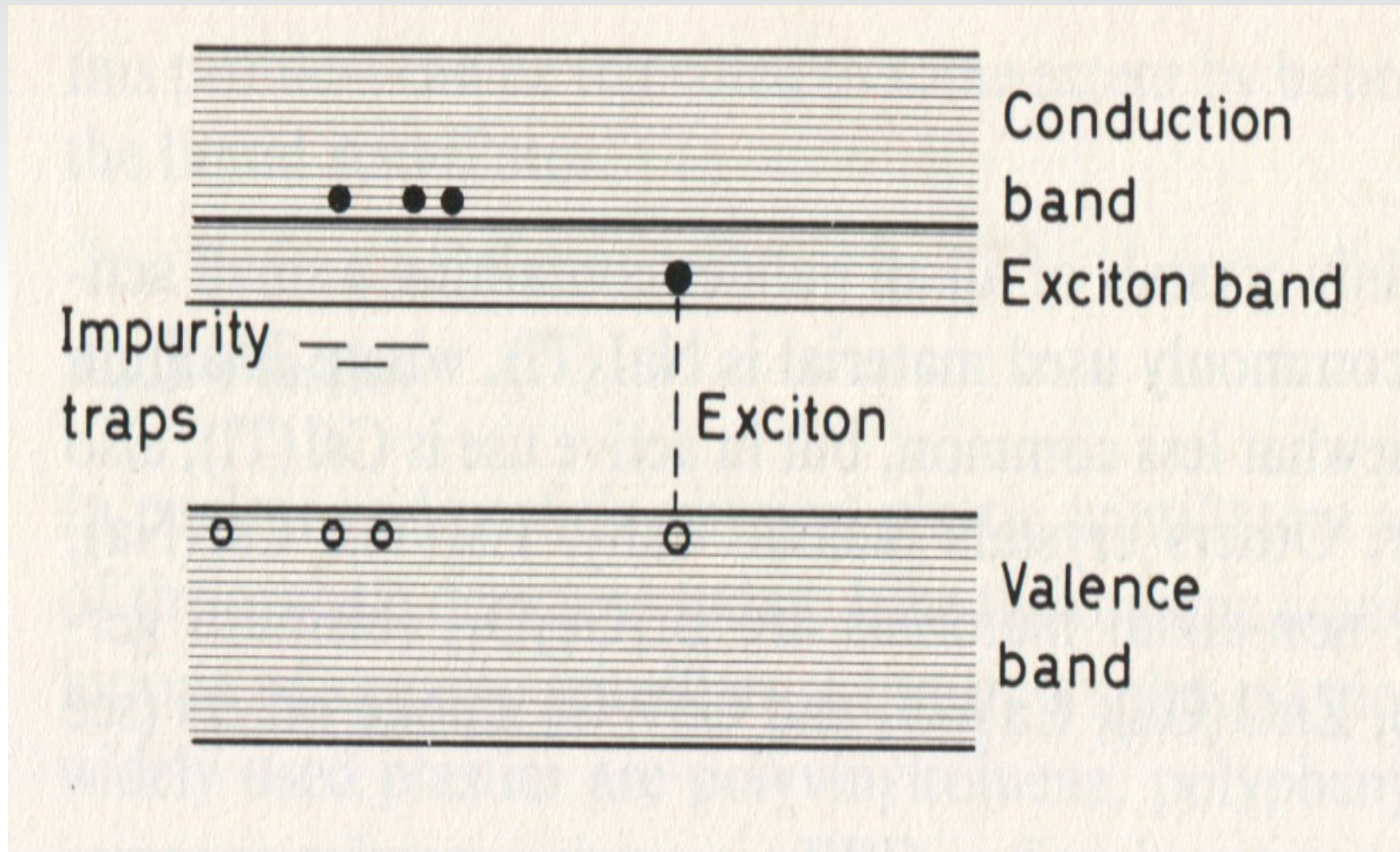


Fig 6.5a Emissionsspektren versch. inorg. Kristalle

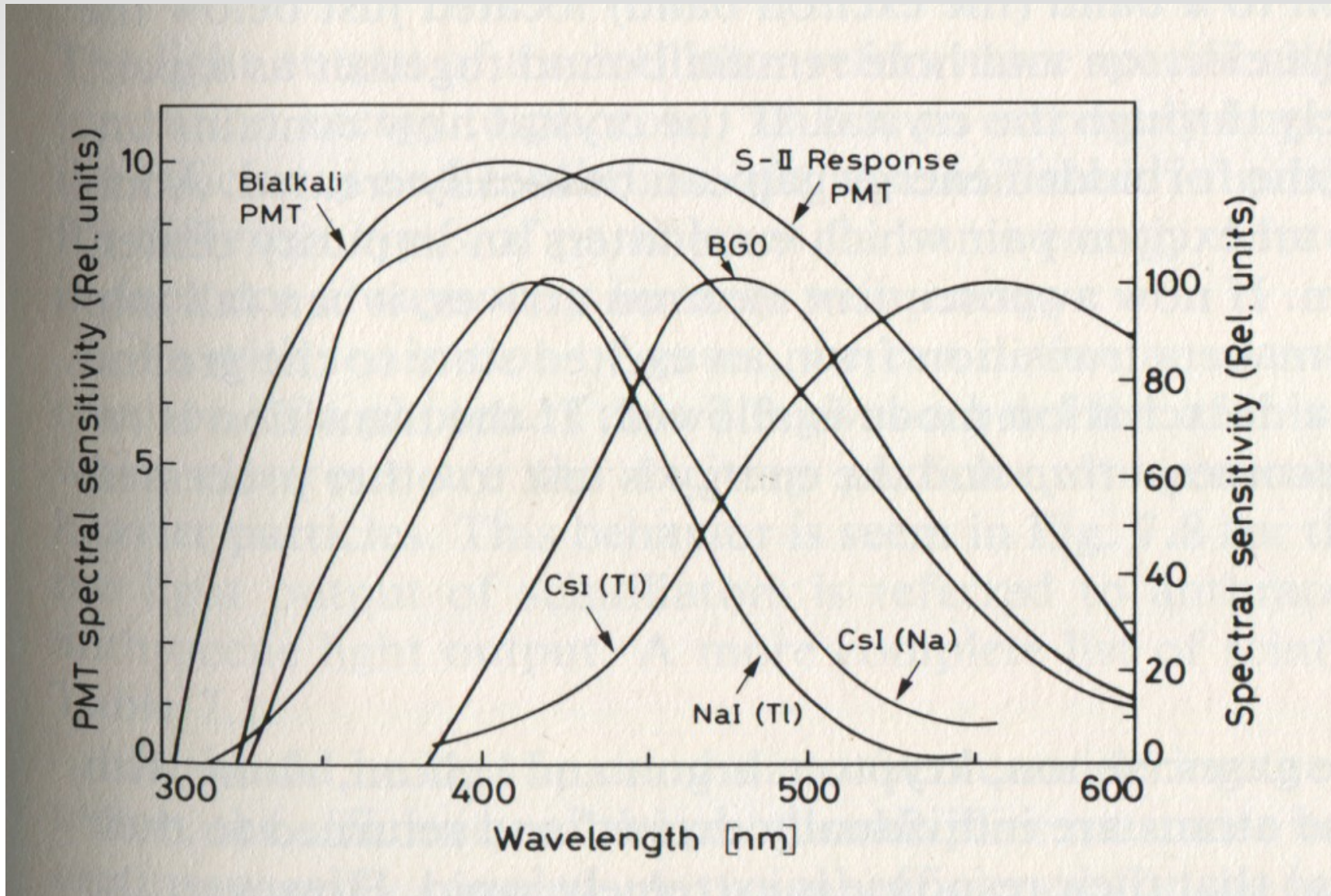
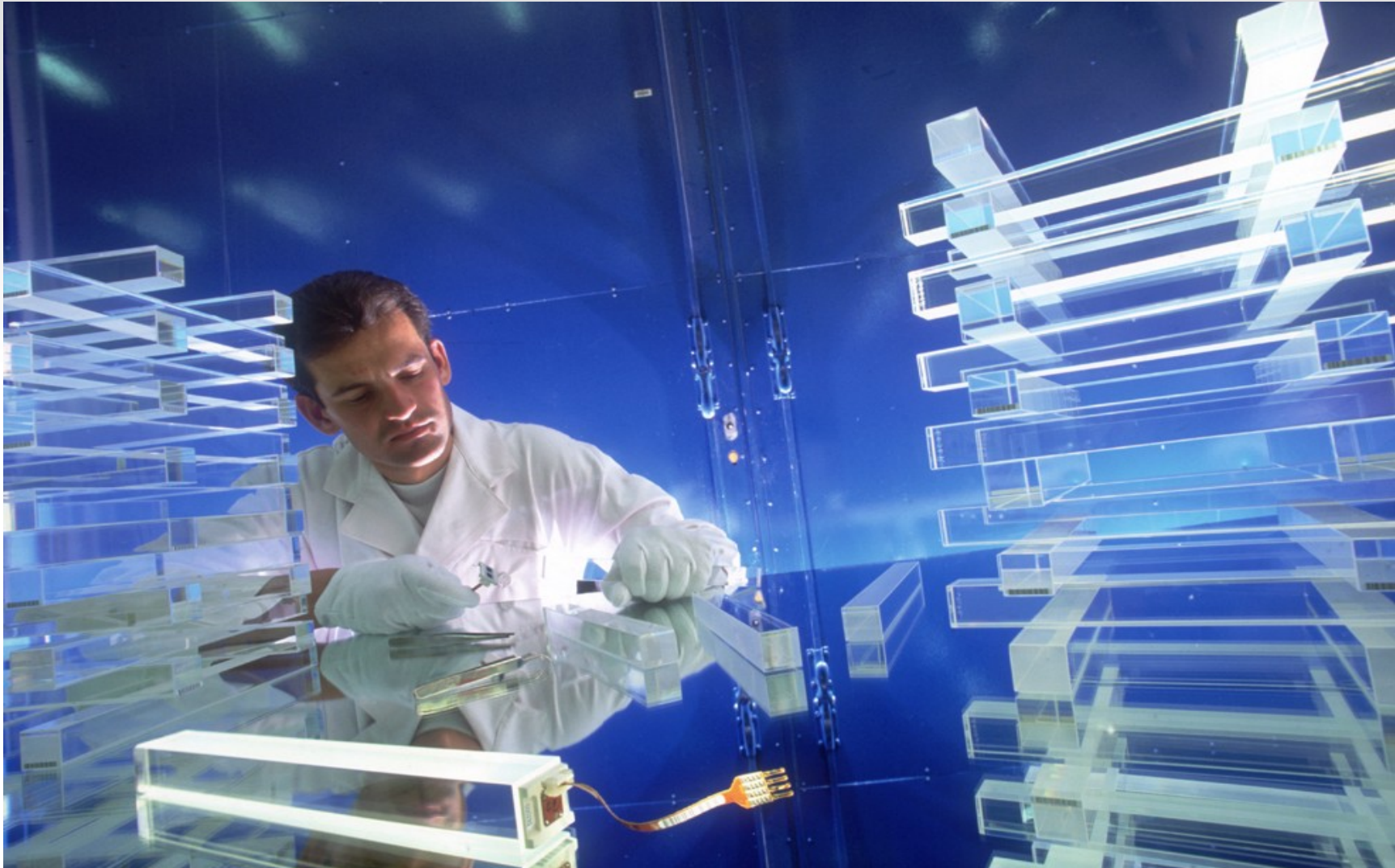


Fig 6.5b CMS elektromagn. Kalorimeter (PbWO_4)



75.848 Kristalle = 91t

Fig 6.6 Eigenschaften versch. Szintillatormaterialien

Organic

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Scintillator	base	density ρ [g/cm ³]	τ_D [ns]	L_{ph}, N_{ph} [per MeV]	λ_{em} [nm]	$n(\lambda_{em})$
Anthracene		1.25	30	16 000	440	1.62
BC-408 (BICRON)	PVT	1.032	2.1	10 000	425	1.58
BC-418 (BICRON)	PVT	1.032	1.5	11 000	391	1.58
UPS-89 (AMCRYS-H)	PS	1.06	2.4	10 000	418	1.60
UPS-91F (AMCRYS-H)	PS	1.06	0.6	6 500	390	1.60

Inorganic

Scintillator	Density ρ [g/cm ³]	X_0 [cm]	τ_D [ns]	L_{ph}, N_{ph} [per MeV]	λ_{em} [nm]	$n(\lambda_{em})$
NaI(Tl)	3.67	2.59	230	$3.8 \cdot 10^4$	415	1.85
LiI(Eu)	4.08	2.2	1400	$1 \cdot 10^4$	470	1.96
CsI	4.51	1.85	30	$2 \cdot 10^3$	315	1.95
CsI(Tl)	4.51	1.85	1000	$5.5 \cdot 10^4$	550	1.79
CsI(Na)	4.51	1.85	630	$4 \cdot 10^4$	420	1.84
Bi ₄ Ge ₃ O ₁₂ (BGO)	7.13	1.12	300	$8 \cdot 10^3$	480	2.15
BaF ₂	4.88	2.1	0.7 630	$2.5 \cdot 10^3$ $6.5 \cdot 10^3$	220 310	1.54 1.50
CdWO ₄	7.9	1.06	5000 20 000	$1.2 \cdot 10^4$	540 490	2.35
PbWO ₄ (PWO)	8.28	0.85	10/30	70–200	430	2.20
Lu ₂ SiO ₅ (Ce) (LSO)	7.41	1.2	12/40	$2.6 \cdot 10^4$	420	1.82