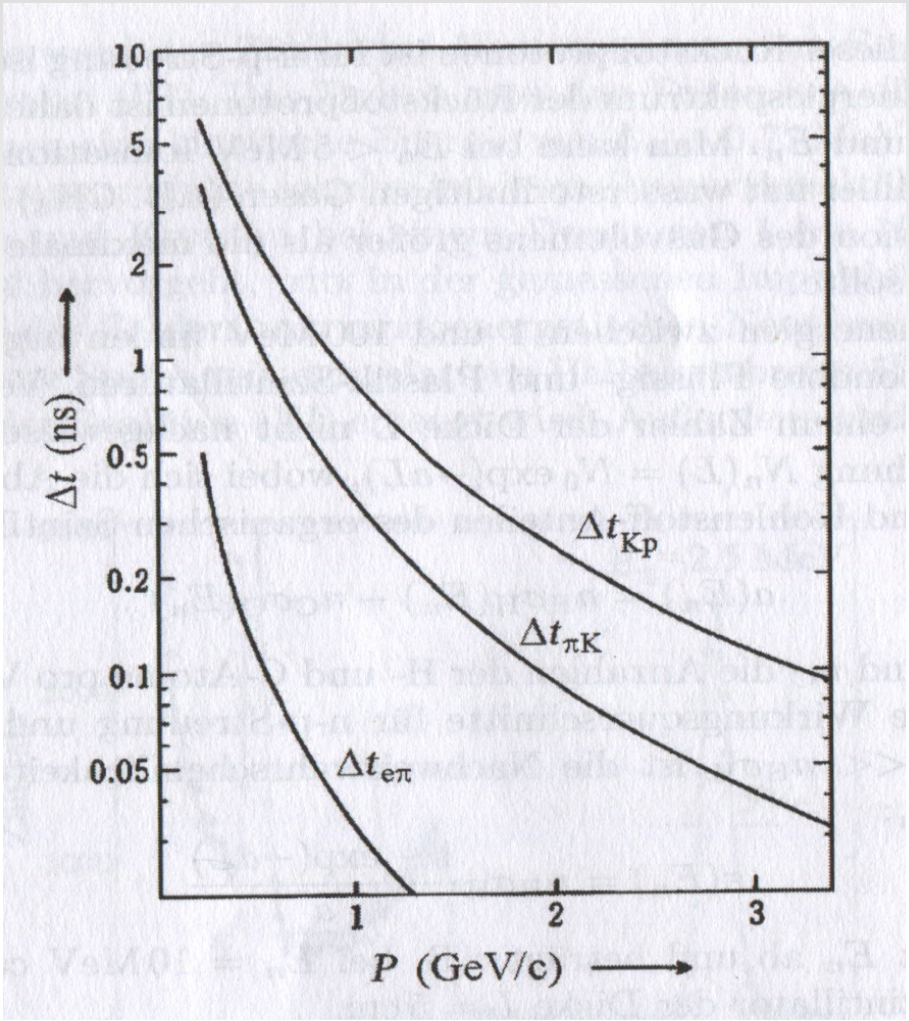
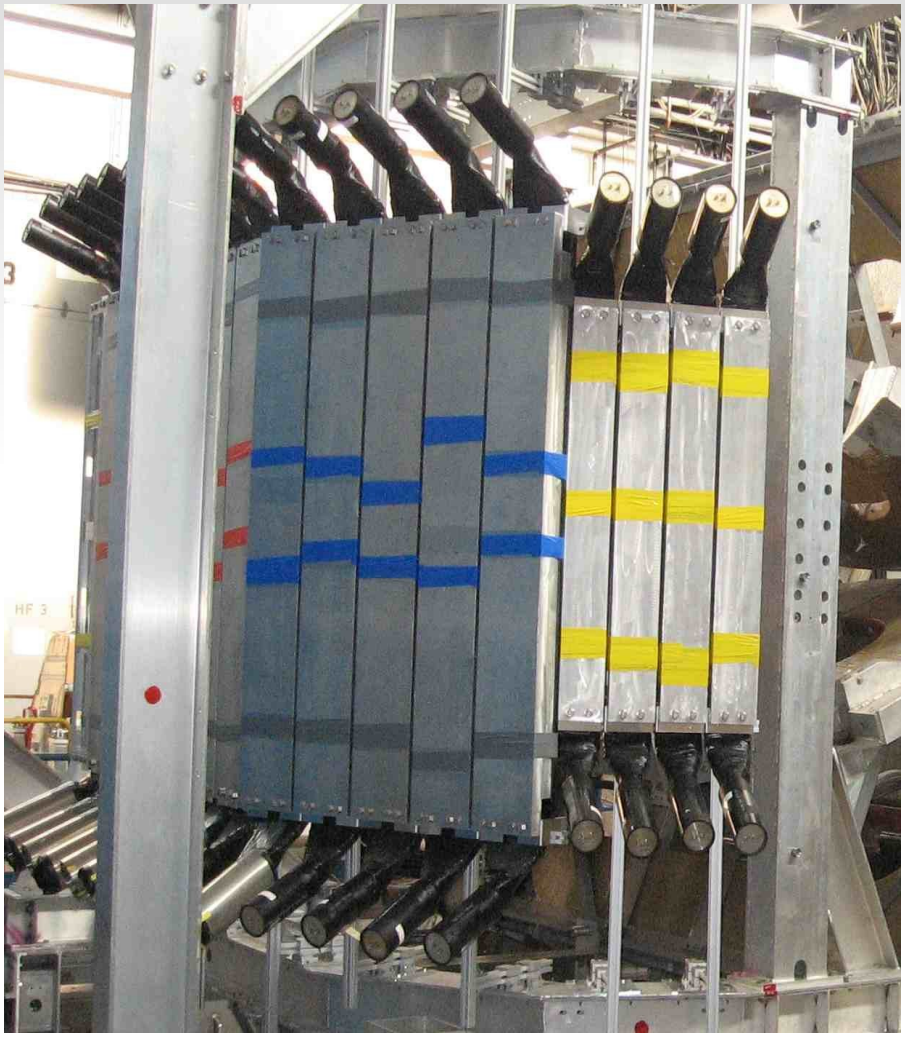
Fig 7.1 Flugzeitmesung



L = 1m



ToF, Olympus-Experiment, DESY

Fig 7.2 Cherenkov-Effekt

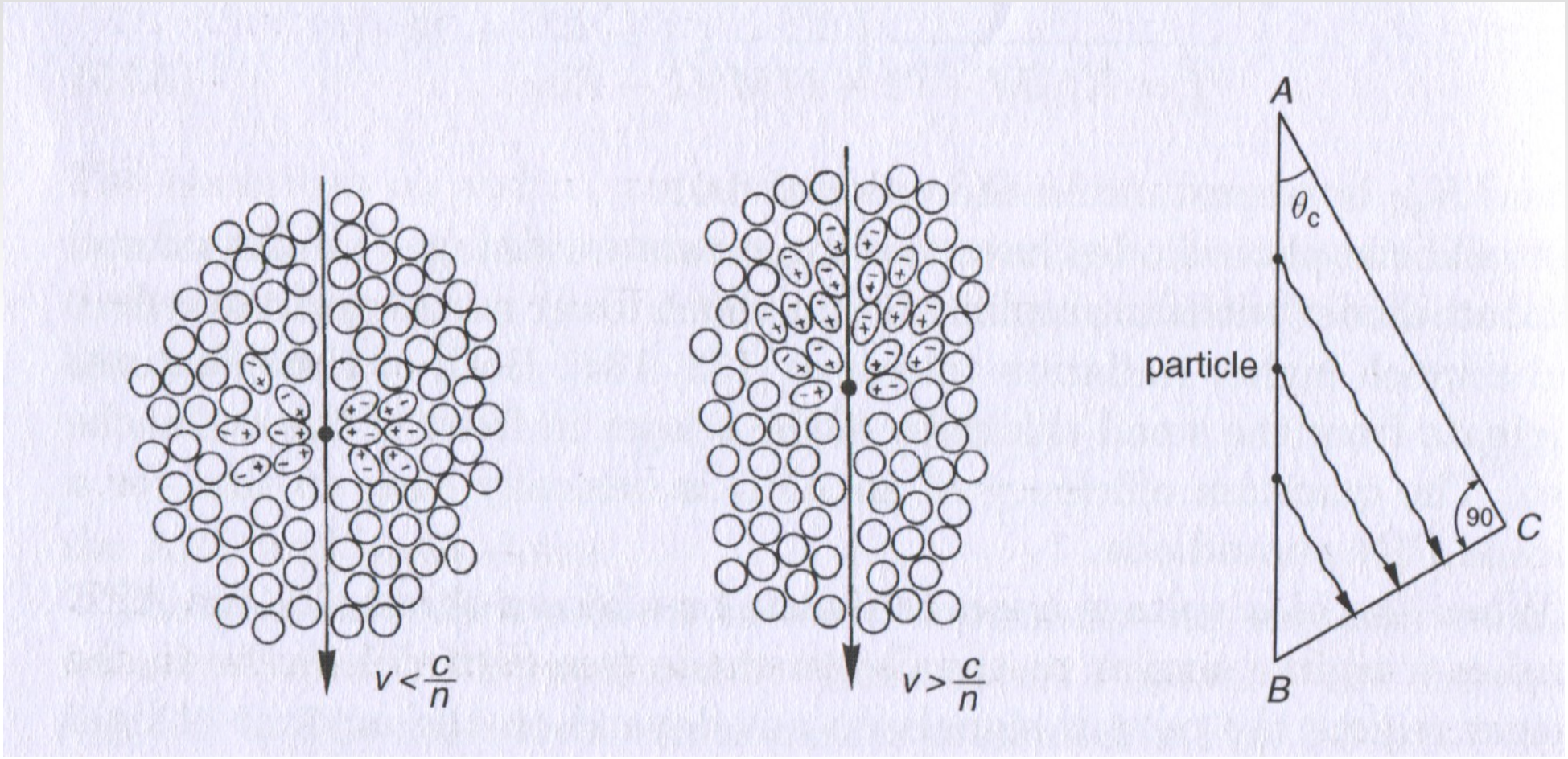


Fig 7.3 Cherenkov-Winkel

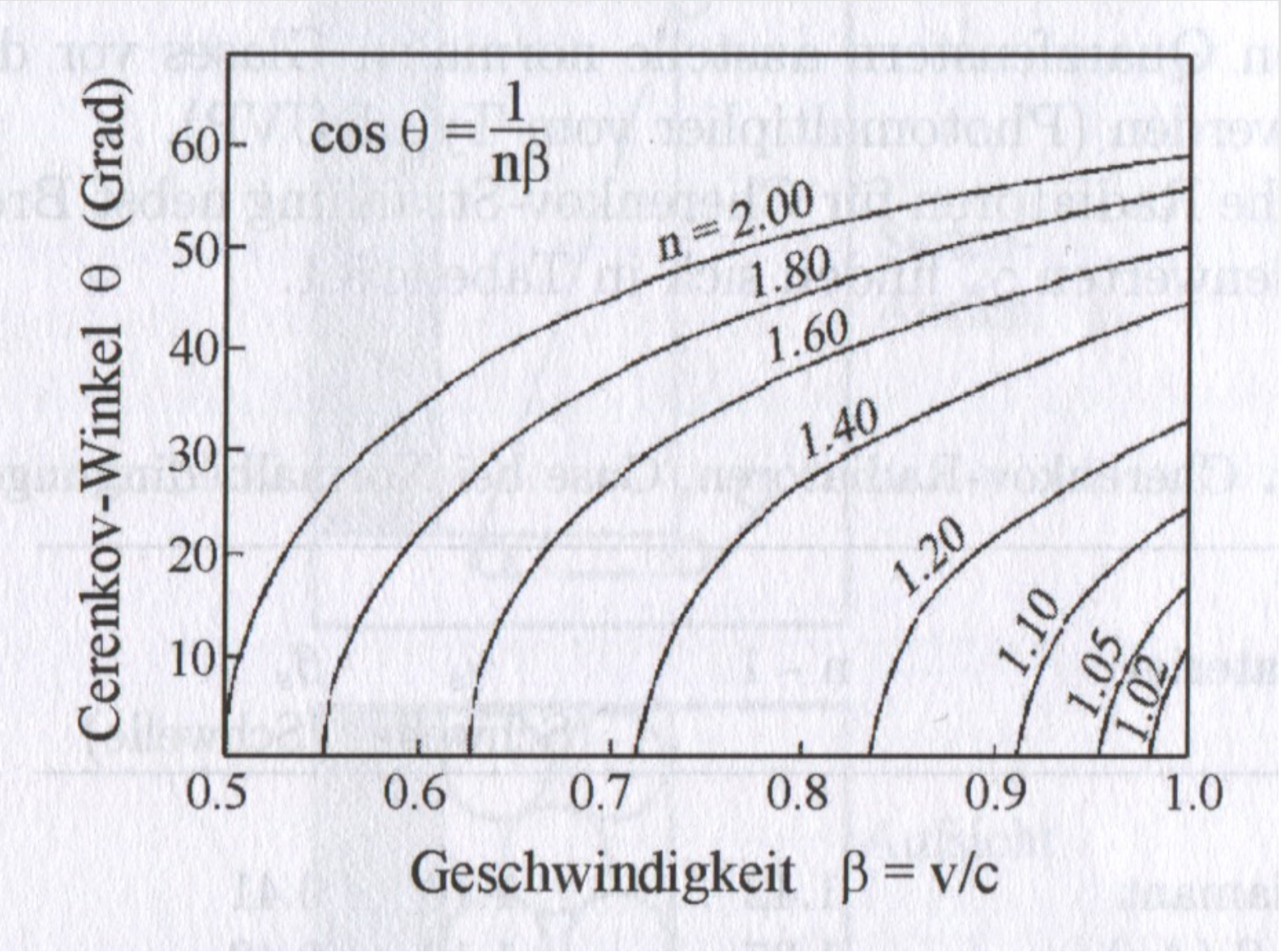


Fig 7.4 Cherenkov-Photonen

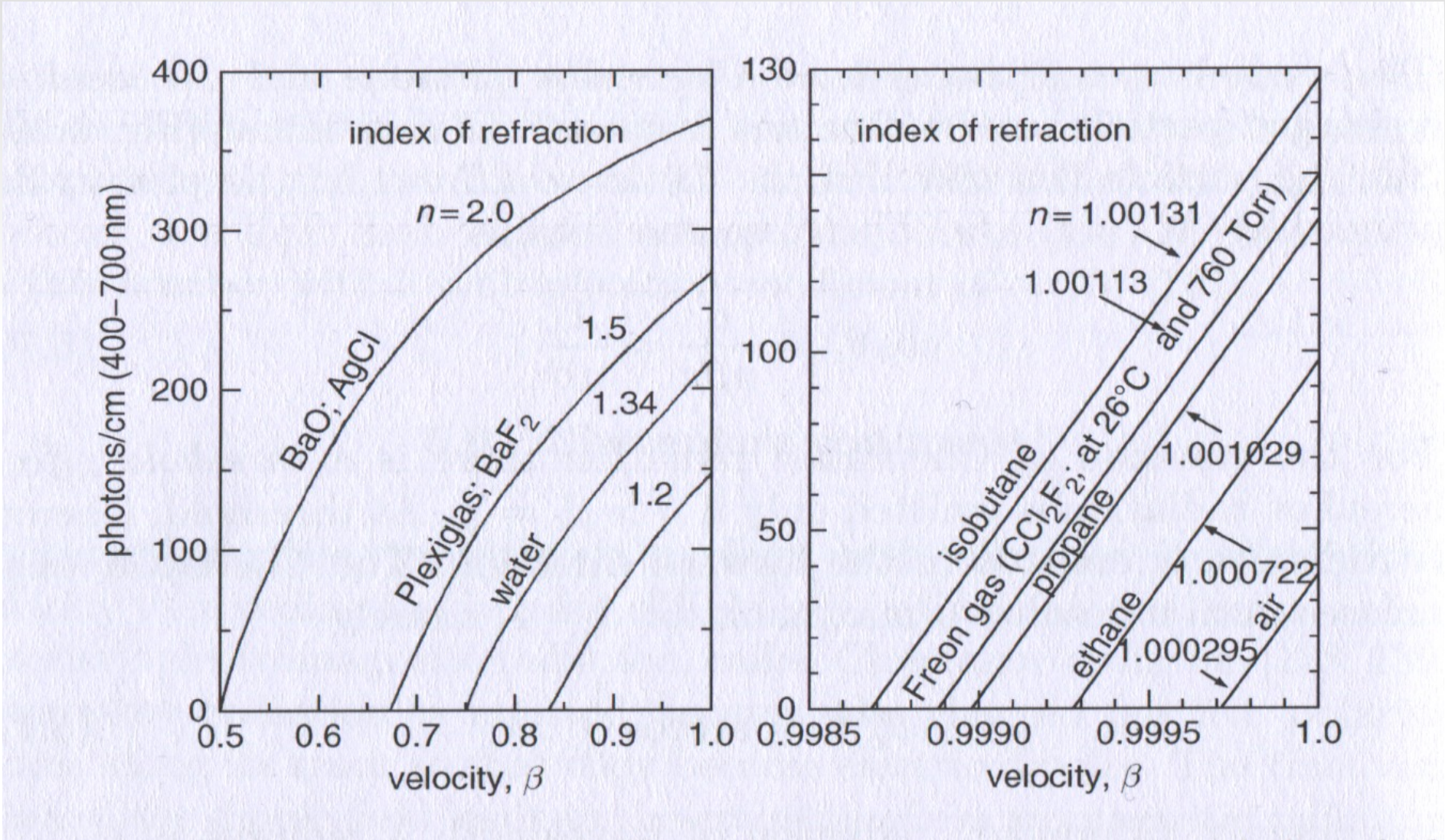


Fig 7.5 Cherenkov-Radiatoren

Material	$n-1$	β threshold	γ threshold
Solid sodium	3.22	0.24	1.029
Diamond	1.42	0.41	1.10
Flint glass (SFS1)	0.92	0.52	1.17
Lead fluoride	0.80	0.55	1.20
Aluminium oxide	0.76	0.57	1.22
Lead glass	0.67	0.60	1.25
Polystyrene	0.60	0.63	1.28
Plexiglas (Lucite)	0.48	0.66	1.33
Borosilicate glass (Pyrex)	0.47	0.68	1.36
Lithium fluoride	0.39	0.72	1.44
Water	0.33	0.75	1.52
Liquid nitrogen	0.205	0.83	1.79
Silica aerogel	0.007–0.13	0.993–0.884	8.46–2.13
Pentane (STP)	$1.7 \cdot 10^{-3}$	0.9983	17.2
CO_2 (STP)	$4.3 \cdot 10^{-4}$	0.9996	34.1
Air (STP)	$2.93 \cdot 10^{-4}$	0.9997	41.2
H_2 (STP)	$1.4 \cdot 10^{-4}$	0.99986	59.8
He (STP)	$3.3 \cdot 10^{-5}$	0.99997	123

Fig 7.6 Schwellenzähler

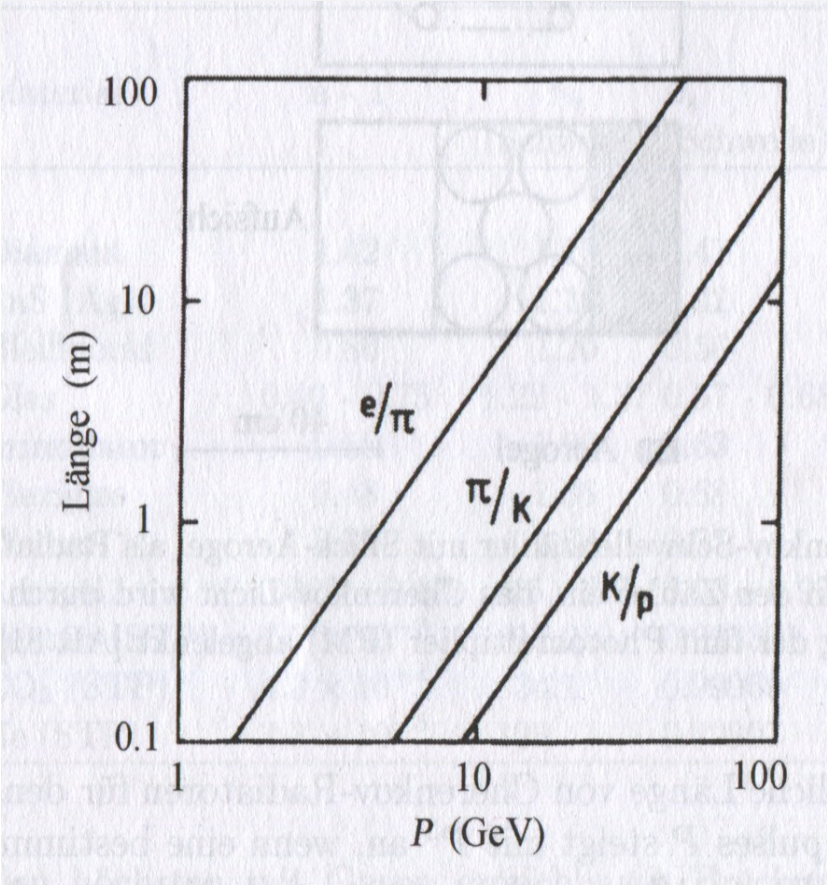


Tabelle 5.2. *Eine Auswahl von Cherenkov-Schwellenzählern* [LE 81c]

Zähler	Brechungs-index n	Radiator Material	Länge des Radiators (cm)	Länge des Zählers (cm)	Ausbeute (Photoelektronen)
A	1.022	Aerogel	20	50-100	5-6
B	1.006	?(Aerogel)	?	50-100	?
C	1.00177	Neopentan	30	50	$\simeq$ 10
D	1.00049	$(N_2O - CO_2)$ oder Fr 14	100	$\simeq$ 120	$\simeq$ 10
E	1.000135	(Ar-Ne) oder H_2	185	$\simeq$ 200	$\simeq$ 5

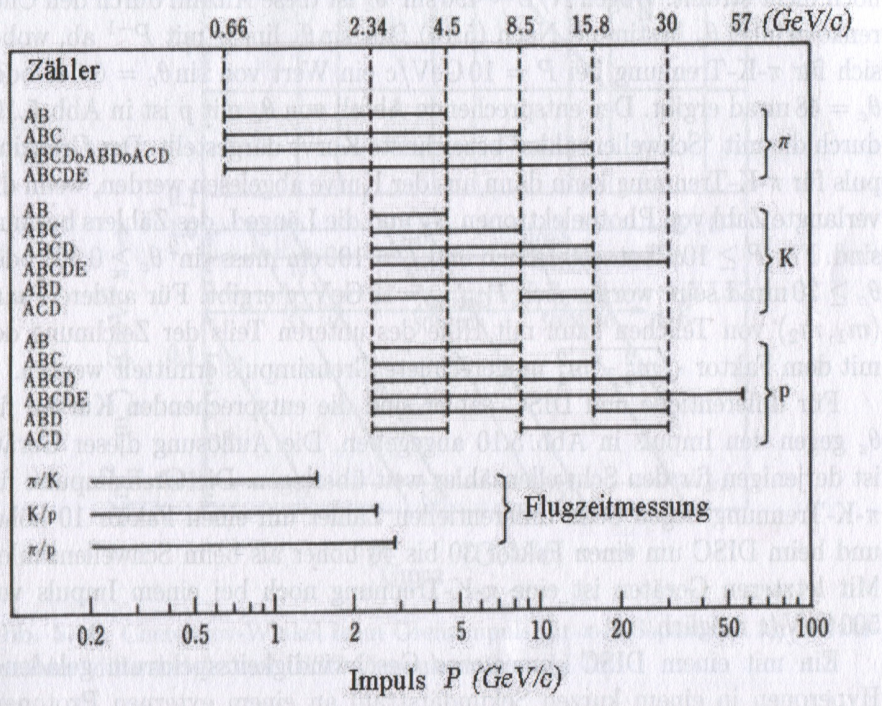
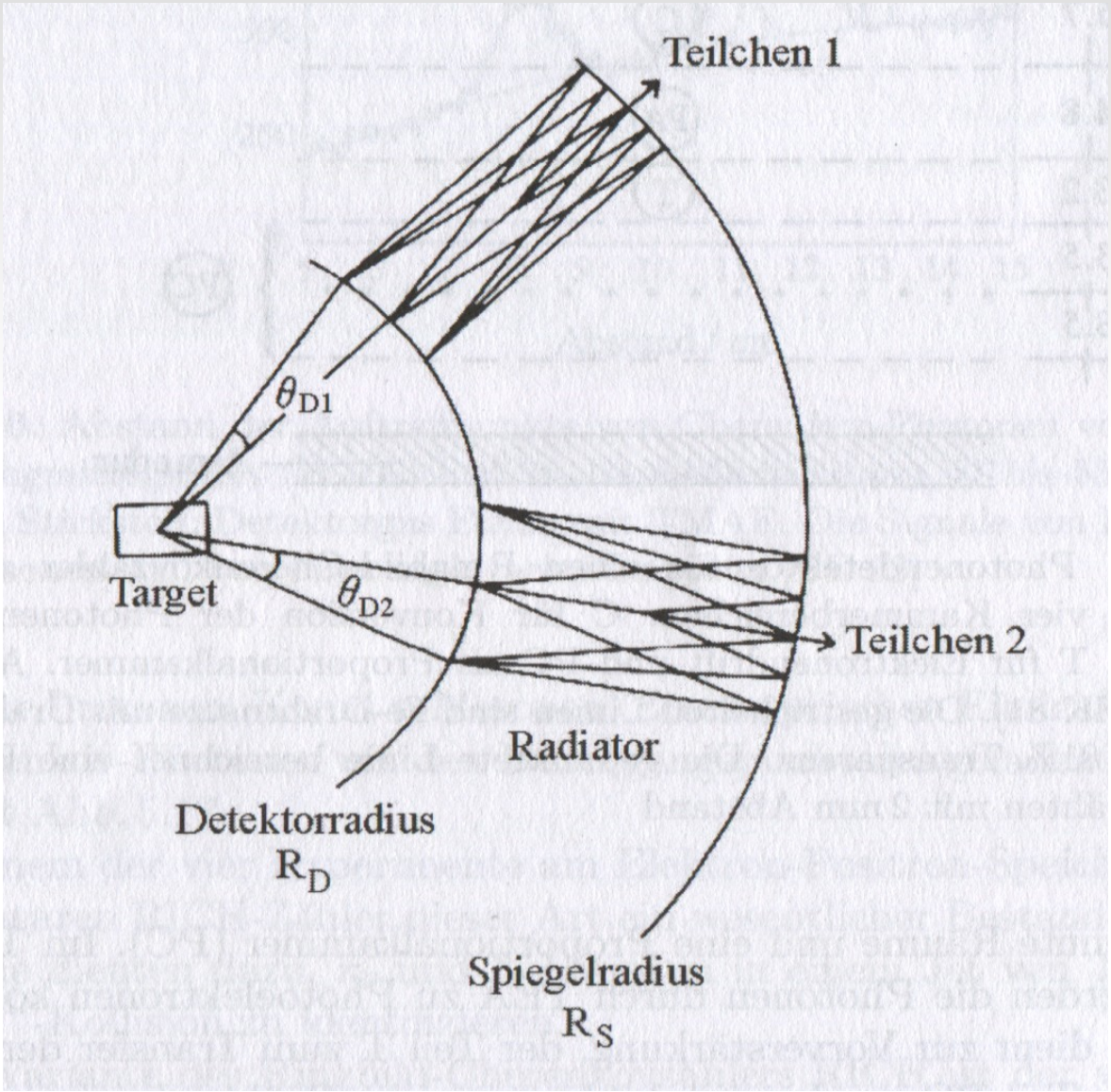
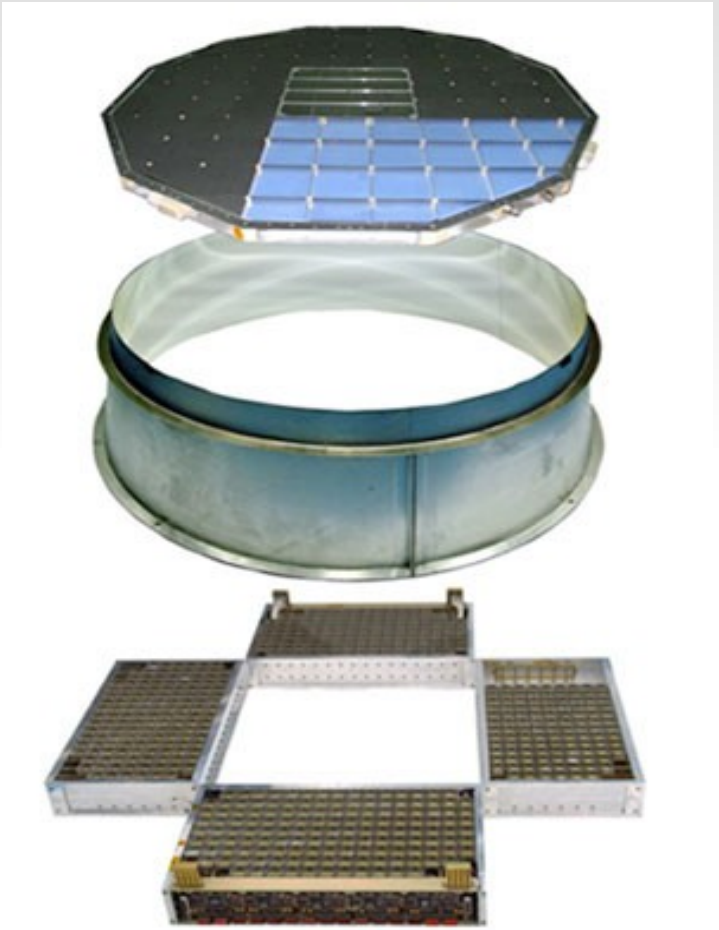


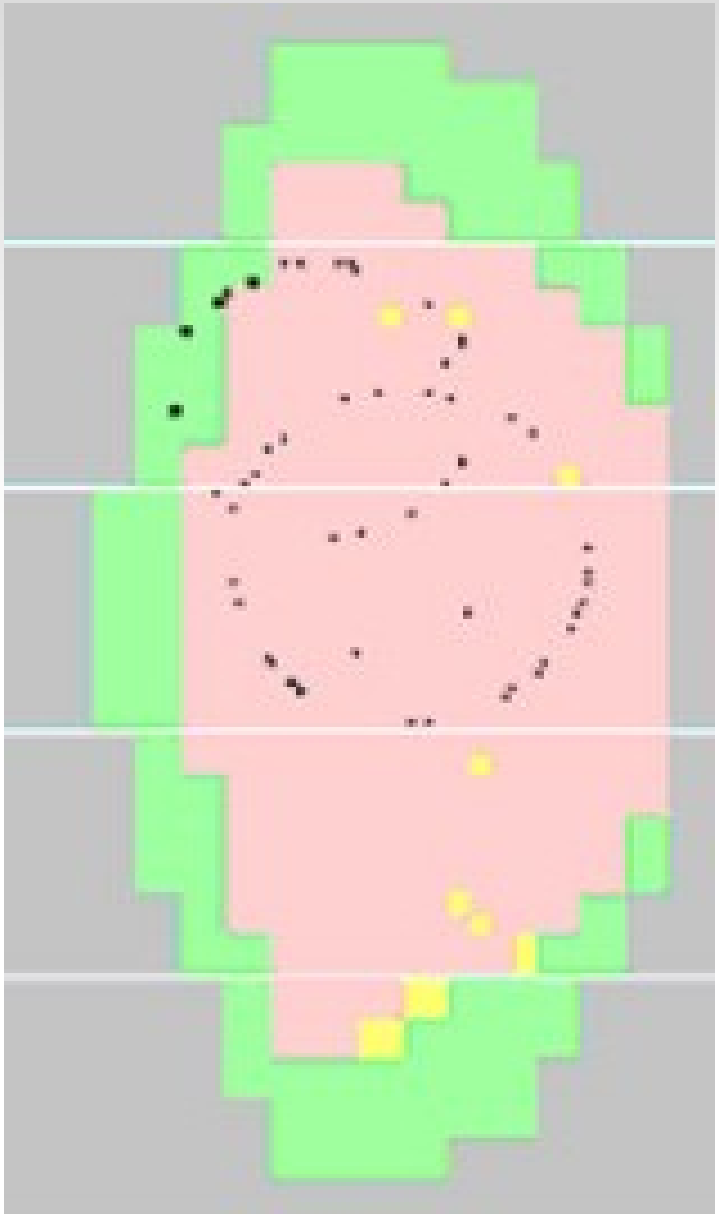
Fig 7.7 RICH-Detektor

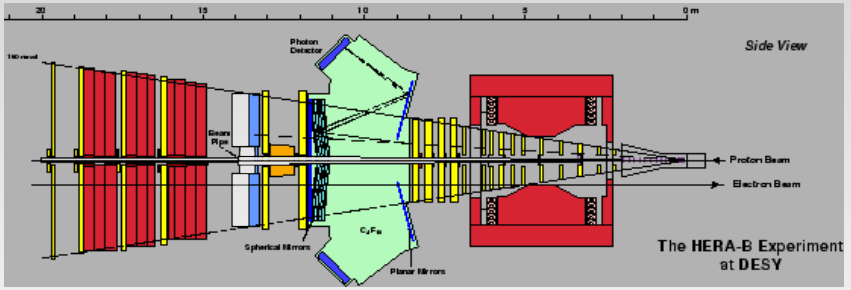




RICH @AMS-2

Fig 7.8 Hera-B RICH





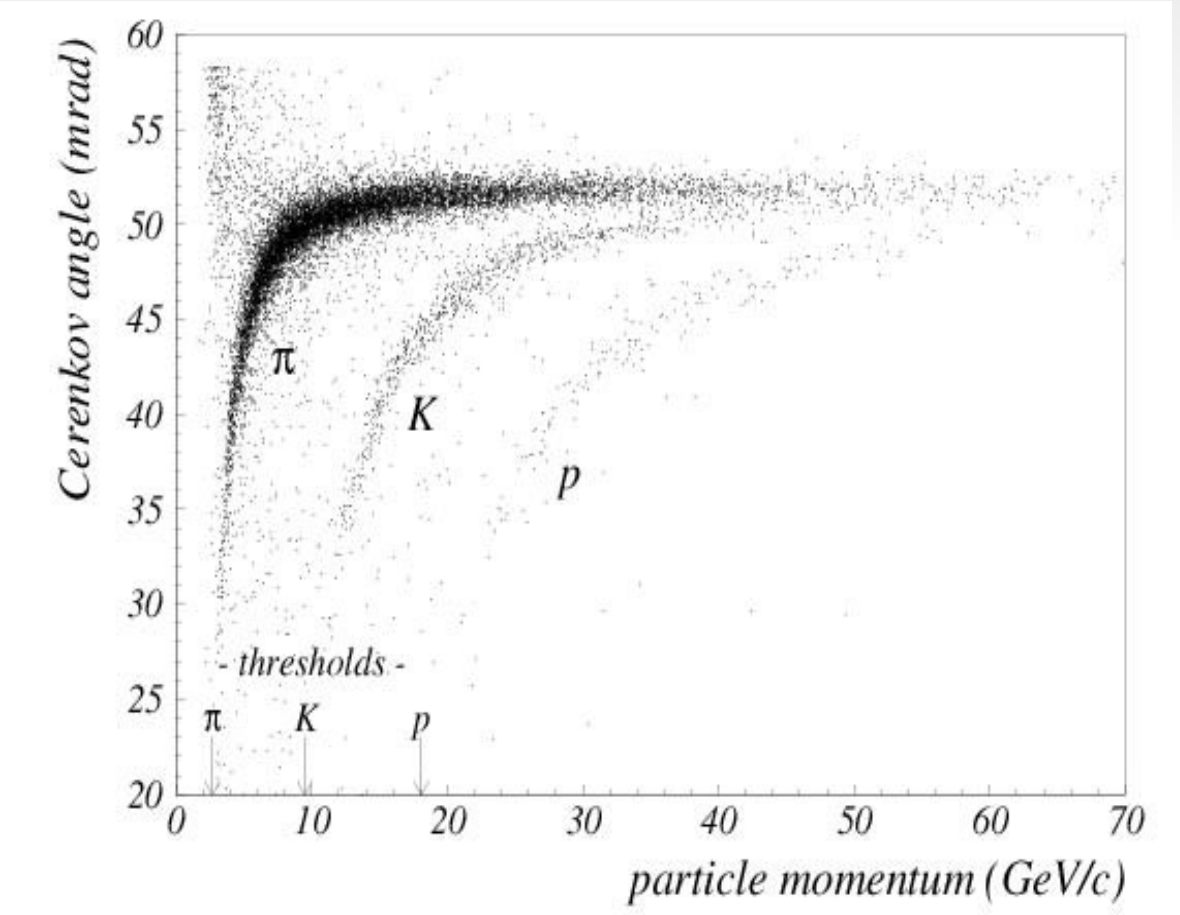
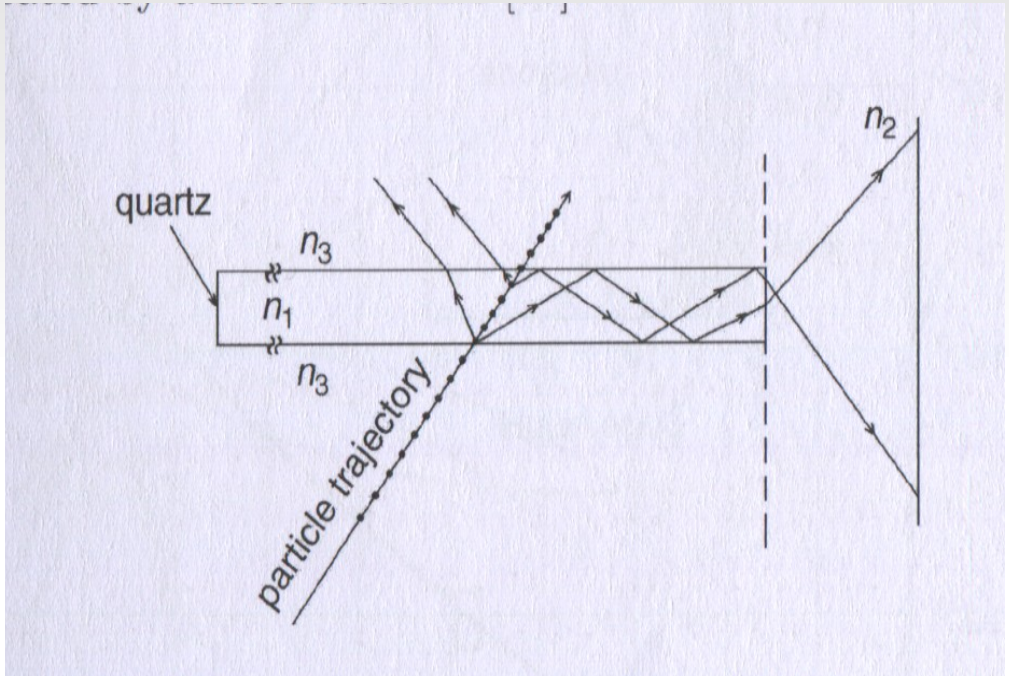


Fig 7.9 DIRC-Detektor



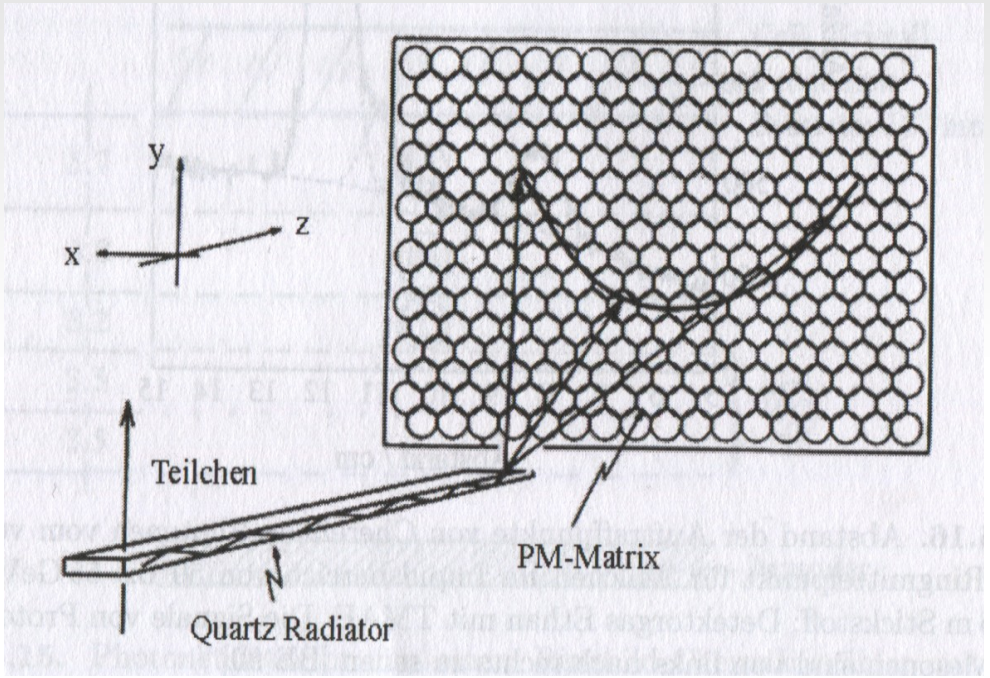
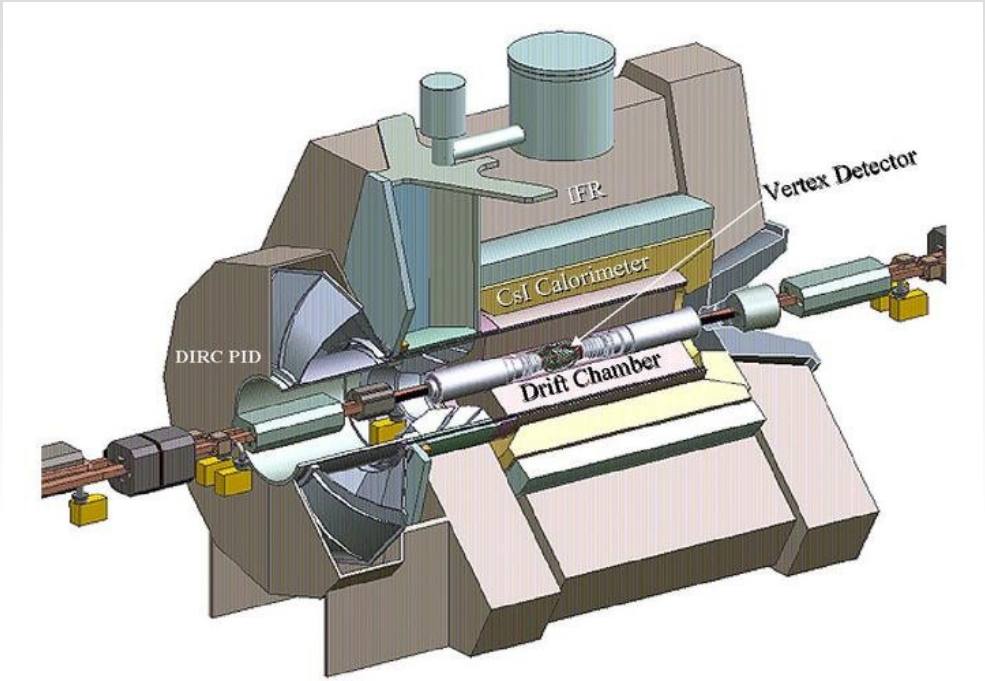
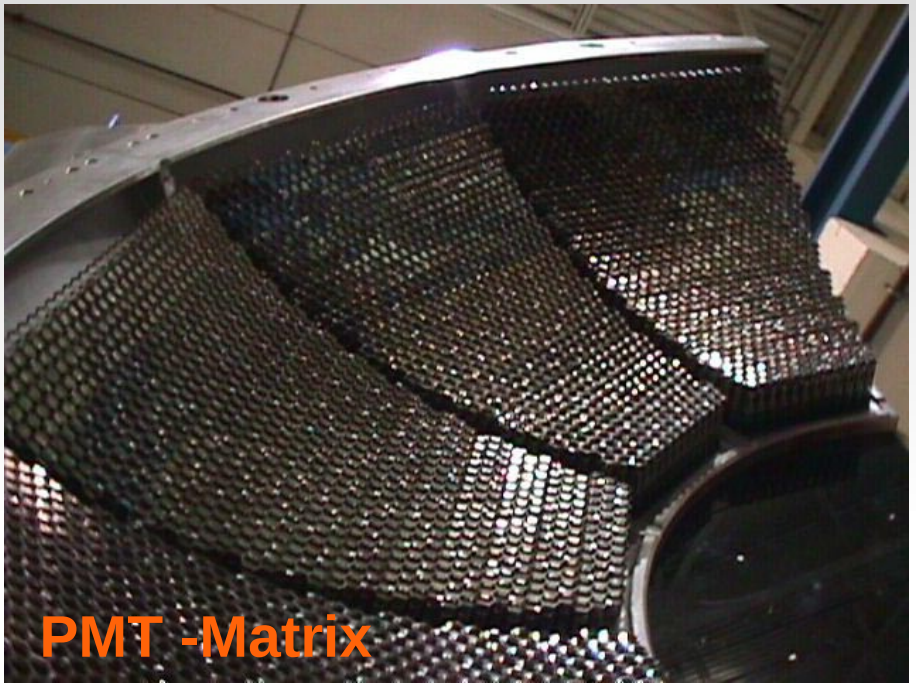
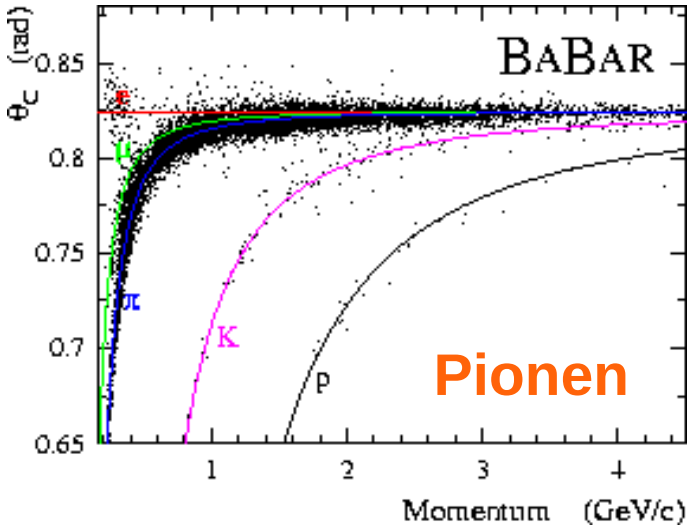


Fig 7.10 BaBar DIRC







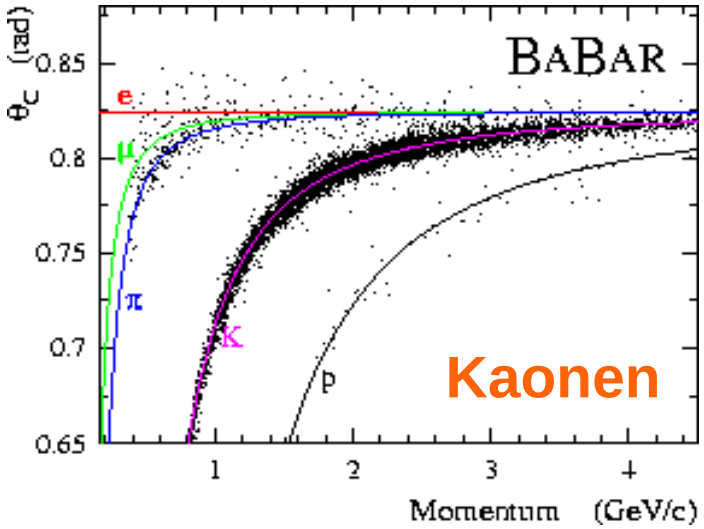
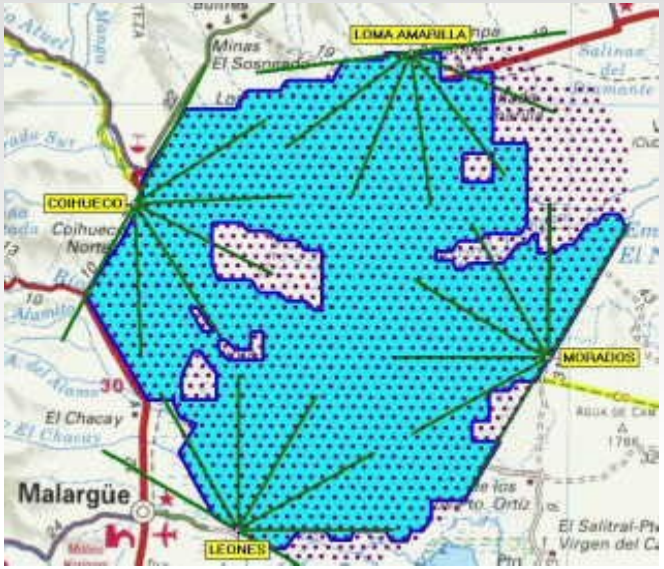
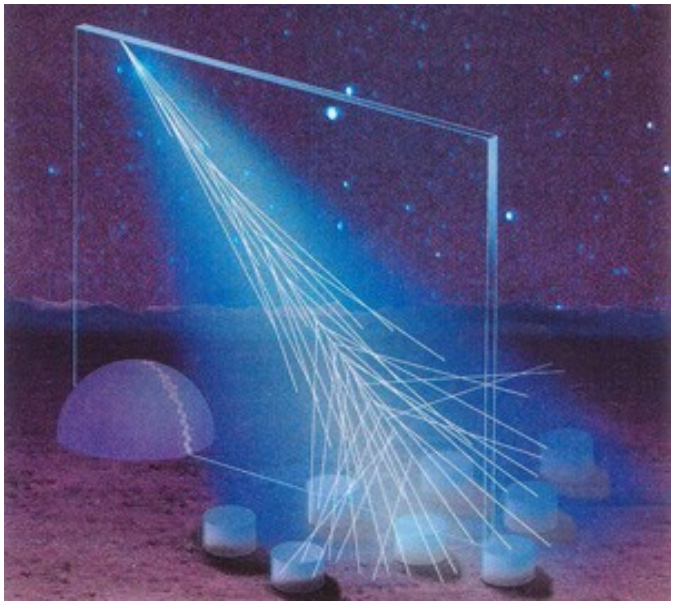


Fig 7.11 Auger-Observatorium



Mendoza,Argentien
1600 Kalorimetertanks (Wasser),
Abstand 1,5km,
4 Fly-Eye-Detektoren,
Meßbereich 10^{17}-10^{20}eV



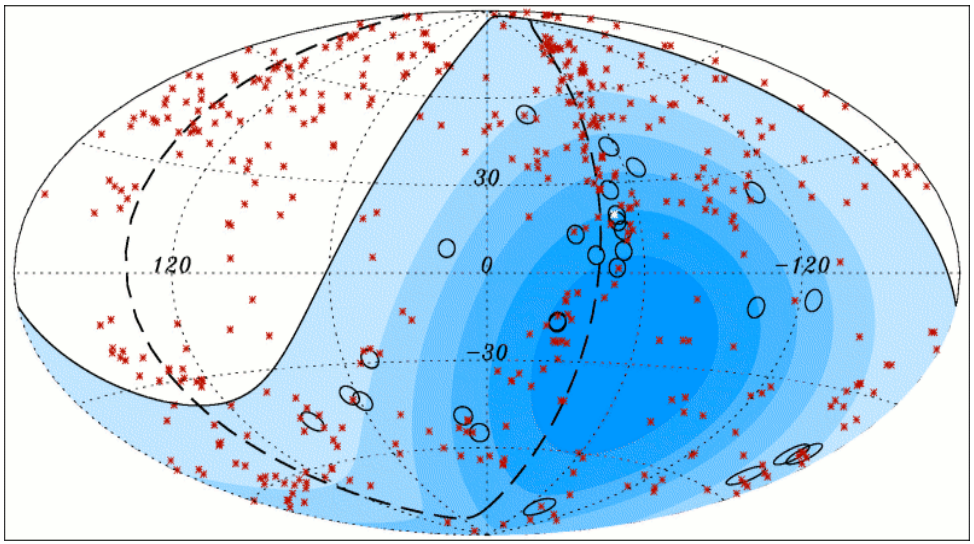
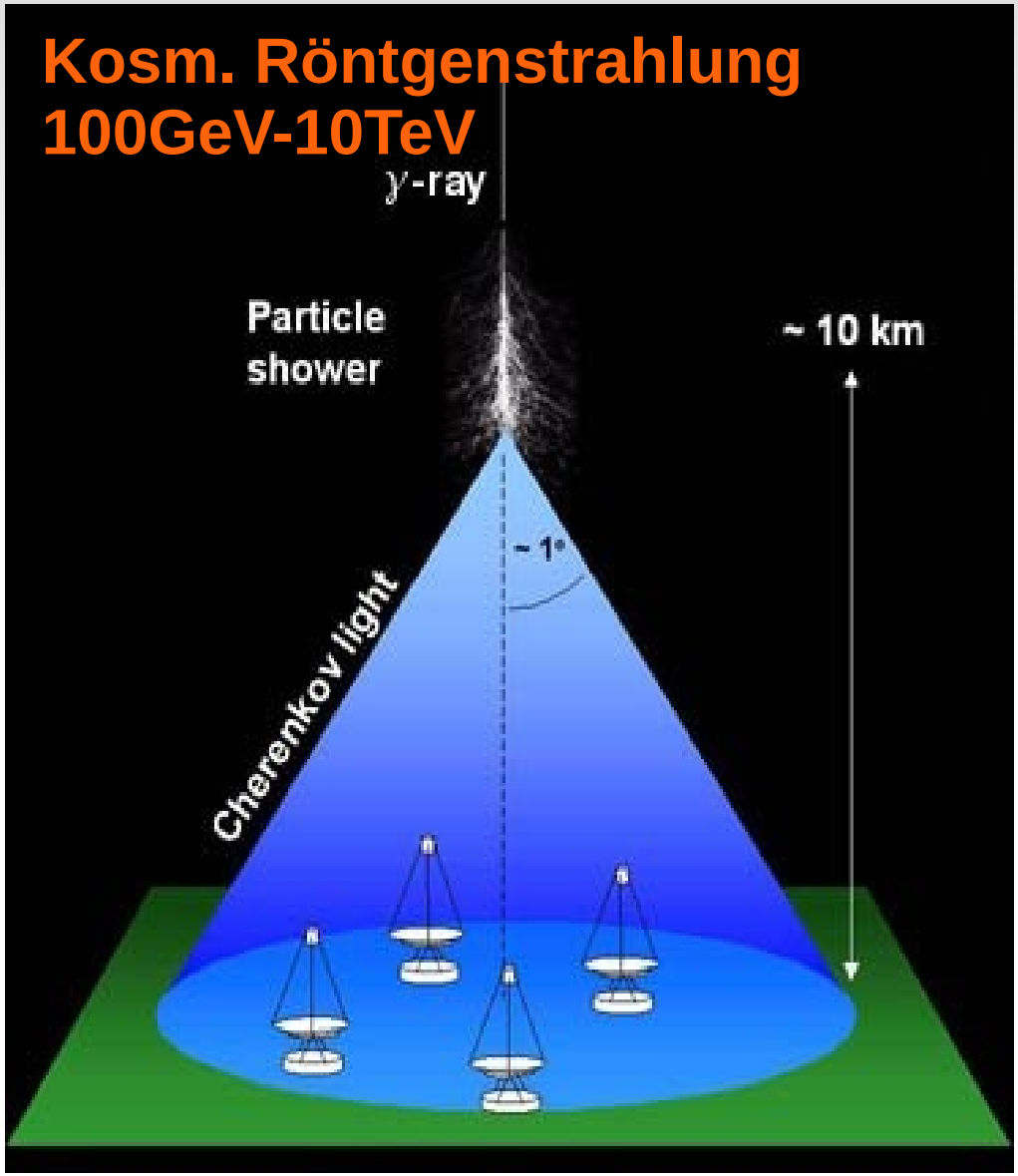


Fig 7.12 H.E.S.S.-Teleskop



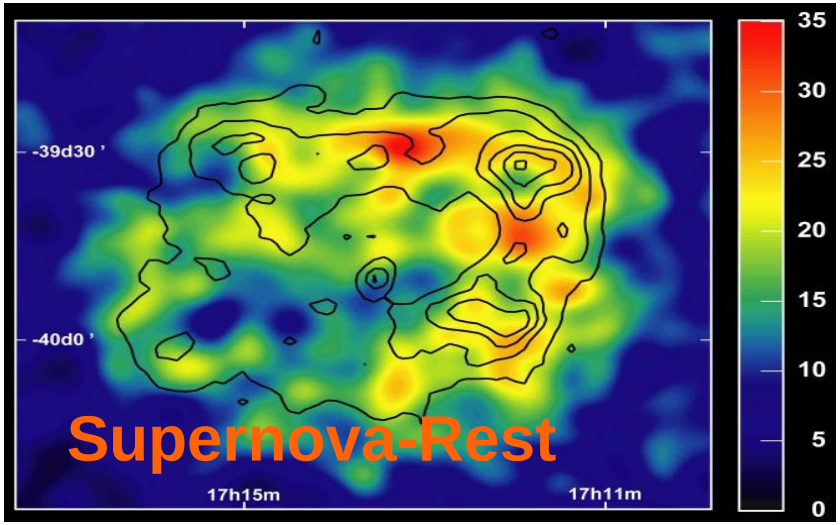
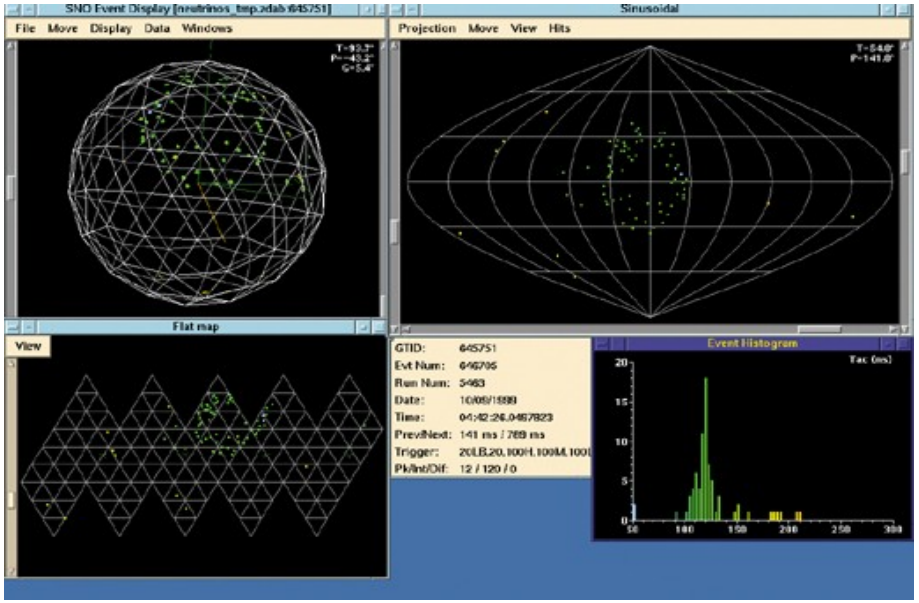
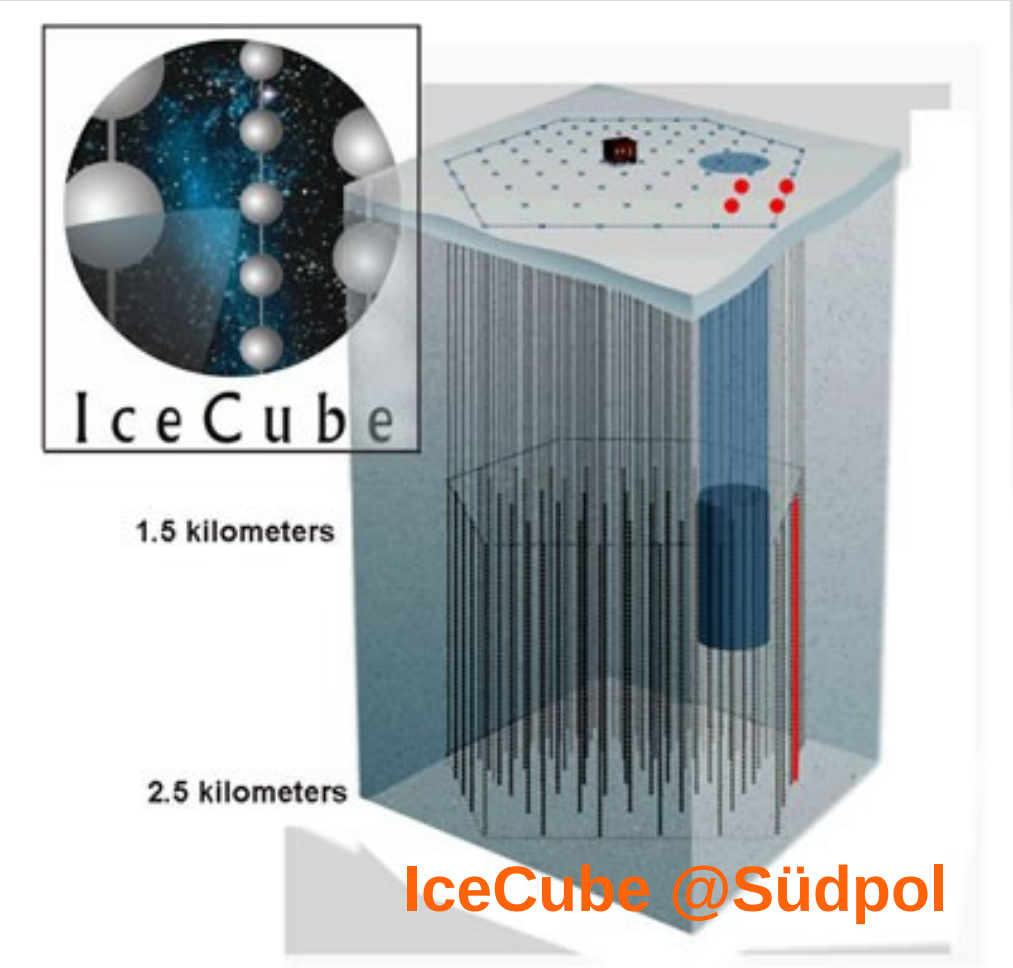


Fig 7.13 Neutrino-Nachweis

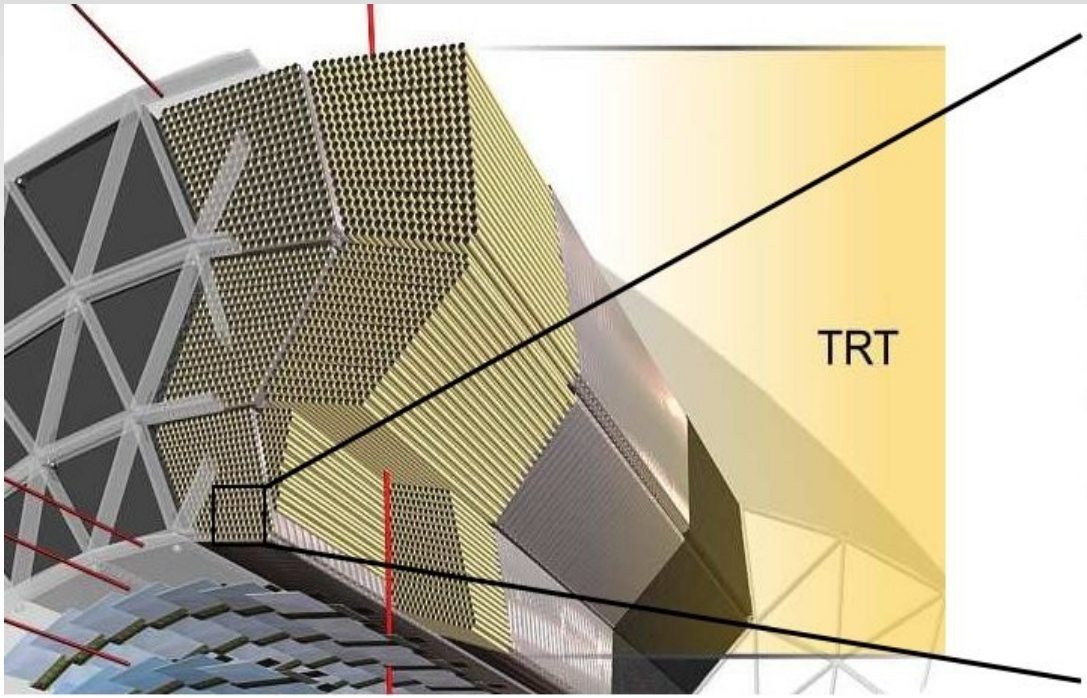
SNO @Sudbury Mine

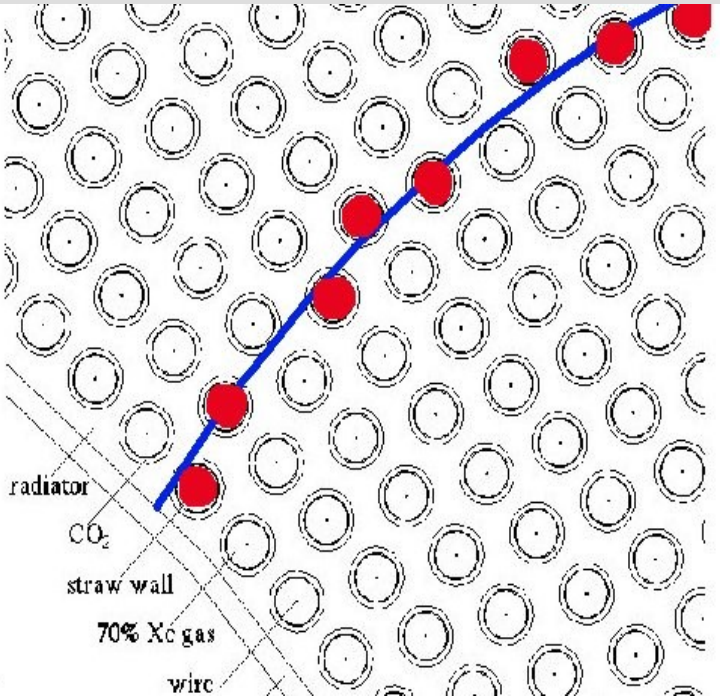


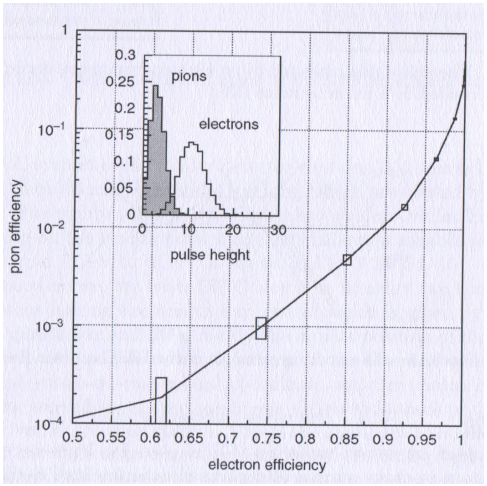


IceCube @Südpol

Fig 7.14 ATLAS-TRT







Bsp. für Radiator-Materialien