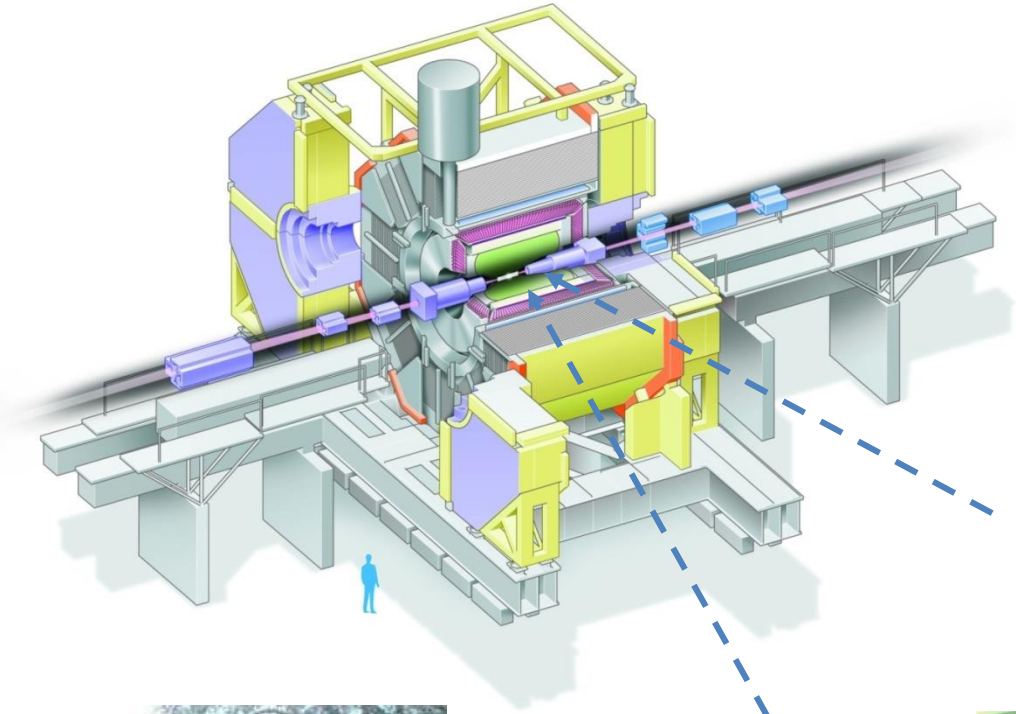
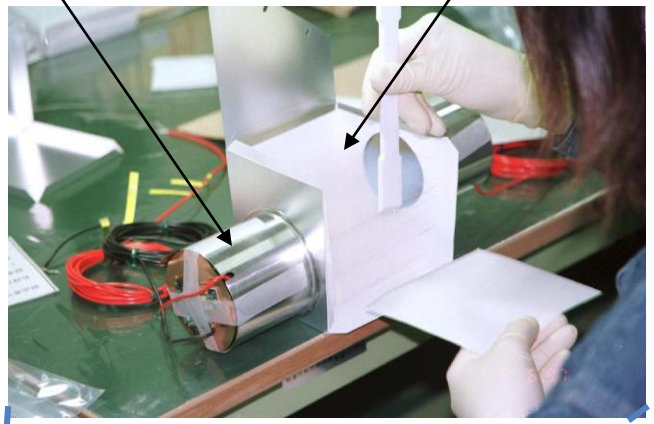
Pragovni števec Čerenkova

primer: detektor Belle

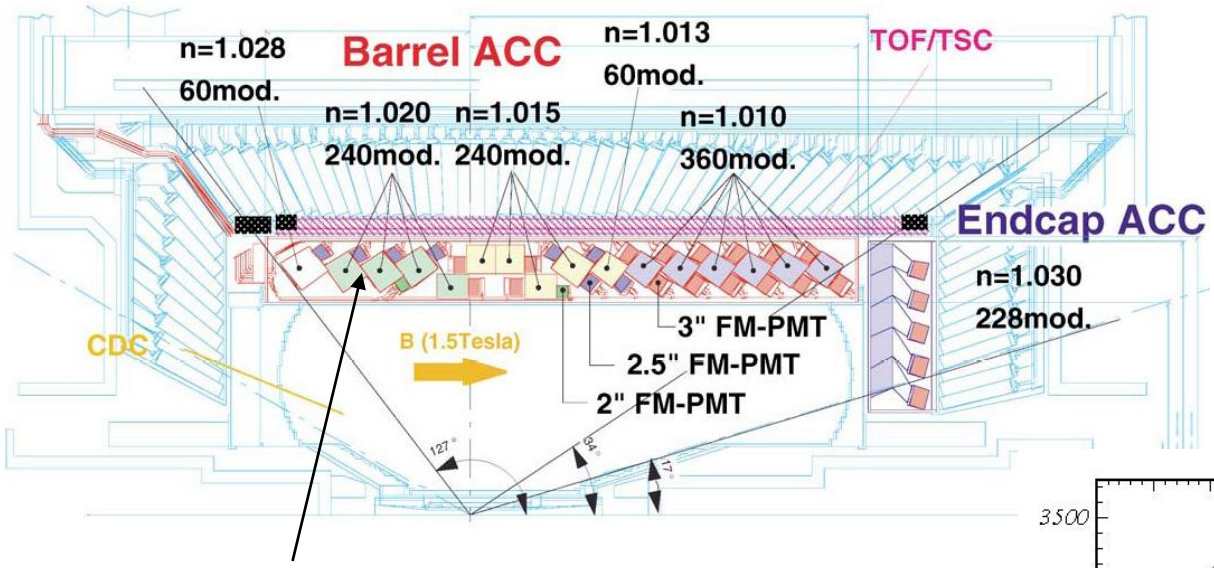




aerogel

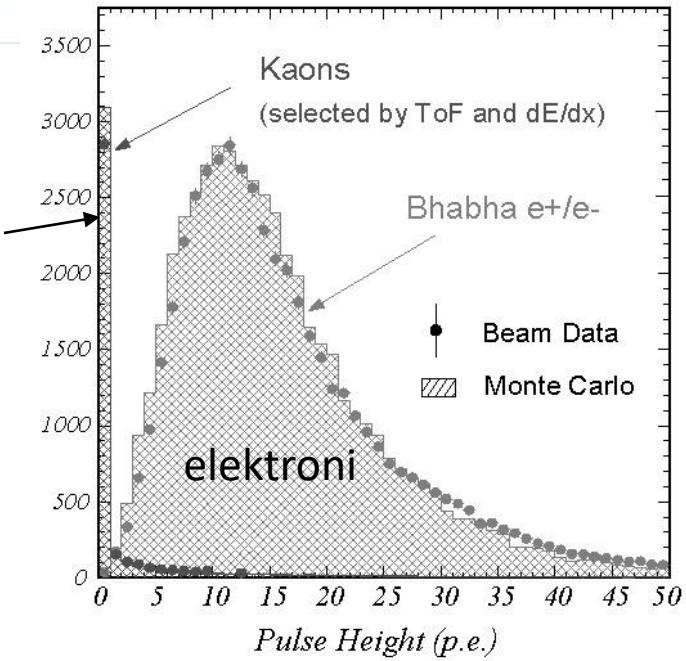
Pragovni števec Čerenkova

primer: detektor Belle



aerogel z različnim lomnim količnikom, zaradi različnih gib. kol. delcev

kaoni

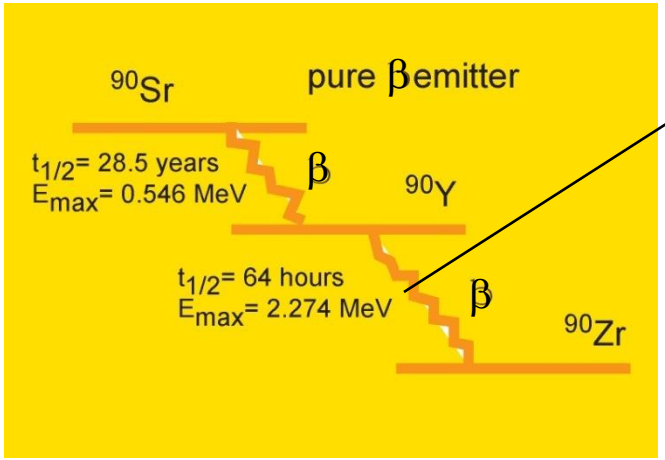


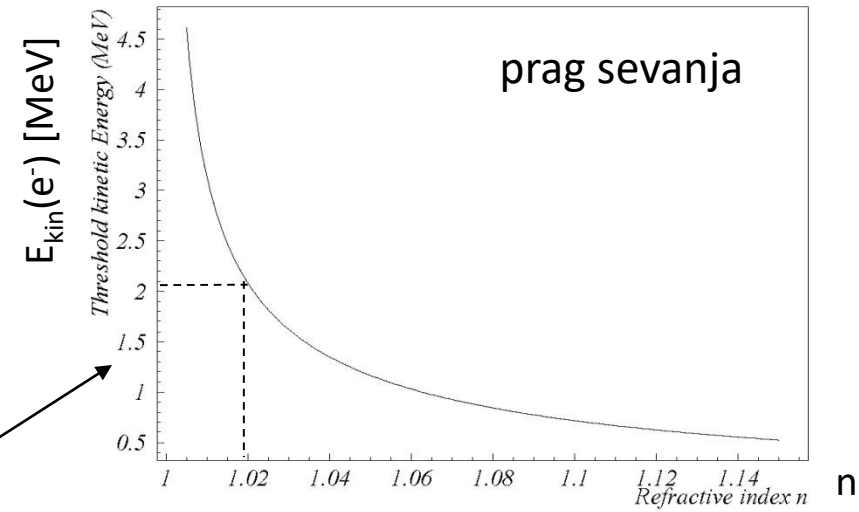
št. fotoelektronov

Pragovni števec Čerenkova

primer: razvoj detektorja za ^{90}Sr

- ^{90}Sr je toksičen radioizotop
- hitra meritev intenzitete pomembna
- ločevanje od drugih radioizotopov - maksimalna energija e^-

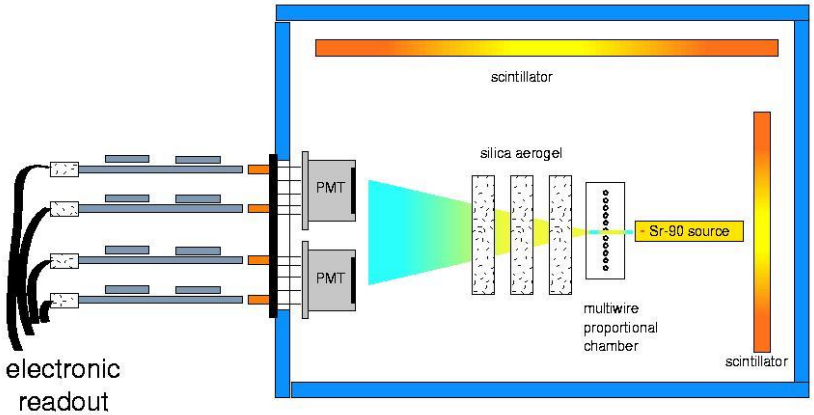




$$\beta \geq \frac{1}{n}, \quad \left(\frac{cp}{E}\right)^2 \geq \frac{1}{n^2}$$

$$n^2\left(E^2 - m^2c^4\right) \geq E^2$$

$$\Rightarrow \quad E = E_k + mc^2 \geq \frac{nmc^2}{\sqrt{n^2-1}}$$

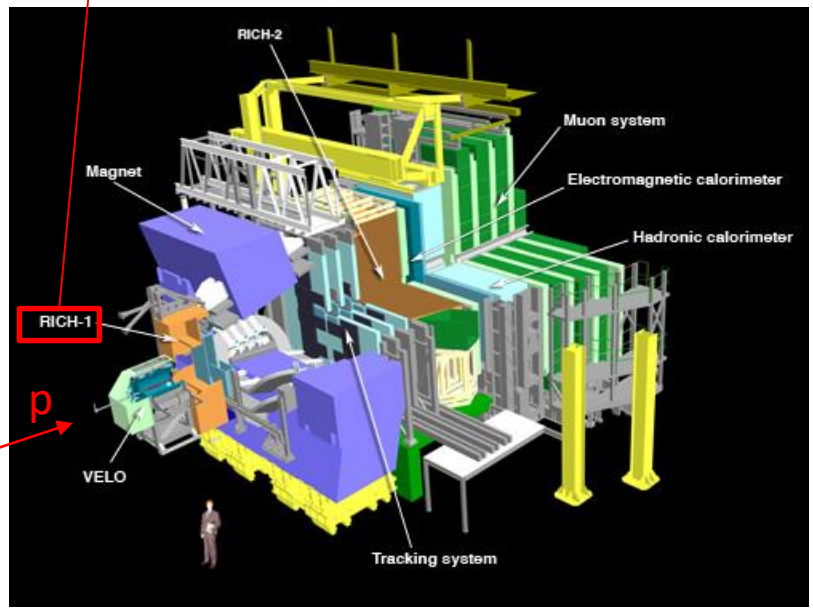


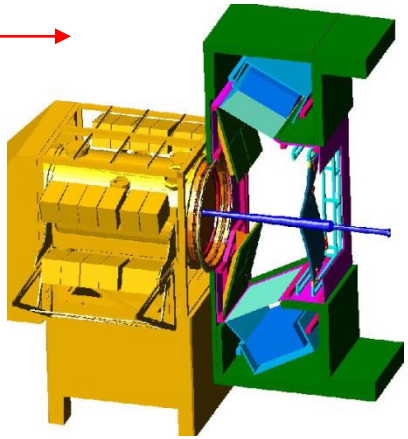
eksperimentalna postavitev

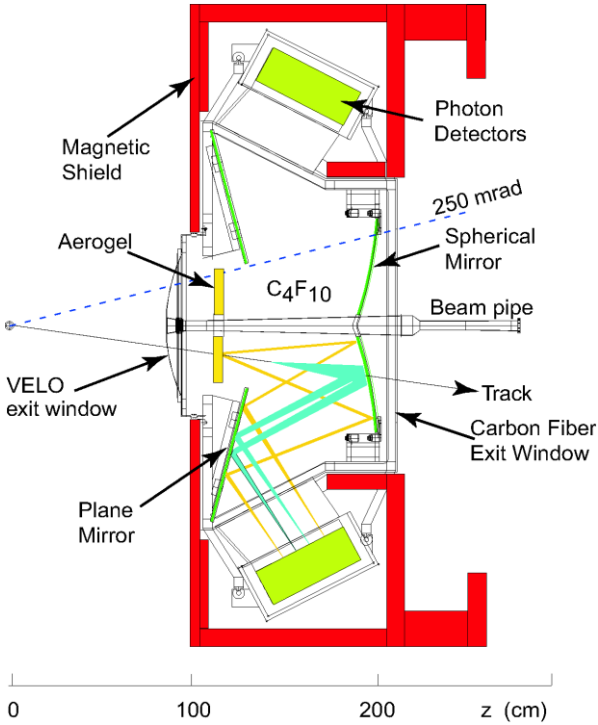
- scintilatorji za zatiranje kozmičnih žarkov (μ)
- MWPC za določanje sledi e^-

Števec obročev Čerenkova

primer: detektor LHCb







sevalca: aerogel, C_4F_{10}
ravna in sferna zrcala

detektor namenjen preučevanju
mezonov B, ki nastanejo v trkih p p;
ni obročast, ker imajo mezoni B
gib. kol. večinoma vzdolž žarkovne cevi

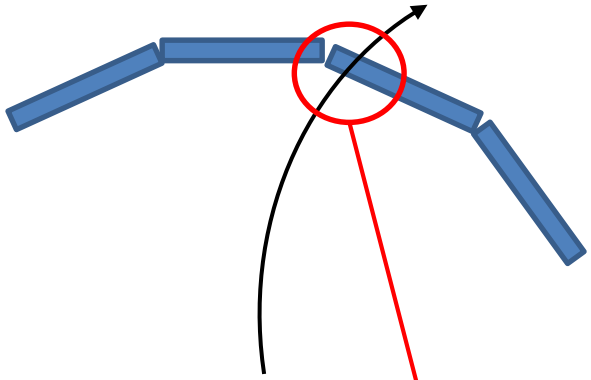
sferno zrcalo

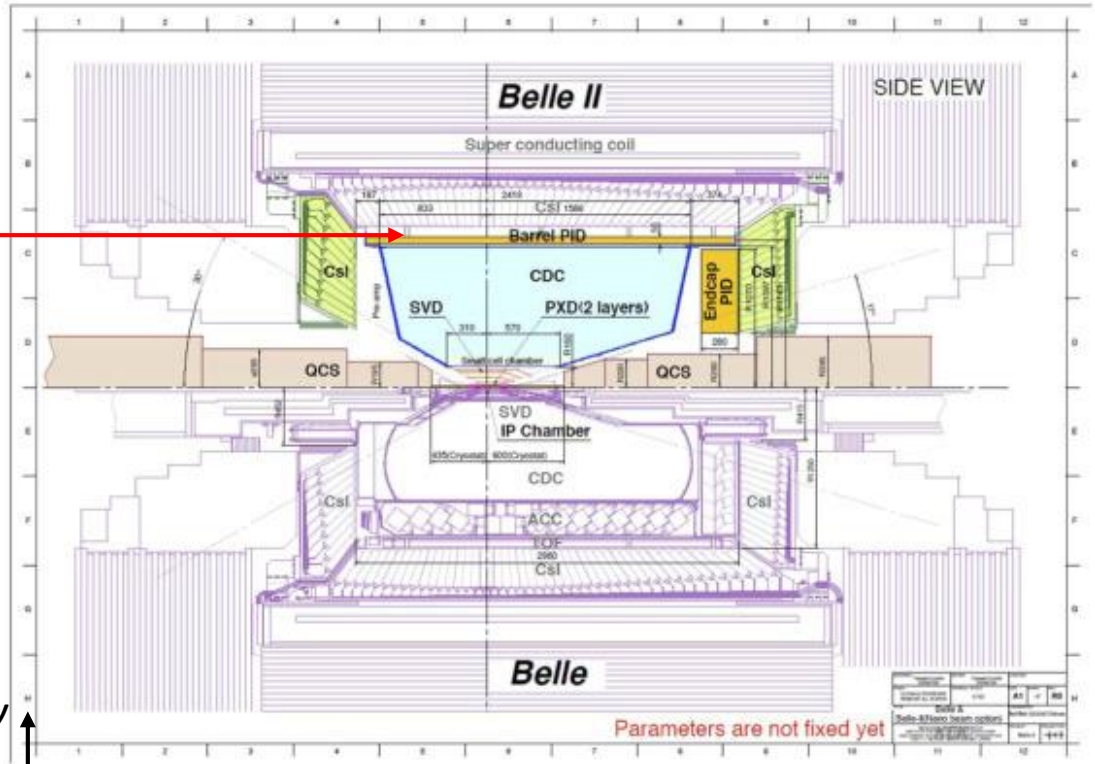
ravno zrcalo

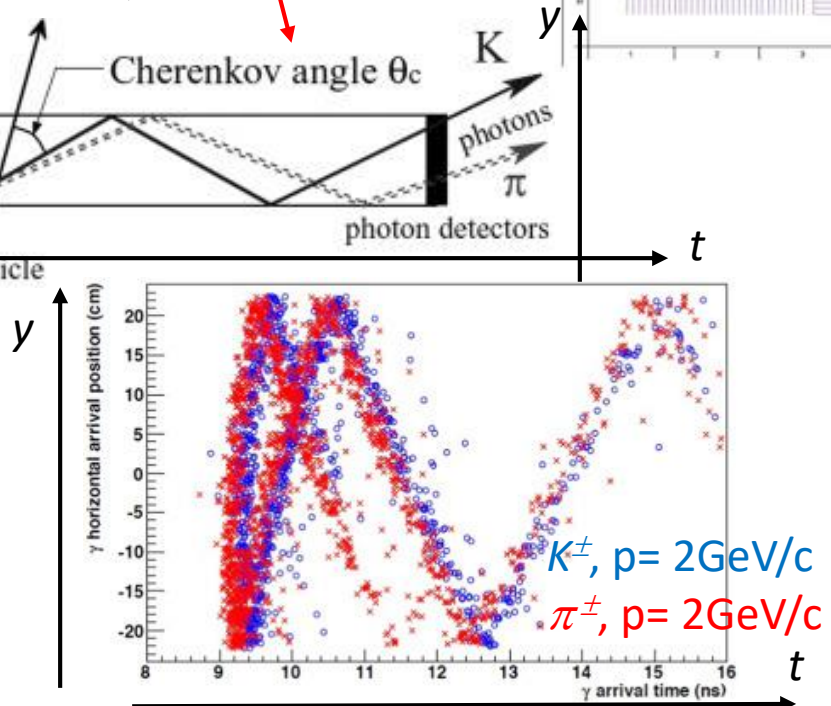
Števec obročev Čerenkova

primer: detektor Belle II

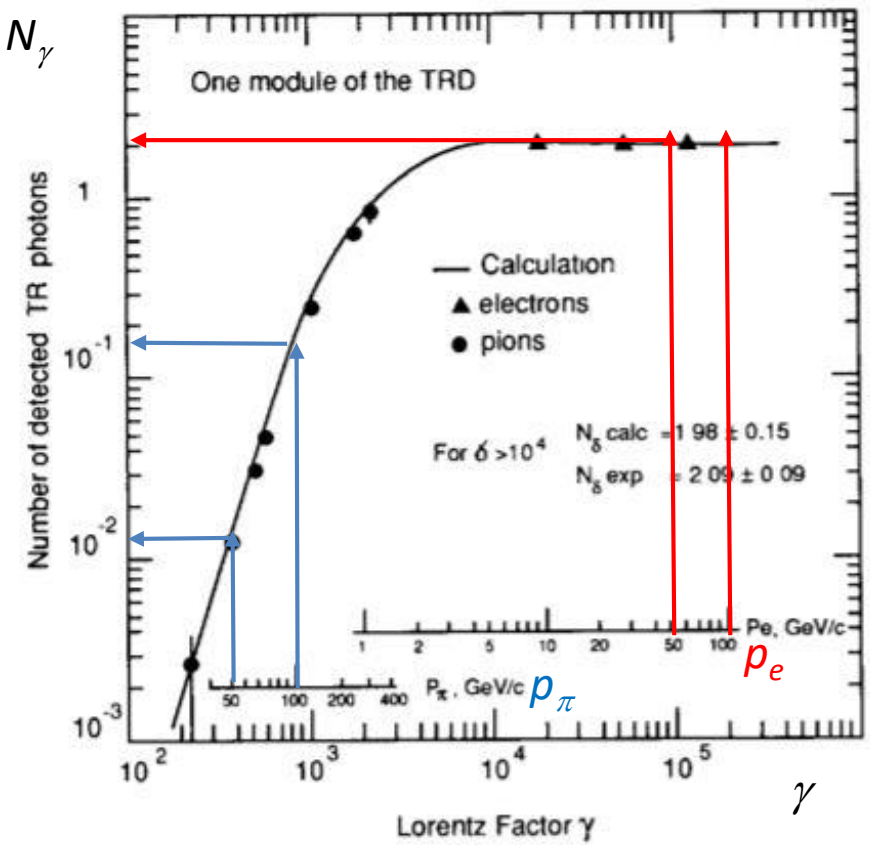
Time Of Propagation Counter (TOP)







Prehodno sevanje

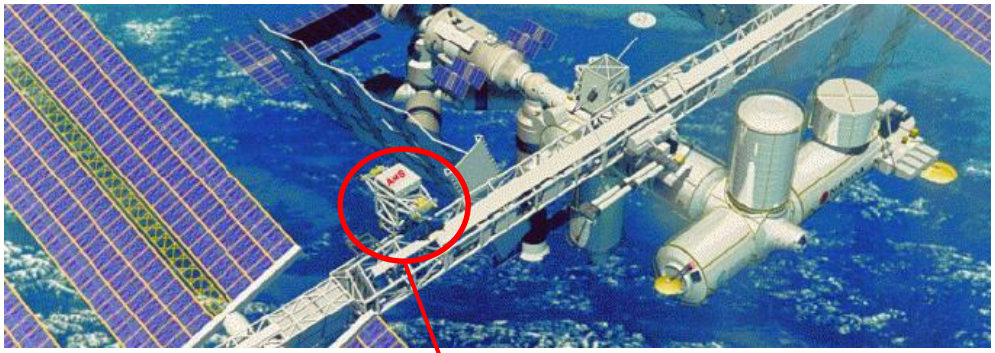


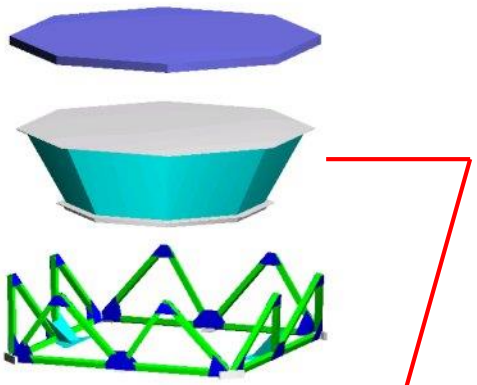
$N_\gamma \propto \gamma$

$N_\gamma \propto p/m$

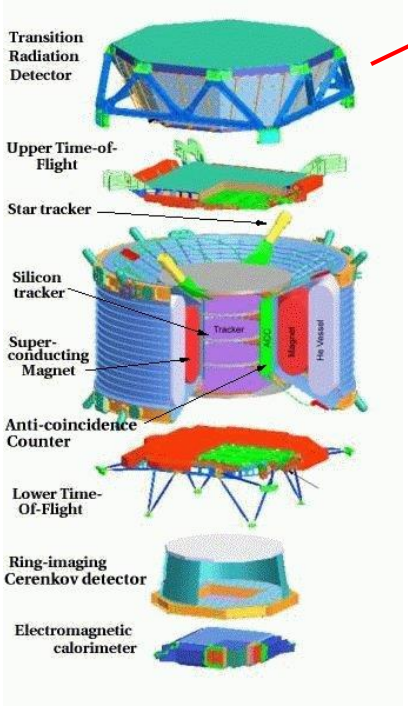
Detektor prehodnega sevanja

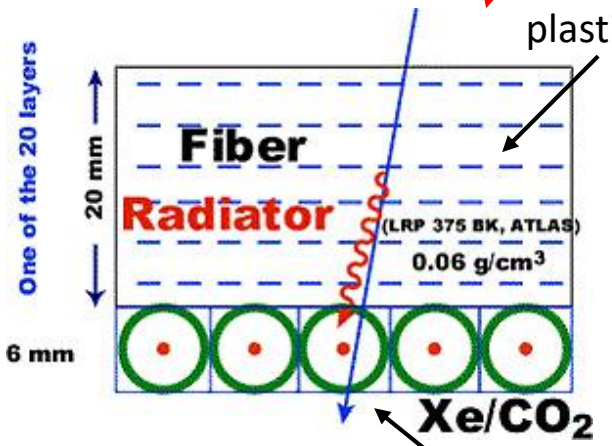
primer: Alpha Magnetic Spectrometer (AMS)
(International Space Station, ISS)





eksperiment za
študij kozmičnih
žarkov ekstremnih
energij





plastična vlakna

x 20

inoizacijske celice

ločevanje e^+ in p
(iskanje temne snovi)