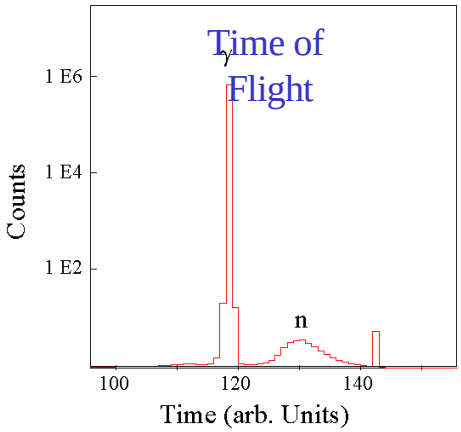
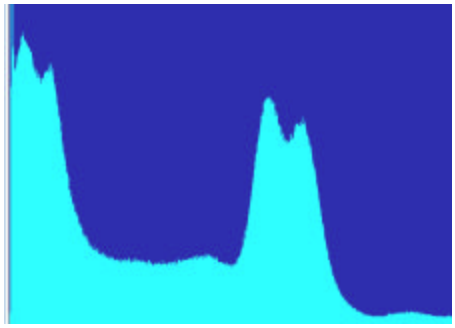
Hector in Rising

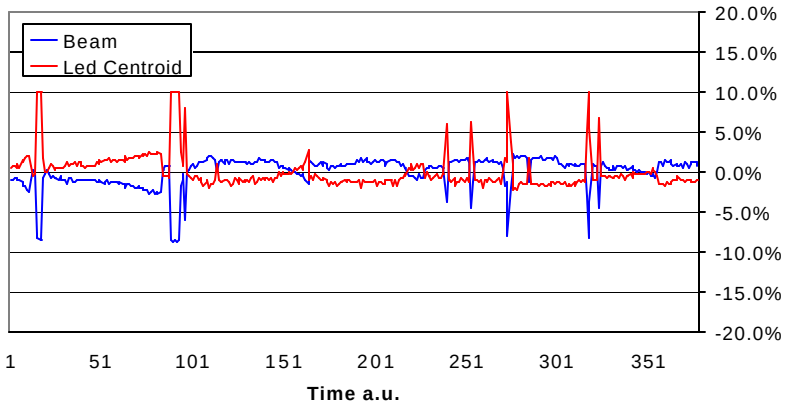




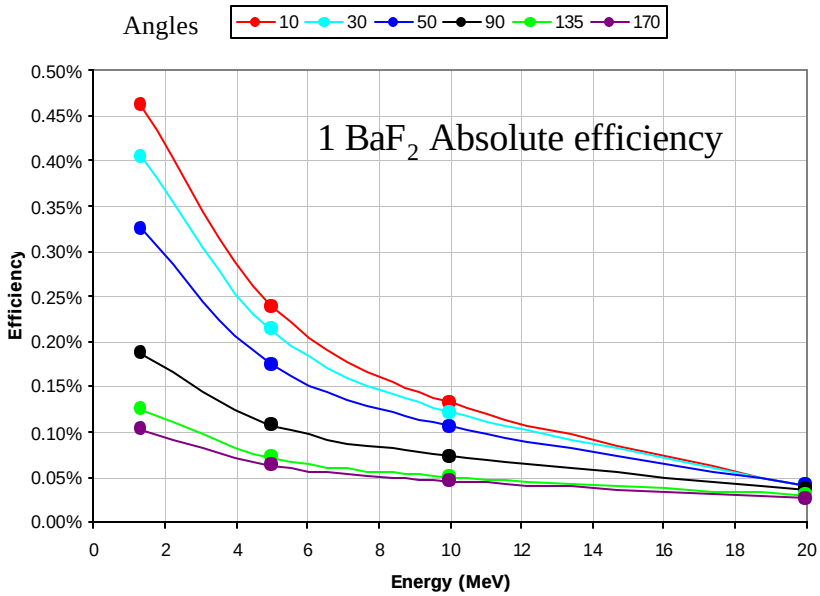
8 Large (14 cm x 18 cm) BaF_2

Energy resolution (^{60}Co) » 11 %
Timing ~ 1 ns
Relative F.E.P. efficiency (15 MeV) ~ 10%
Gain Monitored by LED

The gain is continuosly monitored by an LED pulser

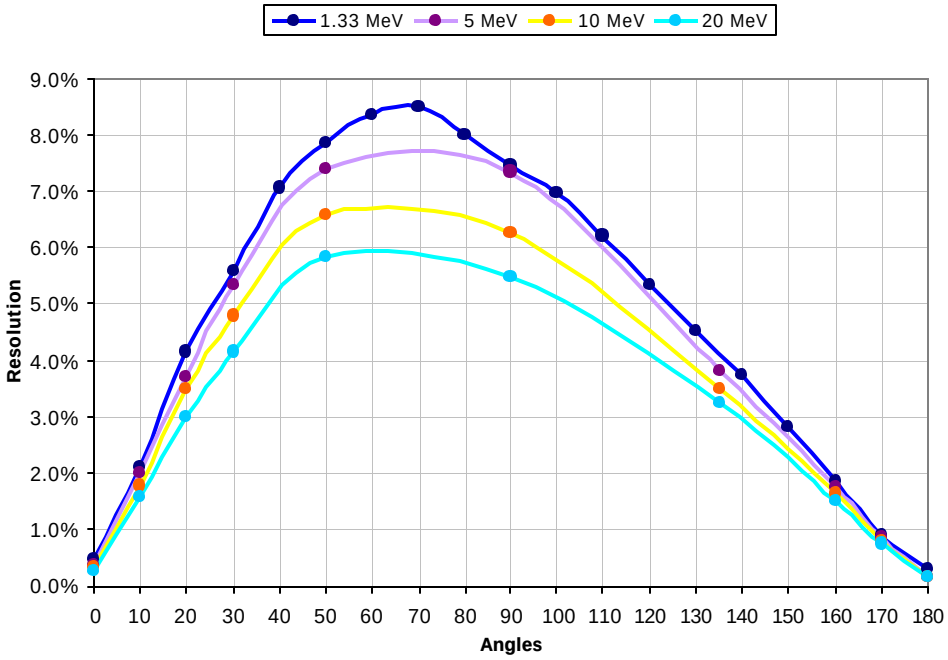


The Fast vs Slow spectra rejects pile-up and might select interacting particles



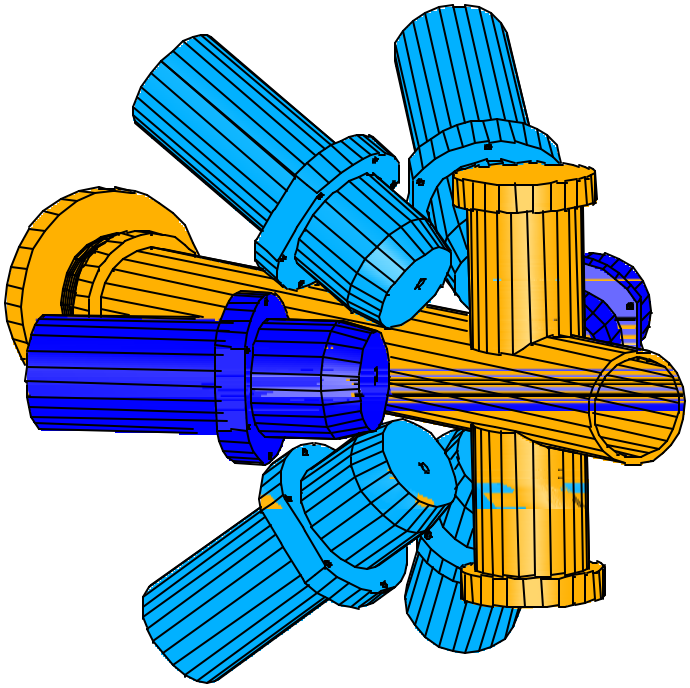
$\beta \approx 43\%$

Distance = 50 cm



1st Configuration

Minimum distance to target and maximum backward angle

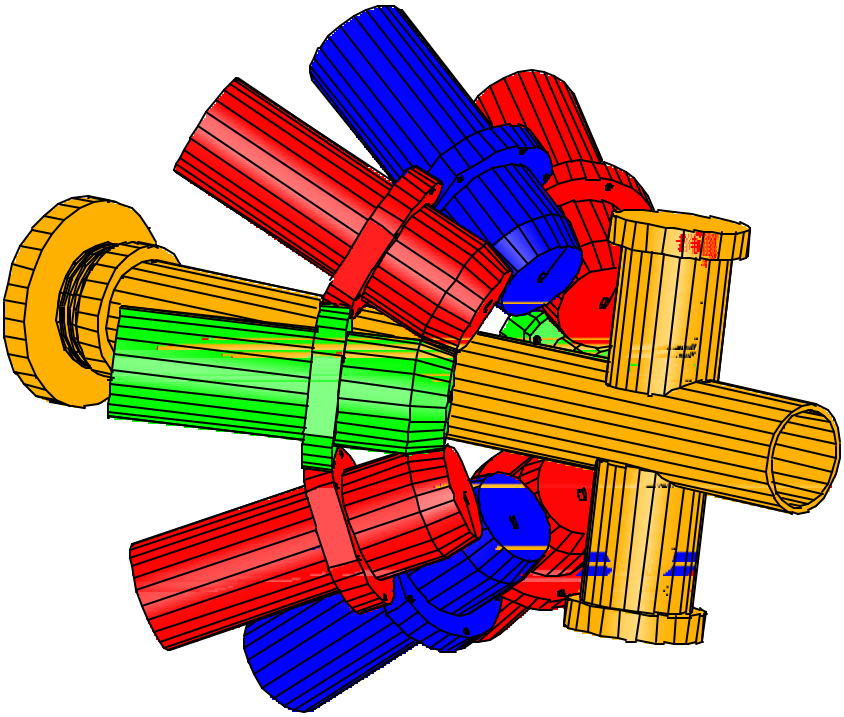


Ring of 6 BaF_2 at 22.5 cm from target at $\theta = 140°$

E (MeV)	5	10	15	20
ε	1.6 %	1.1 %	0.9 %	0.6 %

2nd Configuration

Ring of 8 at same angle and at minimum target distance

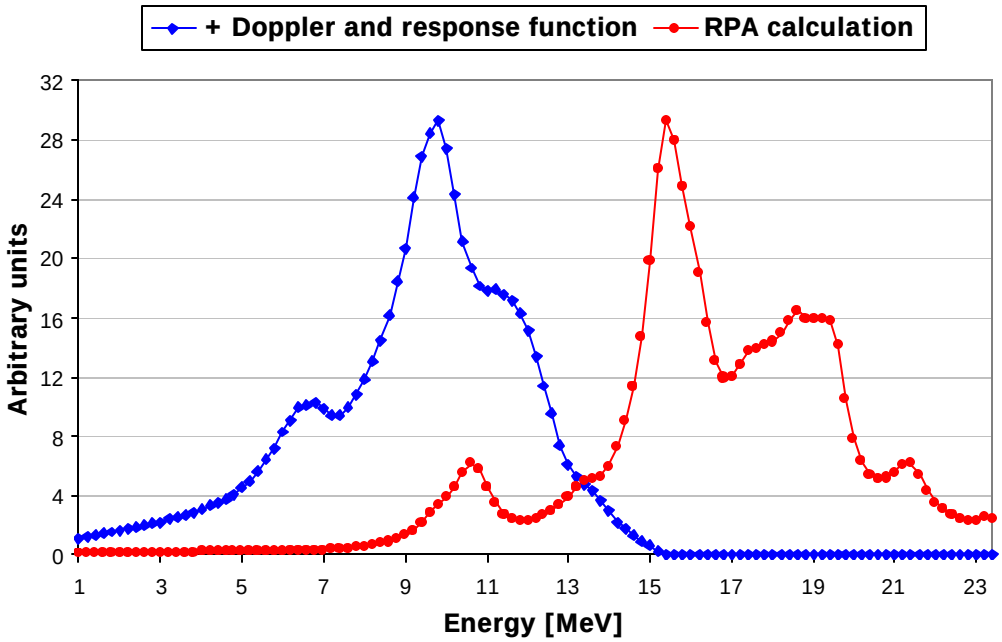


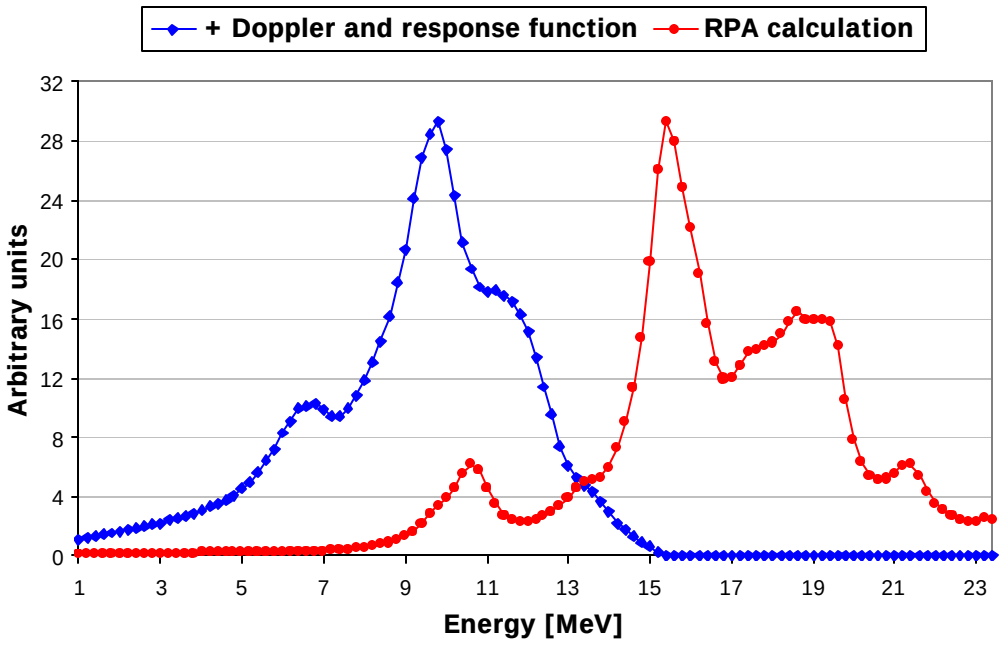
Ring of 8 BaF_2 at 30 cm from target at $\theta = 142°$

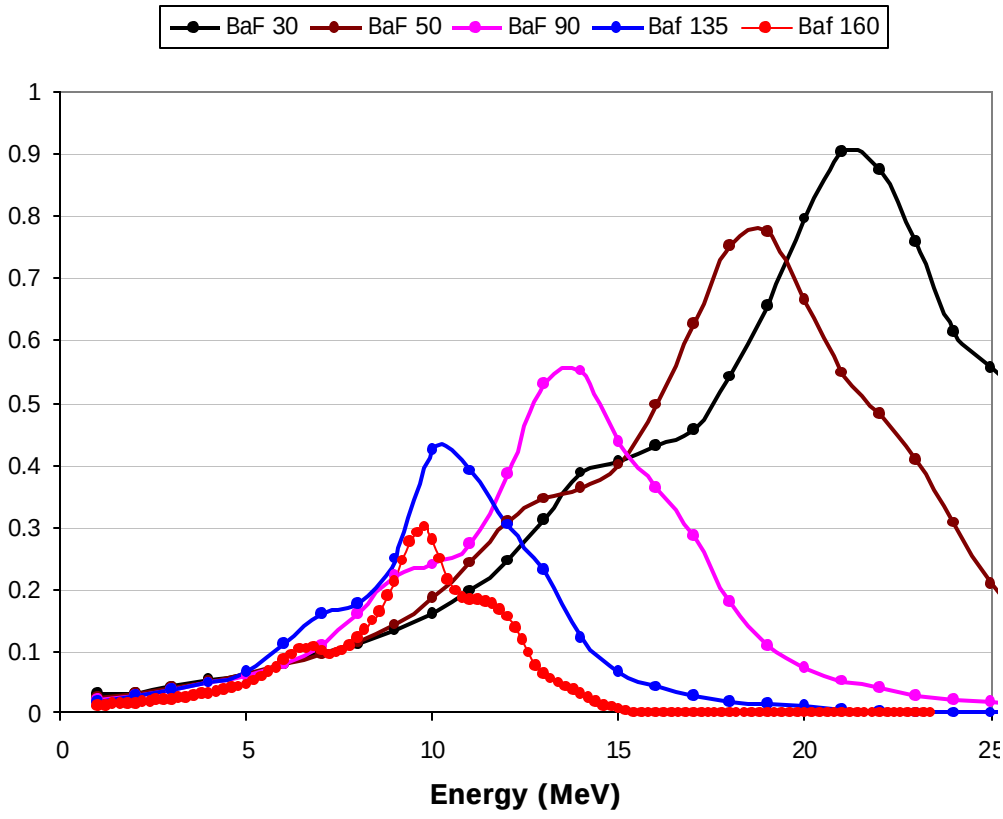
E (MeV)	5	10	15	20
ε	1.3 %	0.9 %	0.7 %	0.6 %

BaF_2 Response function

θ= 160° β=43% 30 cm to target



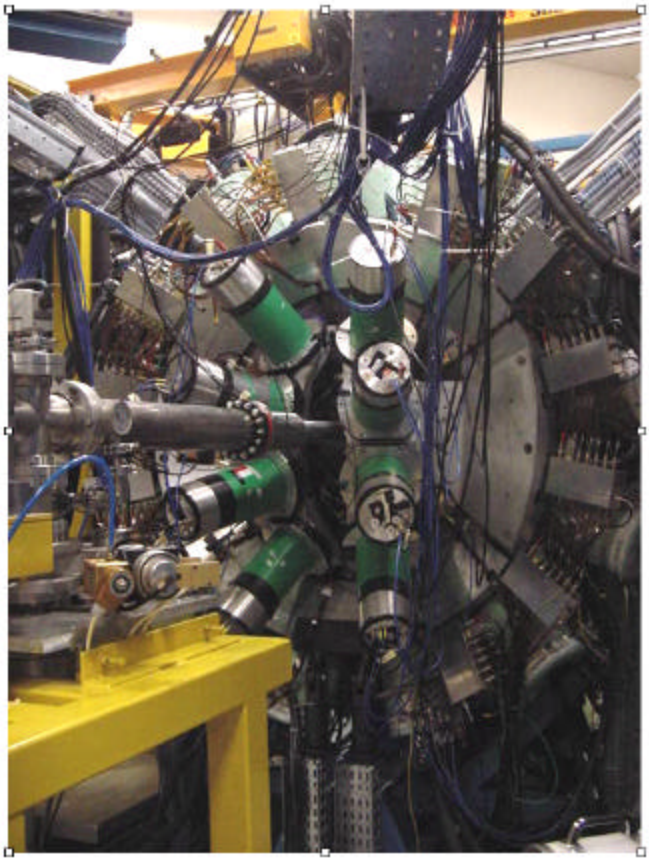

+ Doppler and response function
RPA calculation
Arbitrary units
Energy [MeV]


BaF 30
BaF 50
BaF 90
Baf 135
Baf 160
Energy (MeV)

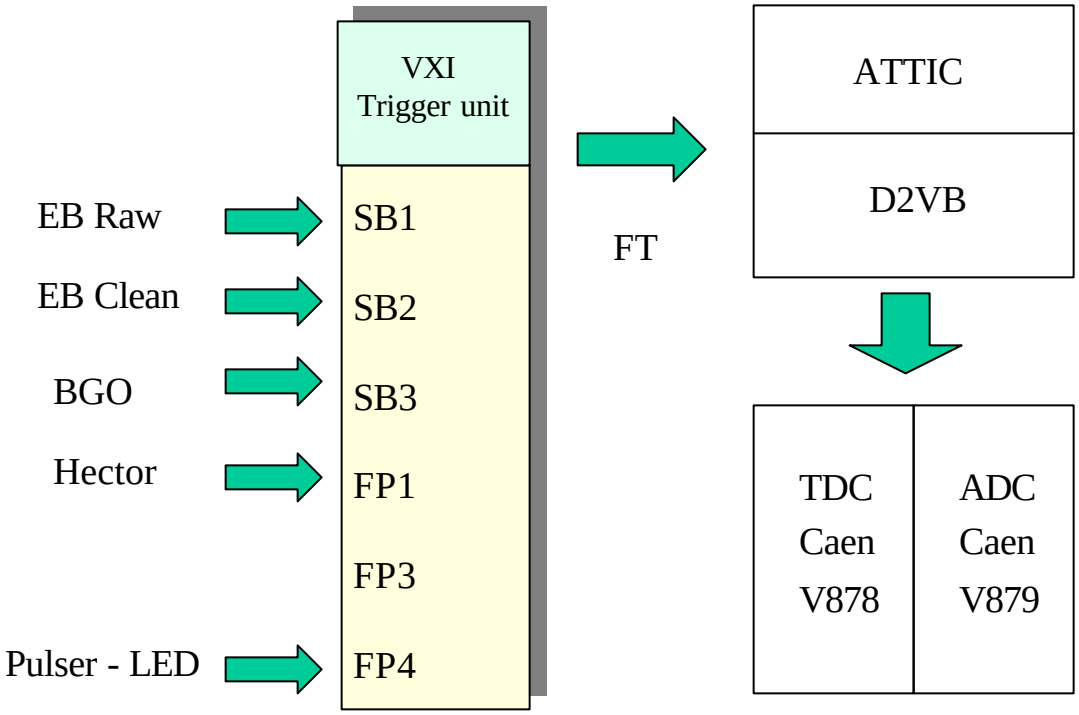
Electronic

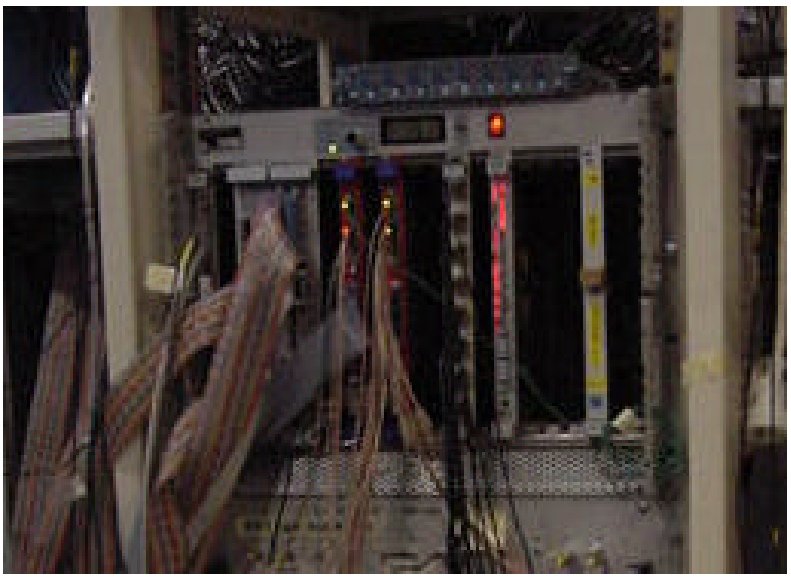
The Front End electronic of Hector needs one rack and the ACQ part is composed by one VME ADC and one TDC (also QDC could be used if needed)

Hector run (from half January) with Euroball by coupling the VME ADC and TDC to the ATTIC module of the neutron wall

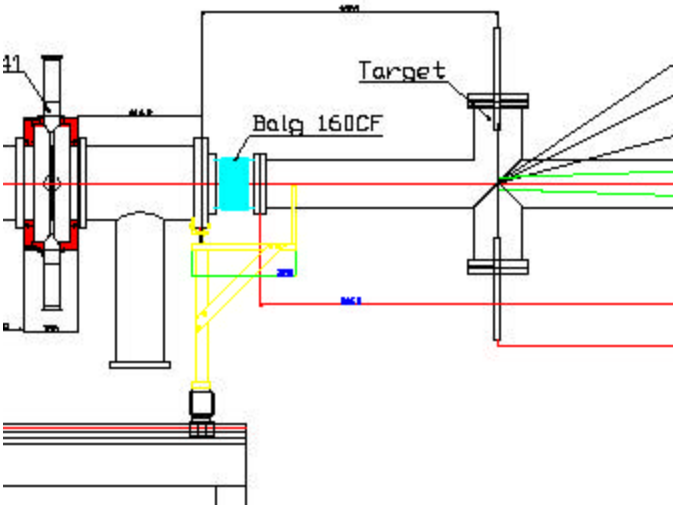


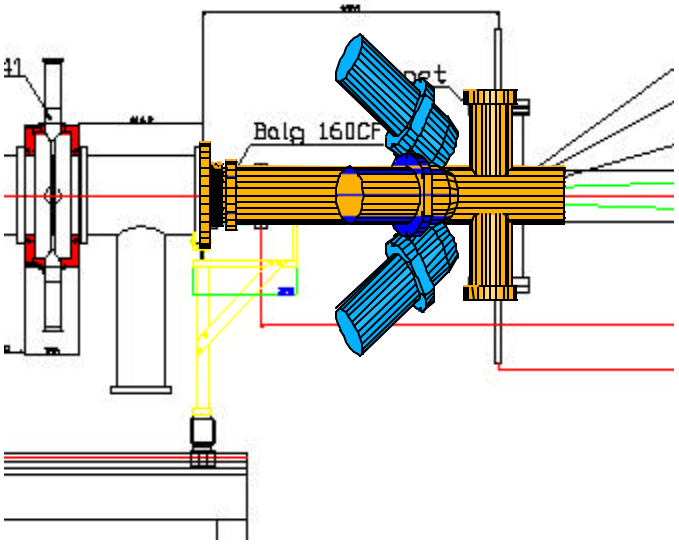
Hector and Euroball coupling scheme





Beamline support





Atomic Background Problem

Each BaF_2 crystal has a front 3 mm lead absorber

Absorption factor		
50 KeV	100 KeV	200 KeV
Total	Total	20