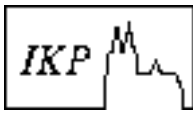


AGATA Week June 2006 Liverpool

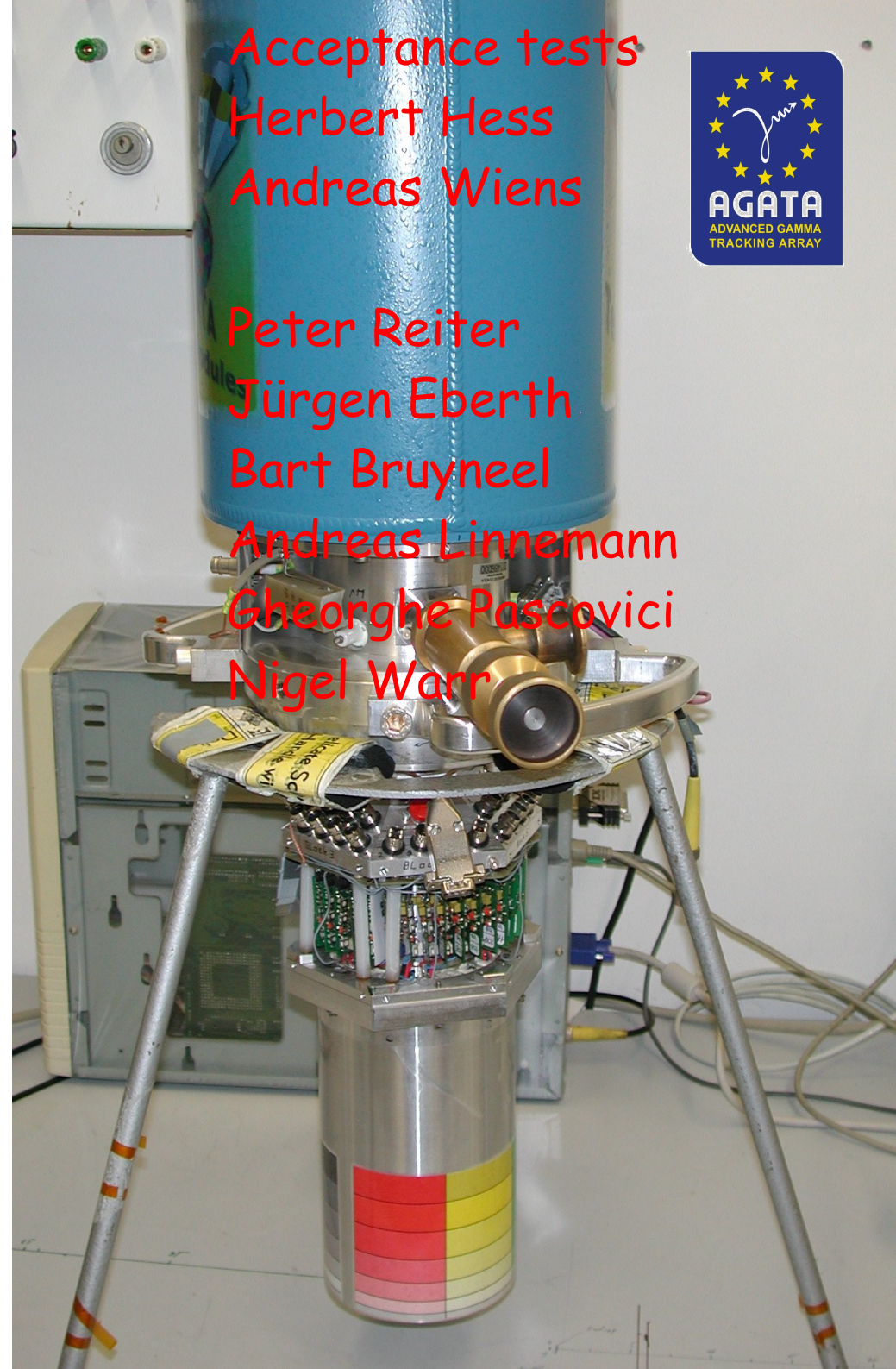
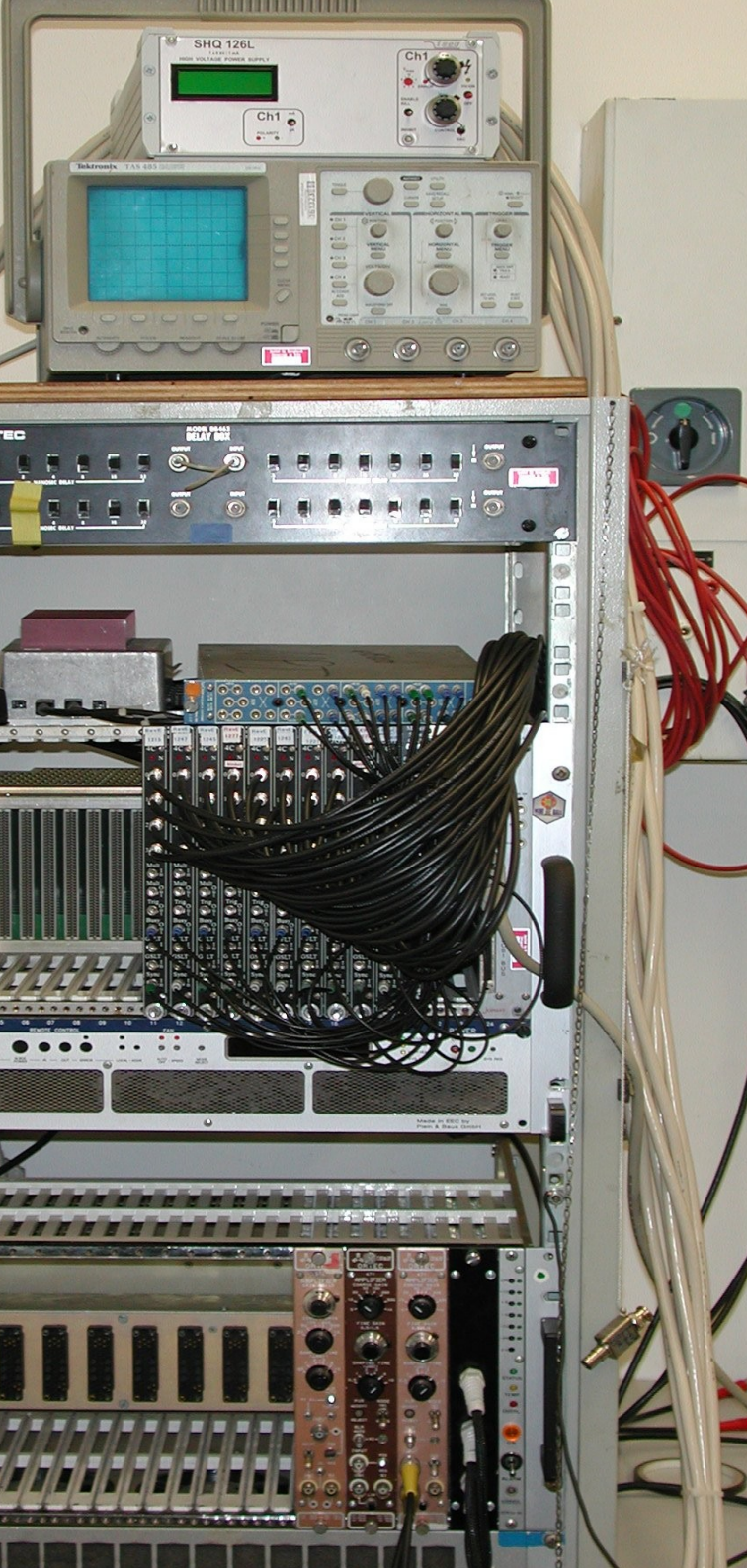
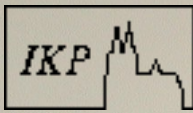
Acceptance test of the AGATA Ge detectors

**University of Cologne
Andreas Wiens**



Overview

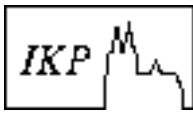
- Experimental environment
- First asymmetric detectors
 - four asymmetric Ge detectors were delivered:
B001 (Oct 05), A001 (Oct 05), C001 (Jan 06),
A002 (April 06)
- Repair of the test cryostat
- Summary



Acceptance tests
Herbert Hess
Andreas Wiens

Peter Reiter
Jürgen Eberth
Bart Bruyneel
Andreas Linnemann
Gheorghe Pascovici
Nigel Warr





Procedure + Specifications



ORTEC 572 & 671 and one of three PC based MCA systems to get the spectra

2000 counts in the maximum

Specifications:

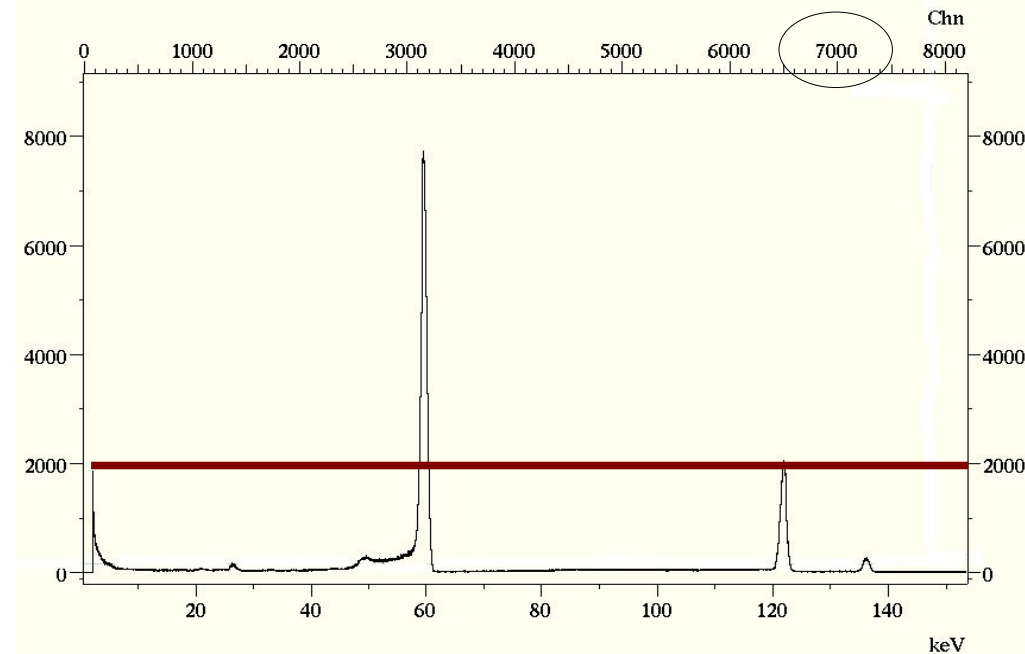
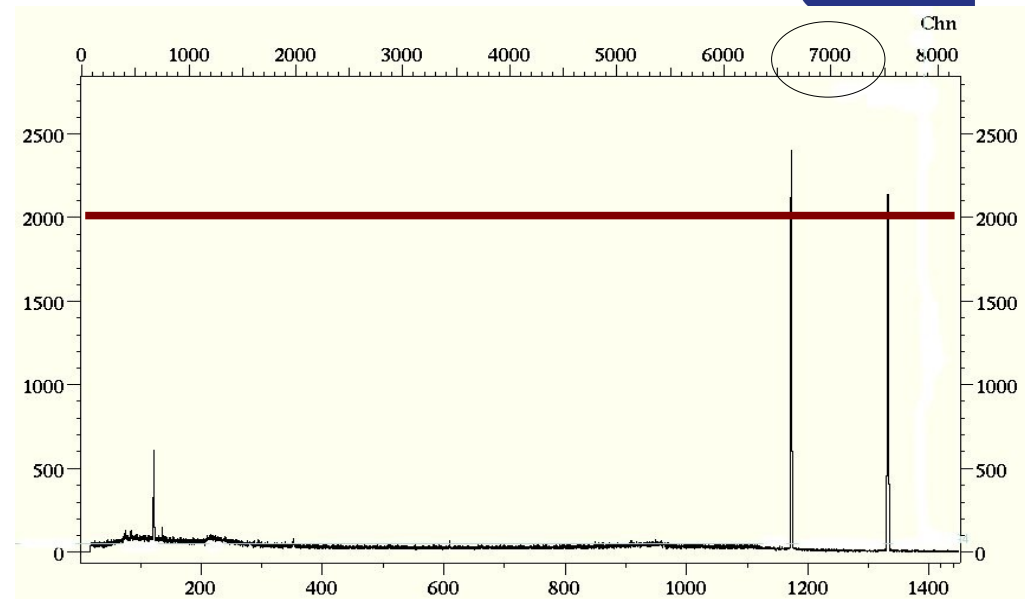
Core

Guaranteed at 1.3MeV: $\leq 2.35\text{keV}$
at 122keV: $\leq 1.35\text{keV}$

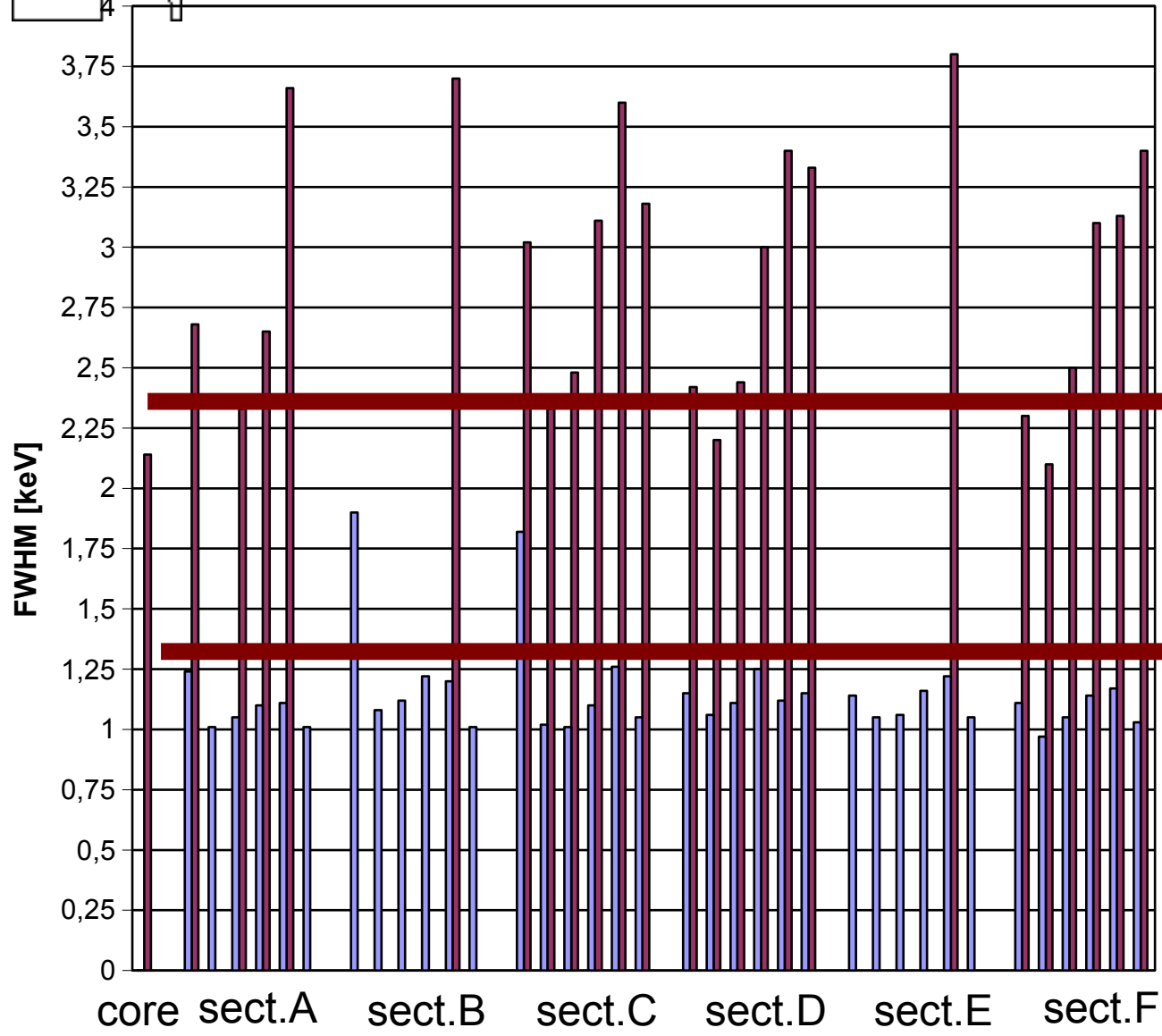
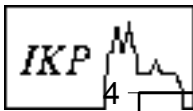
Segments

Guaranteed
at 1.3MeV: $\leq 2.30\text{keV}$, mean $\leq 2.10\text{keV}$
at 60keV: $\leq 1.30\text{keV}$, mean $\leq 1.20\text{keV}$

Crosstalk $\leq 1\text{‰}$



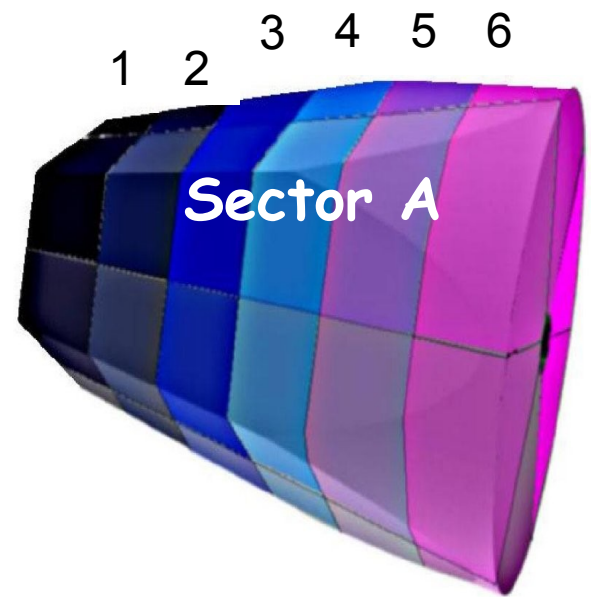
Resolution of B001-73888



Core FWHM:
 at 1.3MeV : 2.10keV
 at 122keV : 1.3keV

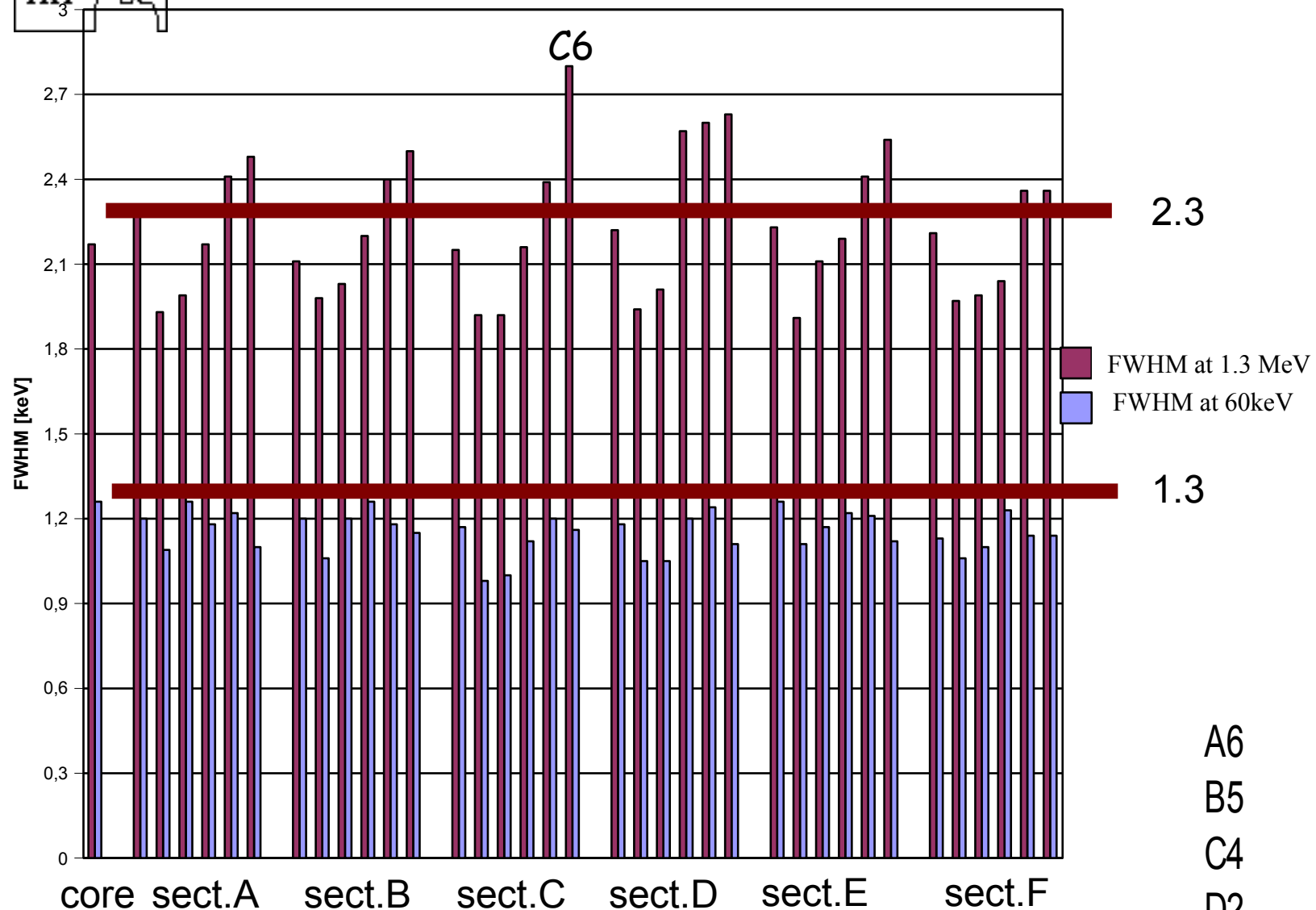
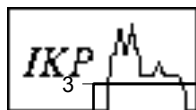
@ 5000V

FWHM at 60keV (blue bar)
 FWHM at 1.3 MeV (maroon bar)



Detector had to be rejected
Results confirmed by Canberra

Resolution of A001-73892

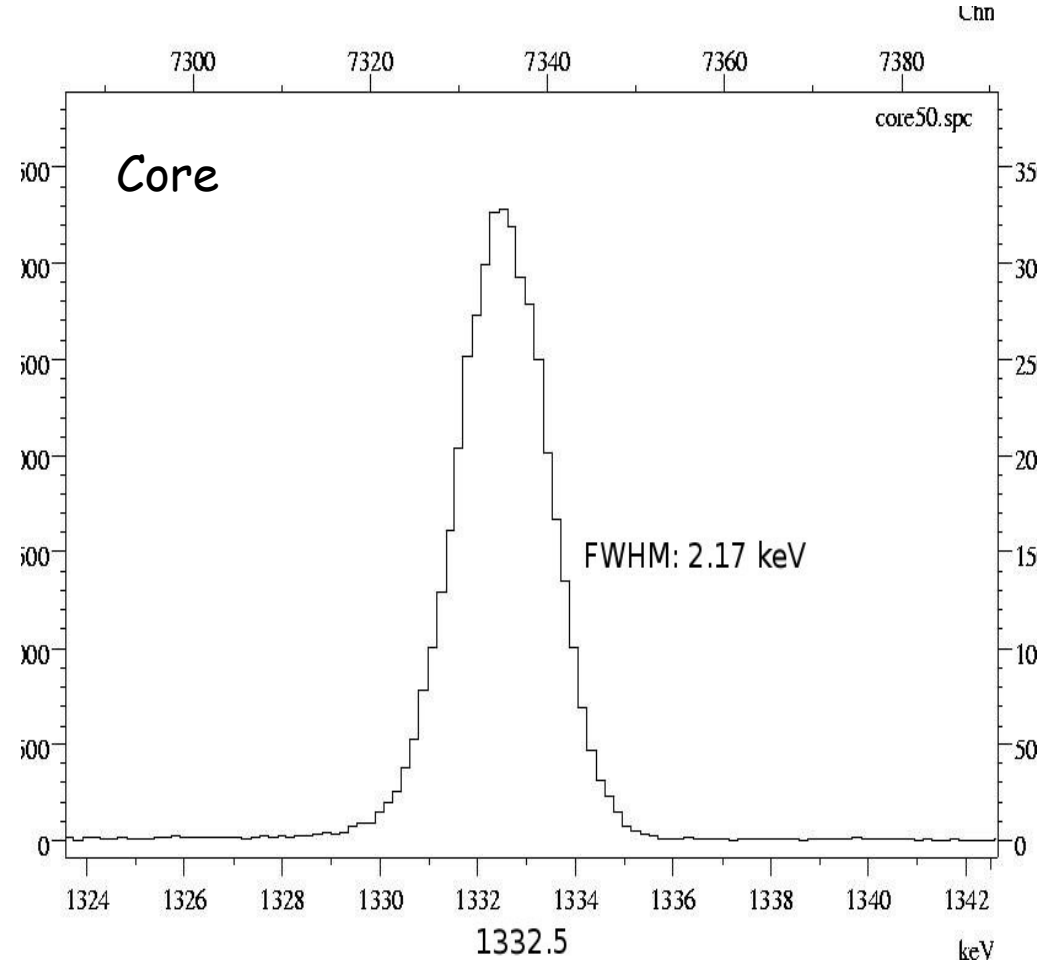
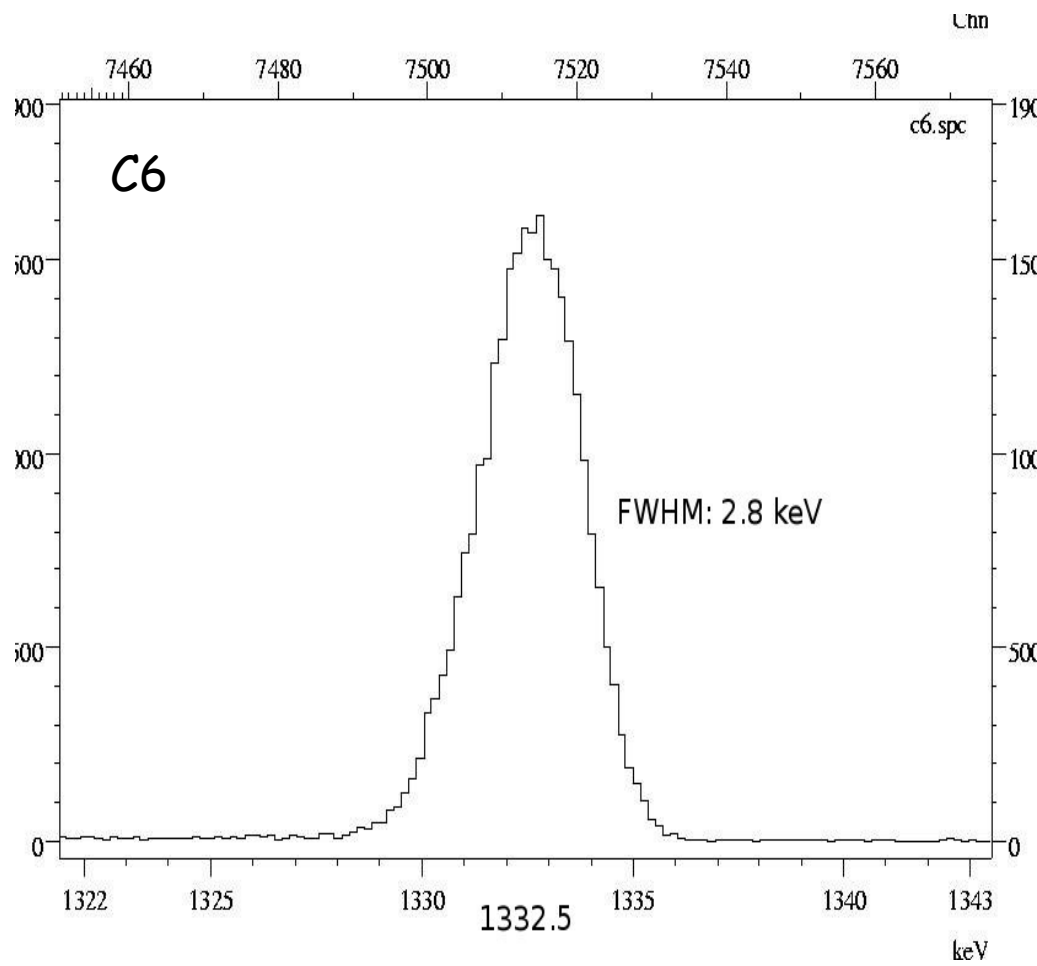


Core FWHM:
 at 1.3MeV : 2.17keV
 at 122keV : 1.33keV
 first test @ 4000V
 second test @ 5000V

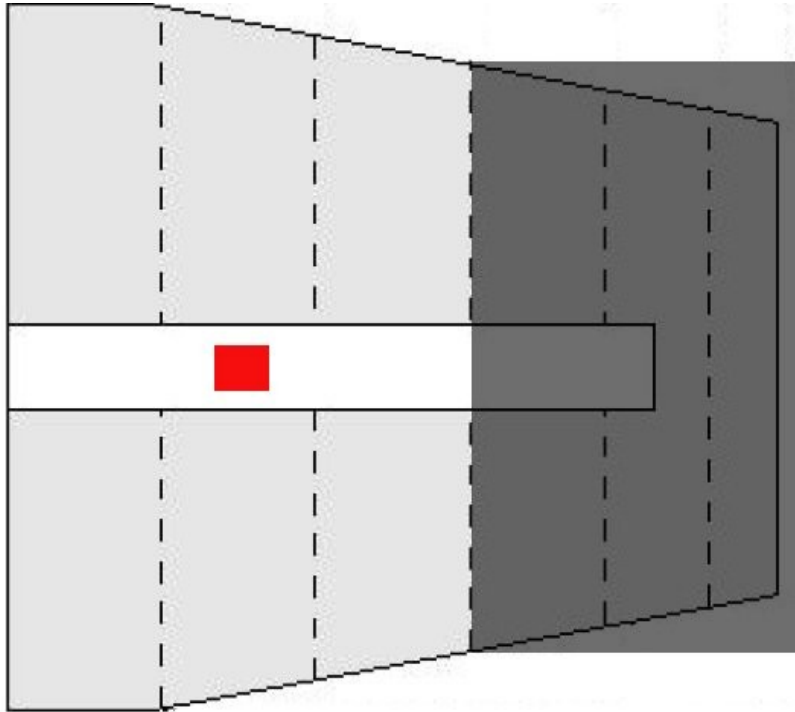
	1 st	2 nd
A6	2.64	2.48
B5	2.58	2.4
C4	2.15	2.16
D2	1.98	1.94
A3	2.12	1.99
B1	2.2	2.11
E5	2.54	2.41
F4	2.12	2.04



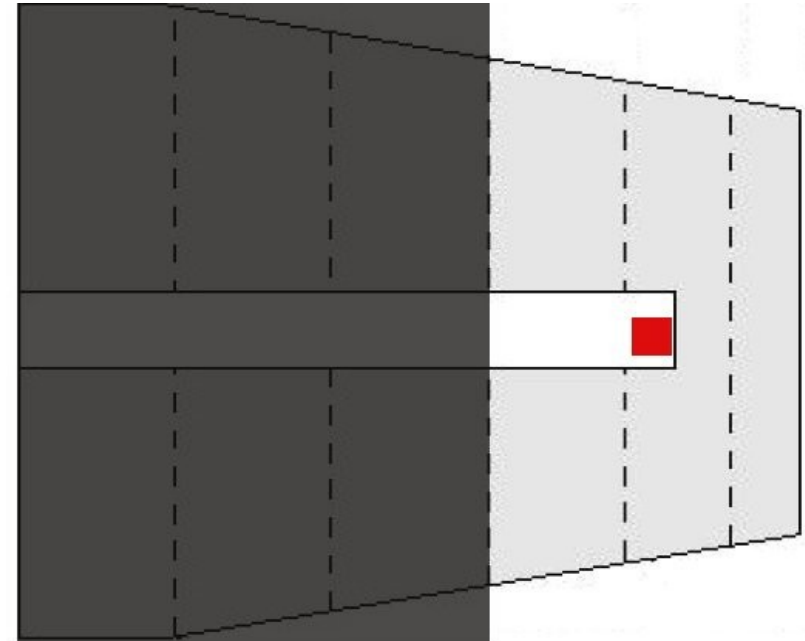
Spectra



Trapping investigation



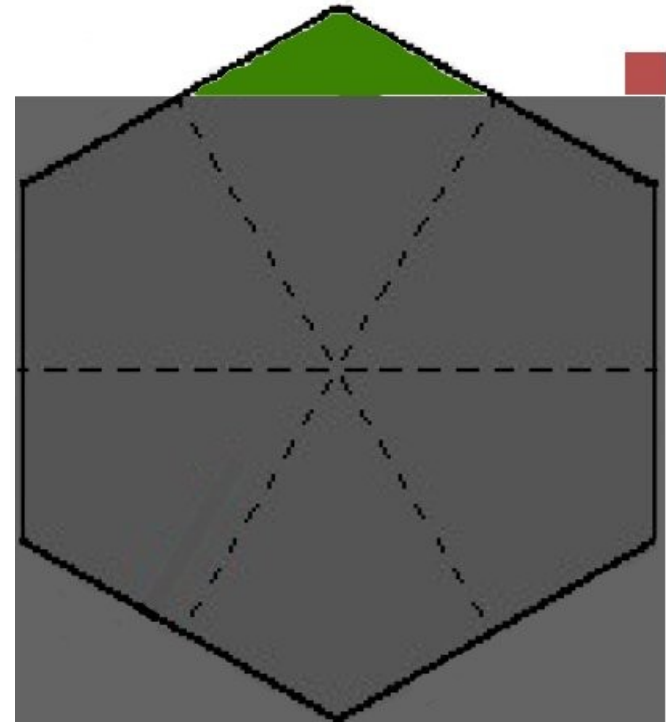
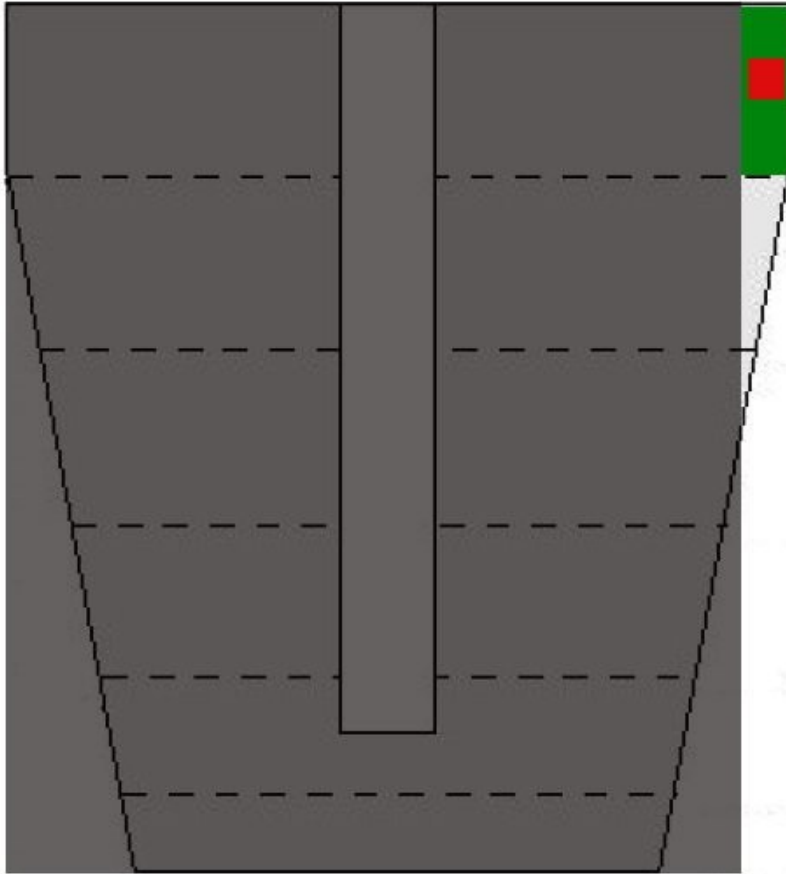
Core FWHM for rear rings:
at 1.3MeV : 1.91keV



Core FWHM for front rings:
at 1.3MeV : 2.16keV

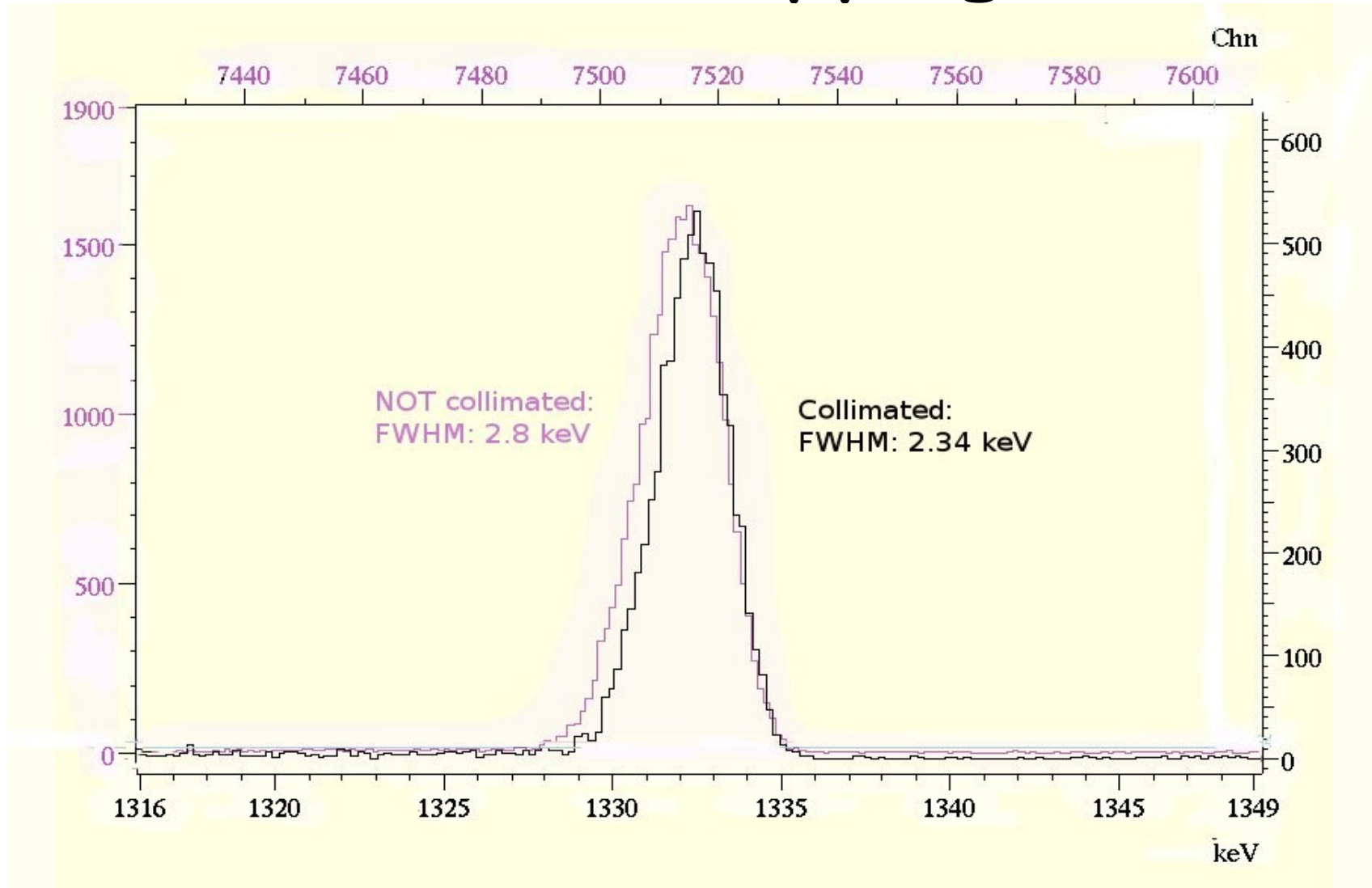
NO electron trapping

Hole trapping?



FWHM on C6 at 1.3MeV:
 collimated: 2.34keV
 not collimated: 2.8keV

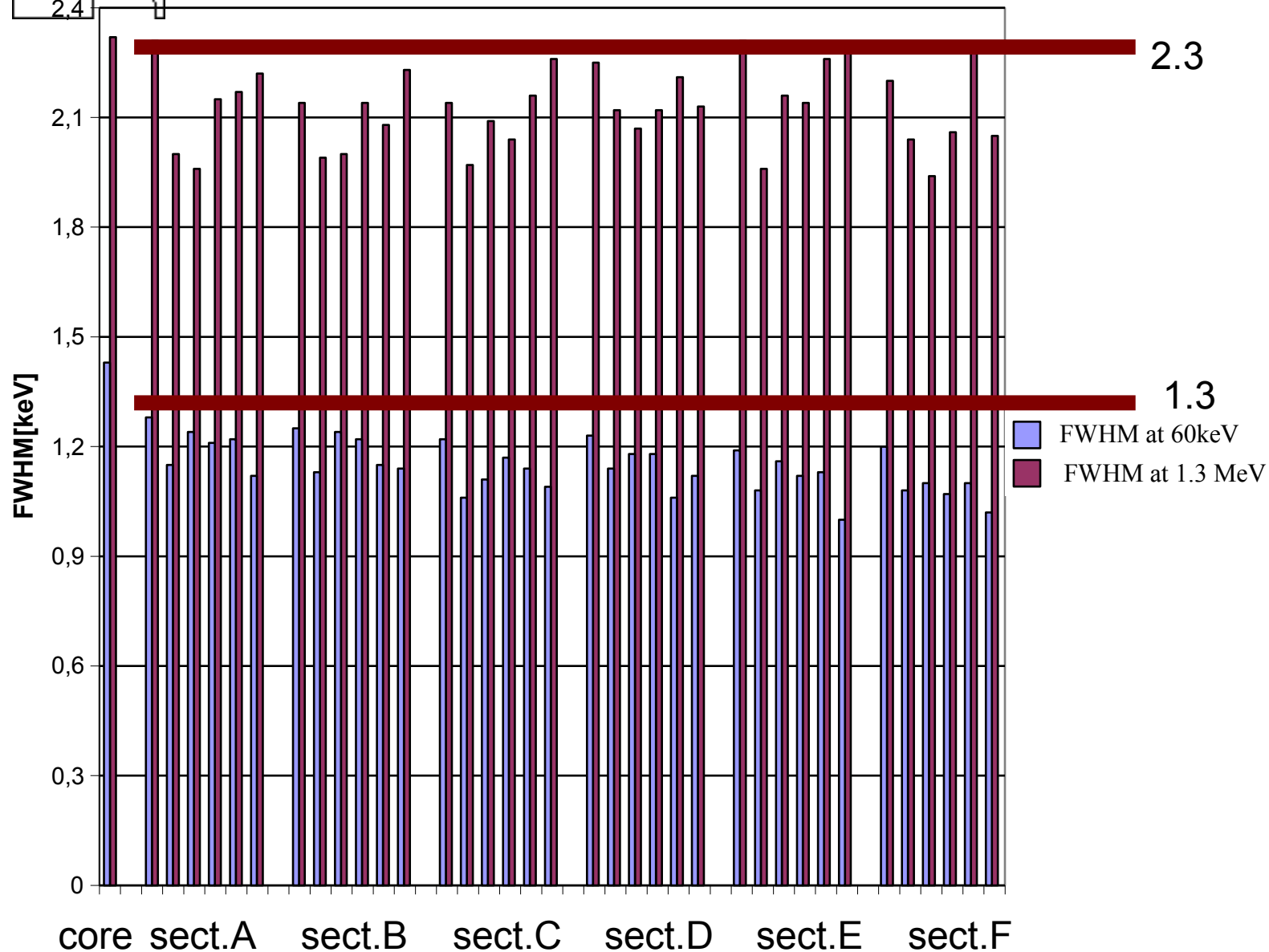
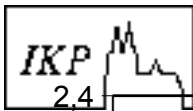
Hole trapping?



Strong evidence for hole trapping

**Detector had to be rejected
Results confirmed by Canberra**

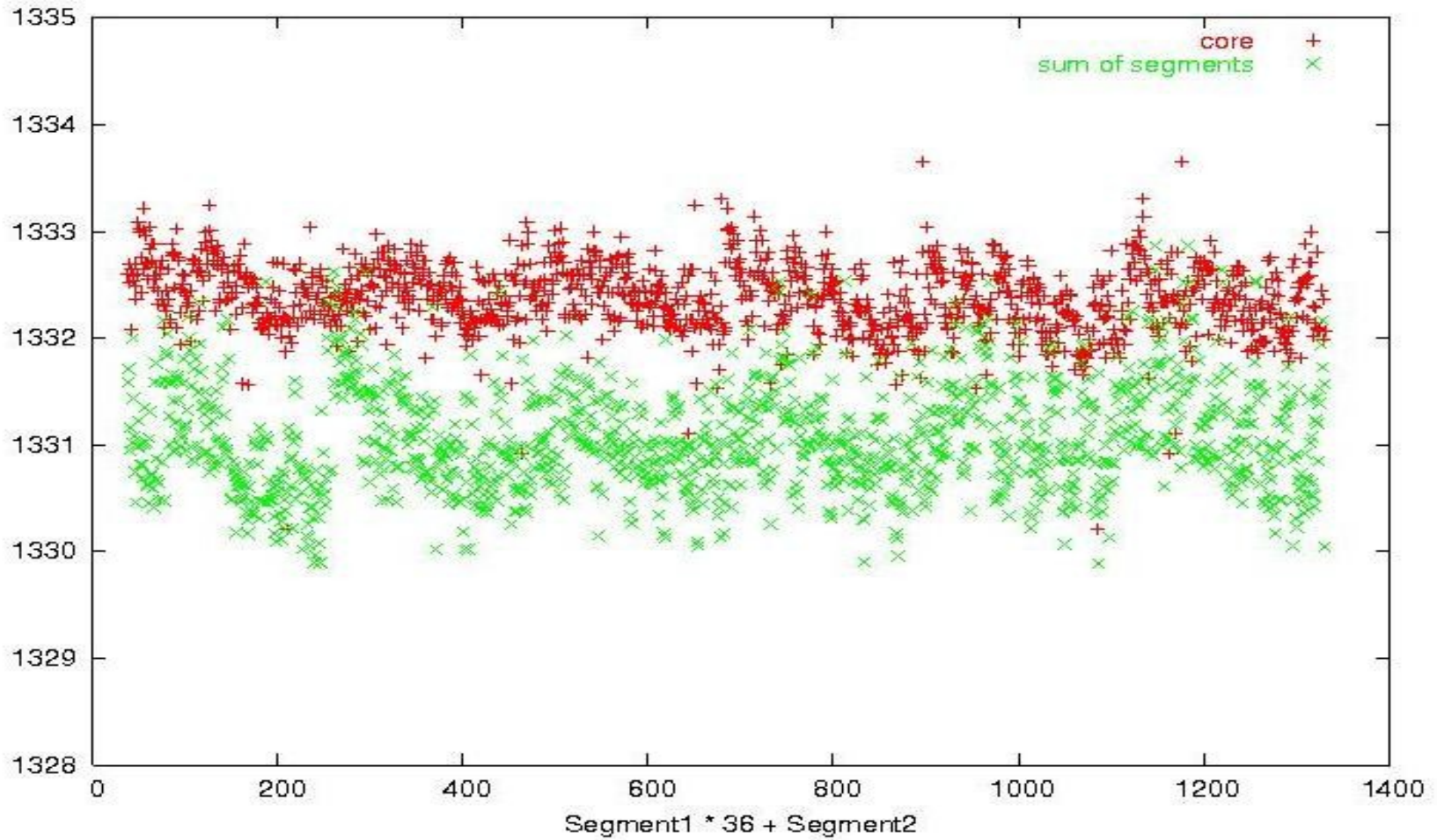
Resolution of C001-73899



Core FWHM:
at 1.3MeV : 2.32keV
at 122keV : 1.43keV
@ 4500V



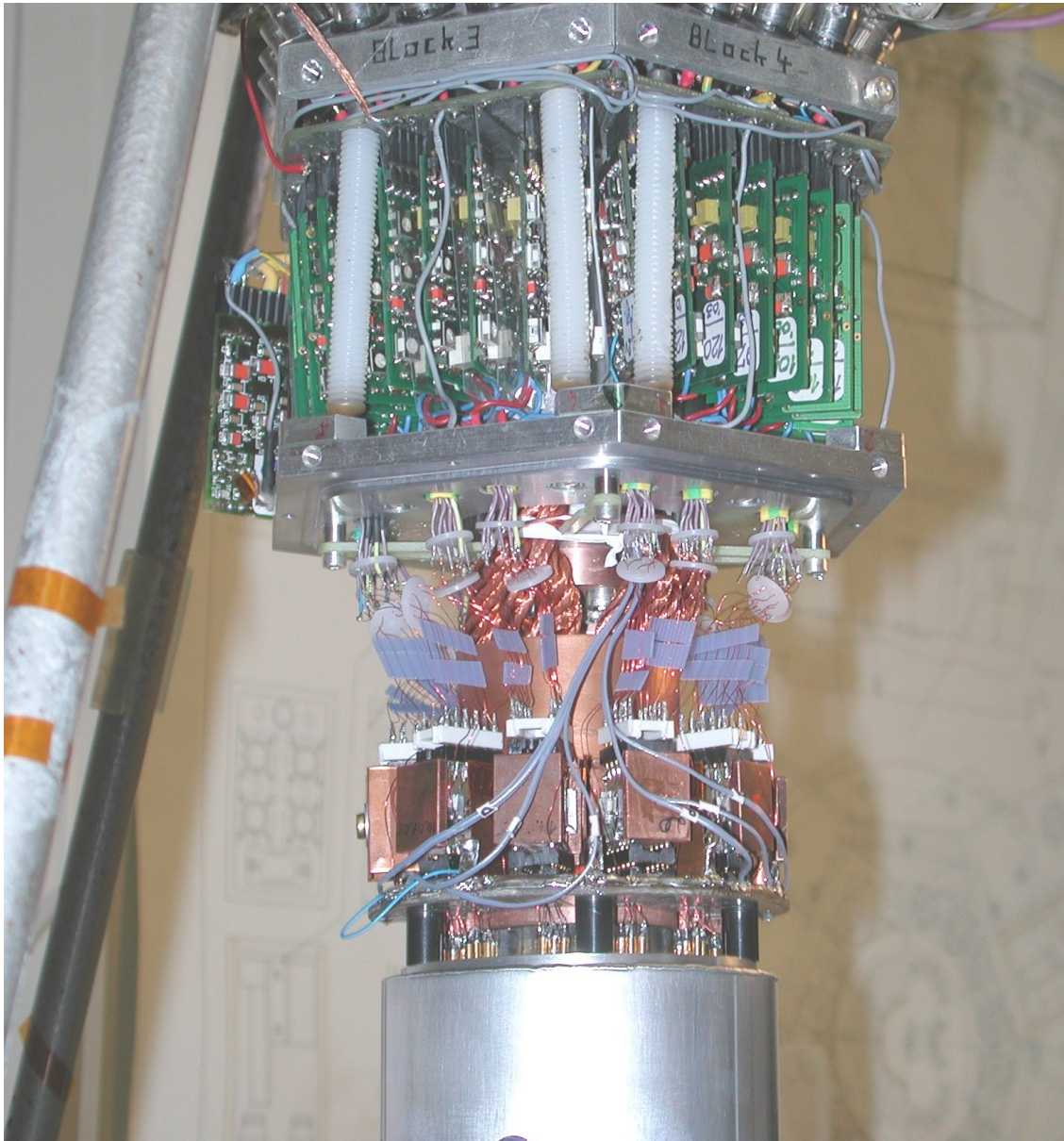
Crosstalk



Crosstalk OK

Detector accepted

Deterioration of test cryostat



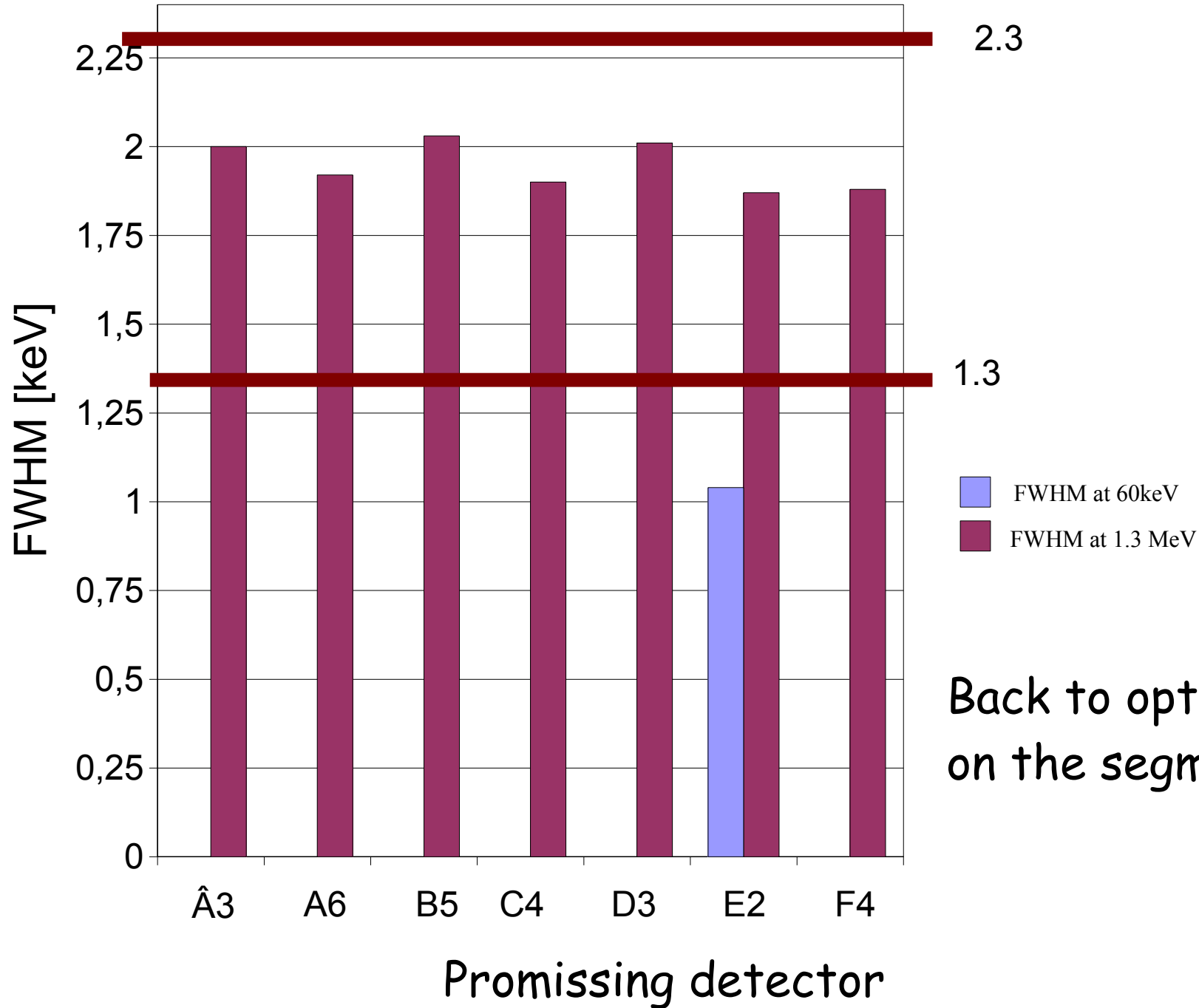
Cu-Be too fragile

Performance
not ideal

New cabling
with 74 wires



A002-73949

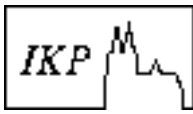


2.3

@ 4500V

1.3

Back to optimal resolution
on the segments



Summary

Since last AGATA week

B001 returned to Canberra (ten weeks)

A001 returned to Canberra (six weeks)

C001 accepted (ten weeks, due to cryostat problems)

Reworks of the cryostat

A002 test ongoing, first results very good

seven months for three finished and one ongoing test

(about two months per detector)

Delivery of A001 announced