

# Status of the AGATA detectors

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# Overview AGATA detectors

## 32 detectors were delivered

9 x Type A: A001, A002, A003, A004, A005,  
A006, A007, A008, A009

13 x Type B: B001, B002, B003, B004, B005,  
B006, B007, B008, B009, B010,  
B011, B012, B013

10 x Type C: C001, C002, C003, C004, C005,  
C006, C007, C008, C009, C010



# Overview AGATA detectors

## 22 detectors in use

ATC1: A008, B001, C003

ATC2: A003, B003, C005

ATC3: A002, B010, C001

ATC4: A007, B007, C007

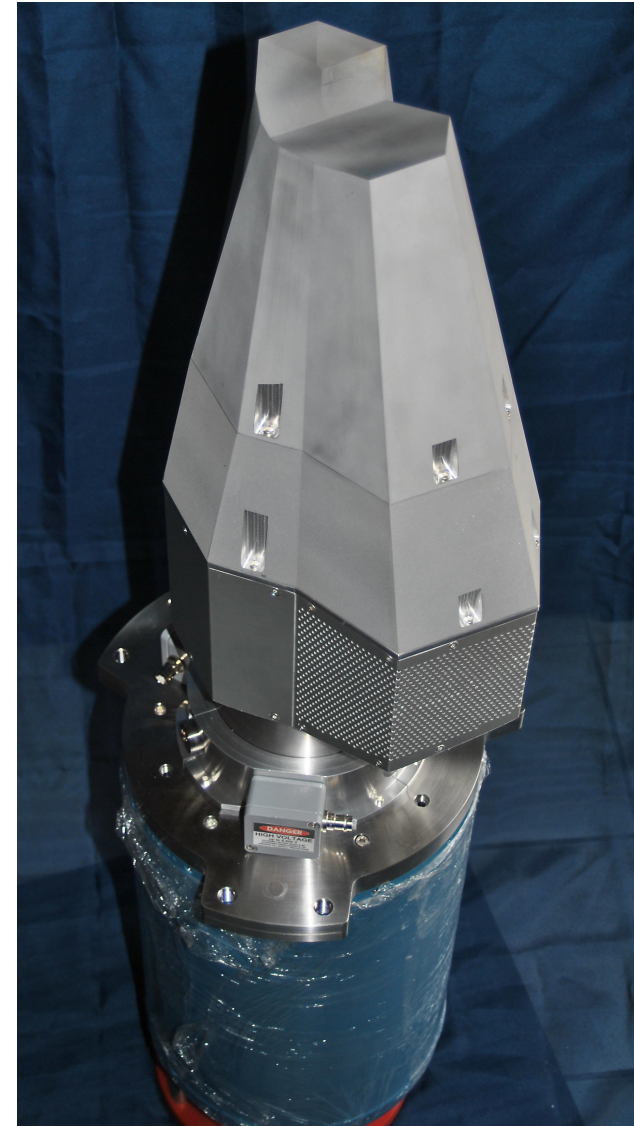
ATC5: A004, B002, C009

ATC6: A001, B004, -

ADC1: B008, C006

ADC2: B012, -

ADC3: B011, C008



# Overview AGATA detectors

## **4 accepted detectors available**

IKP: A006, A009, B006

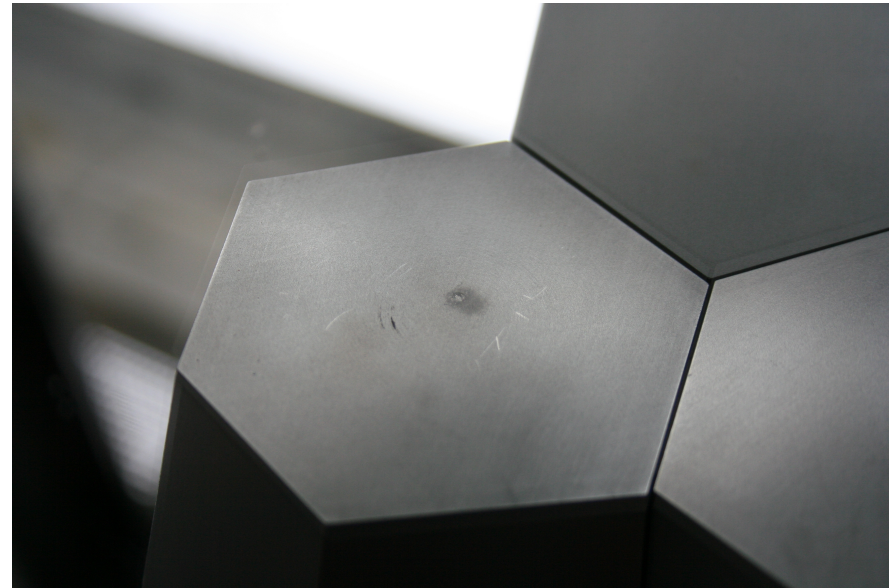
Saclay: B013

## **3 CAT of repaired detectors pending**

IKP: A005, C002, C004

## **3 detectors to be repaired by Canberra**

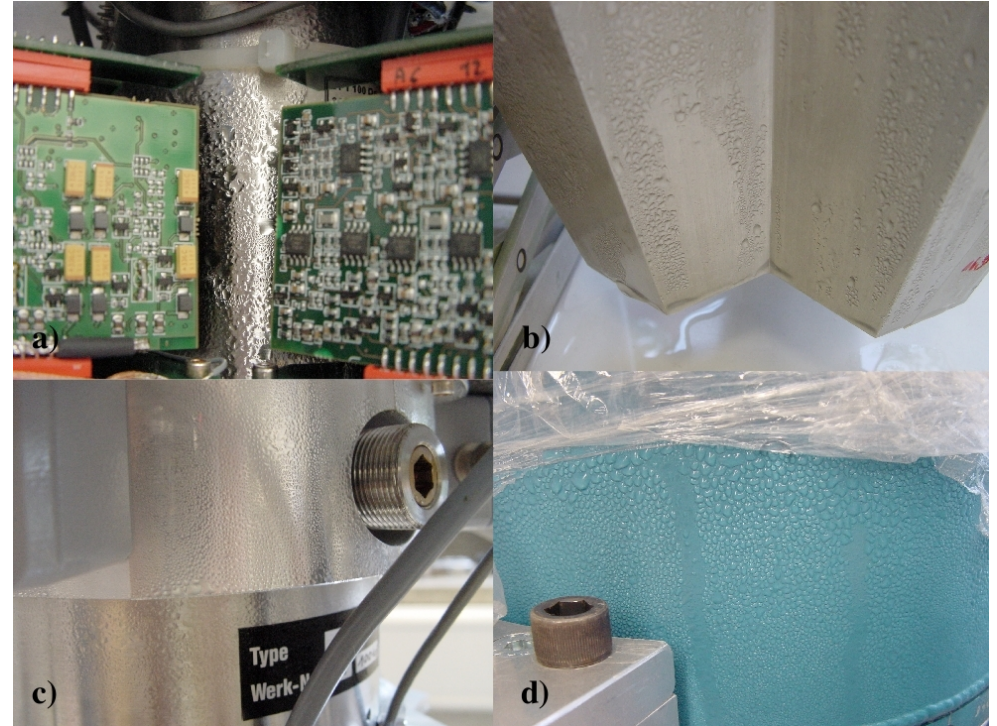
Canberra: B005, B009, C010





# Maintenance of AGATA cryostats after accidental warm up

- Leakage test
- Repair / replacement of feedthroughs
- Annealing of cryostat
- Mounting cold & warm electronics
- Mounting of electronic dummies
- Test with electronic dummies
- Assembly of detectors and cabling
- Leakage test
- Pumping
- Cooling
- Analog / Digital tests



Repair done in cooperation with GSI, Liverpool, GANIL, Saclay  
and supported by CTT

# Repair AGATA cryostats: ADC1

Leaks on feedthroughs after accidental warm up

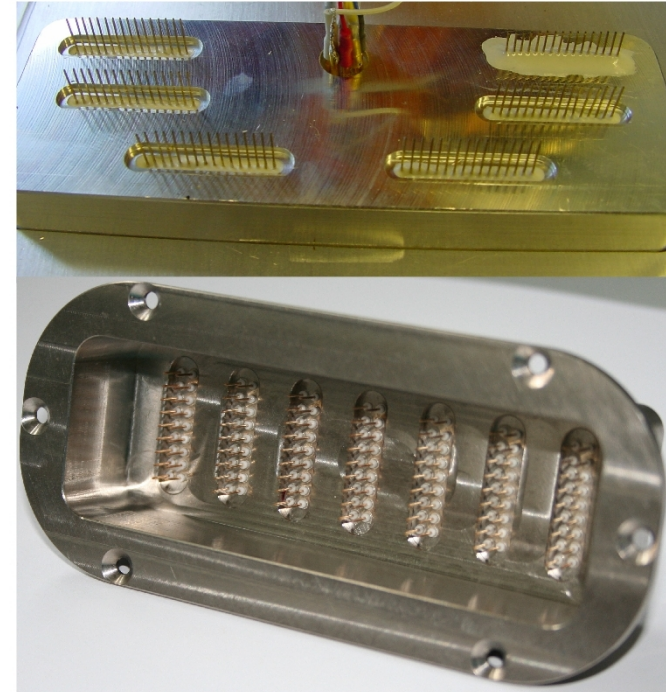
Cryostat equipped with the new ceramic feedthroughs

FWHM Core:

B004 1.31/2.31/2.39 keV

C006 1.22/2.15/2.27 keV

Current status: Mounted in the frame at GSI



# Repair AGATA cryostats: ADC2

C010 sent back to Canberra for repair within warranty period

C004 (still in CAT) will replace C010

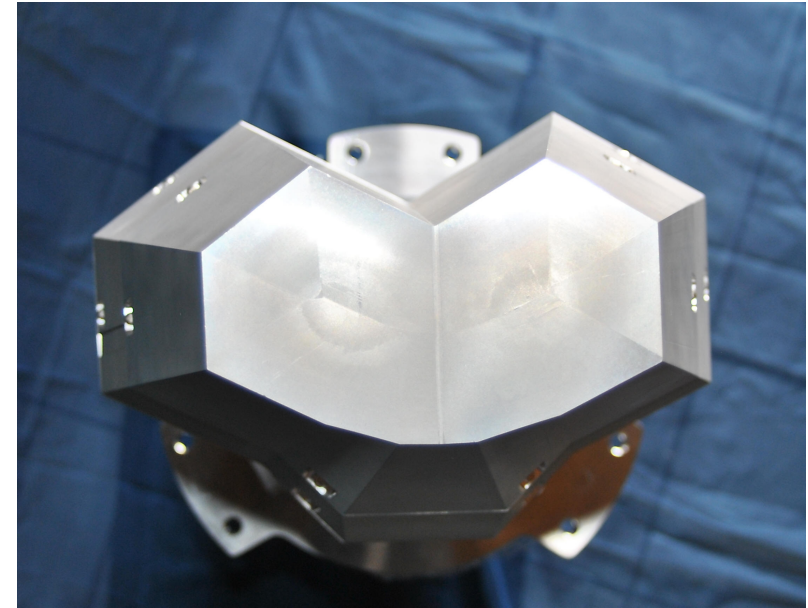
Missing warm preamplifiers



# Repair AGATA cryostats: ADC3

Damaged electronics after accidental warm up with applied HV

All FET's have been replaced by CTT



Current status: operational, waits for mounting at GSI



# Repair AGATA cryostats: ATC1

Leaks after accidental warm up

- 2 feedthroughs (old CTT type)  
exchanged with spare ones from CTT

FWHM Core:

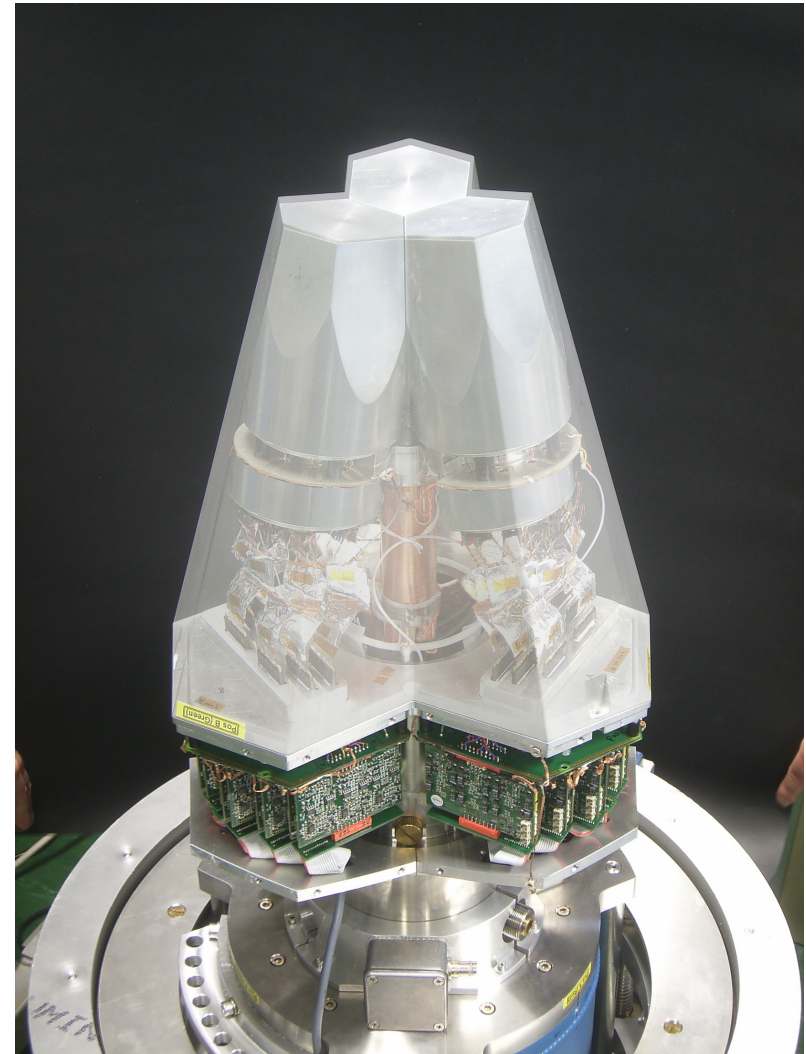
A008: 2.90/3.51/3.67

B001: 1.43/2.39/2.52

C003: 1.43/2.26/2.37

C003 is showing microphonics on  
few segments

To be delivered soon





# Repair AGATA cryostats: ATC2

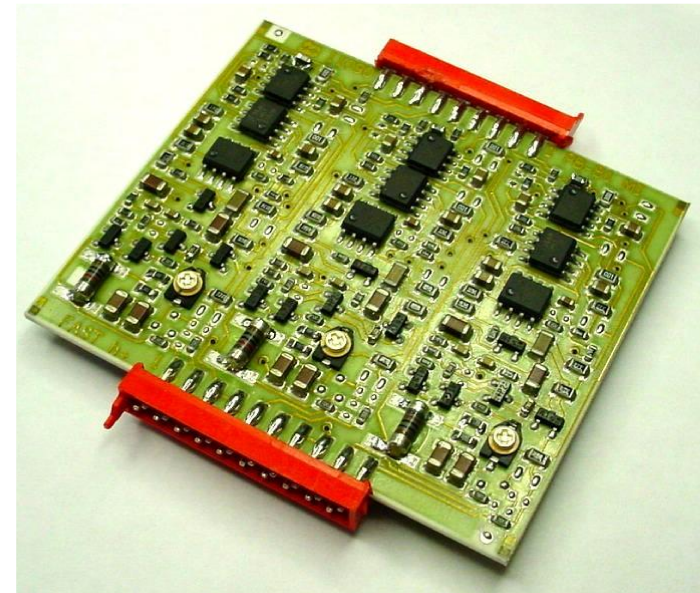
Several warm preamplifiers damaged after accidental warm up

broken warm preamplifiers were exchanged

Co60 resolutions were measured at GSI:  
Segments  $\sim 3\text{keV}$ .  
Cores between 3.0 and 3.5keV

A003: one channel is missing due to a broken FET

Is mounted in the frame at GSI



# Repair AGATA cryostats: ATC3

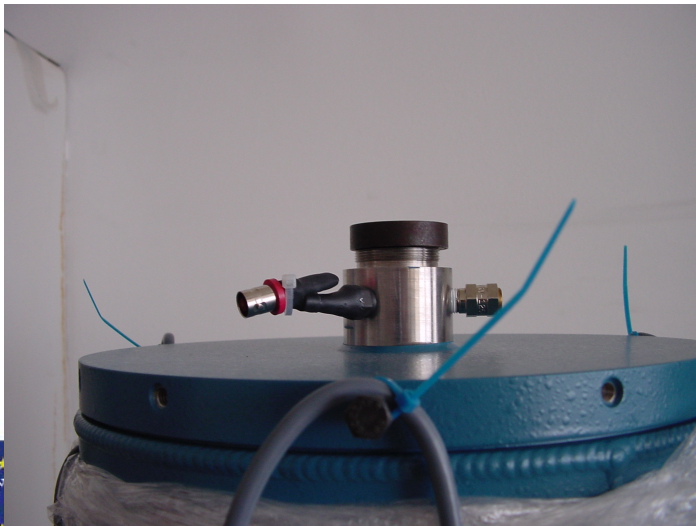
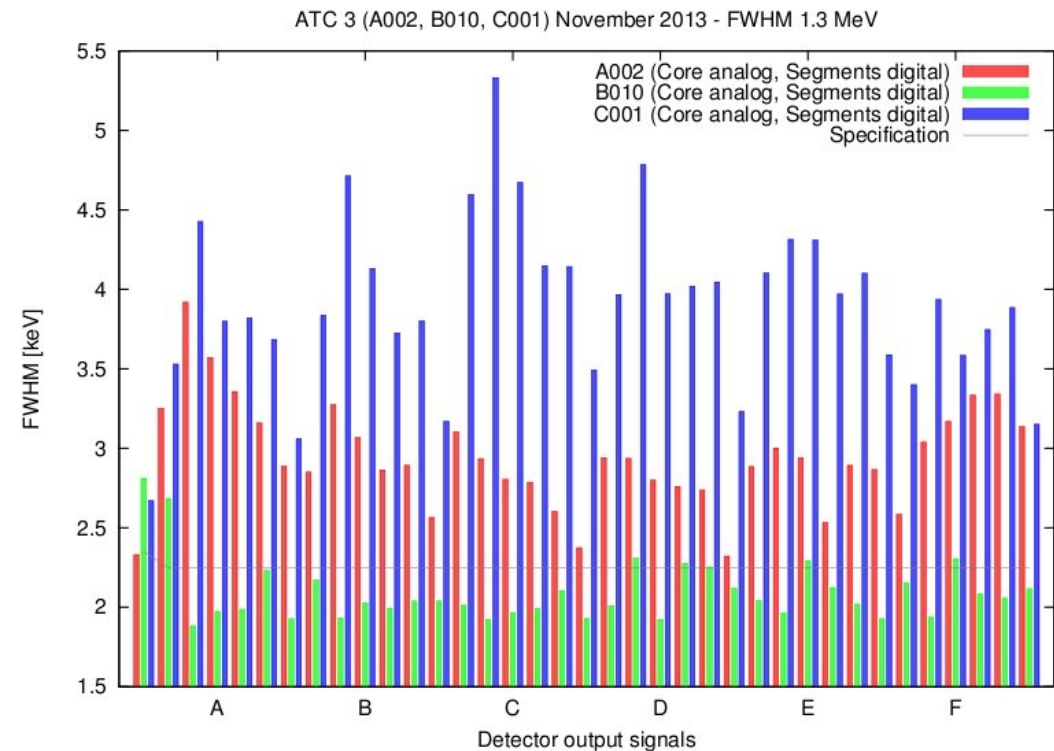
Warm preamplifiers damaged after accidental warm up and leak on dewar repaired

FWHM Core:

A002 1.67/2.17/2.33 keV

B010 2.00/2.67/2.81 keV

C001 1.73/2.61/2.67 keV



2 detectors show trapping from LNL phase

B010 shows microphonic behaviour on some segments

Current status: At GSI, leak on dewar

# Assembly of AGATA cryostat ATC4

Leak between inner and outer dewar  
after LNL campaign, dewar replaced

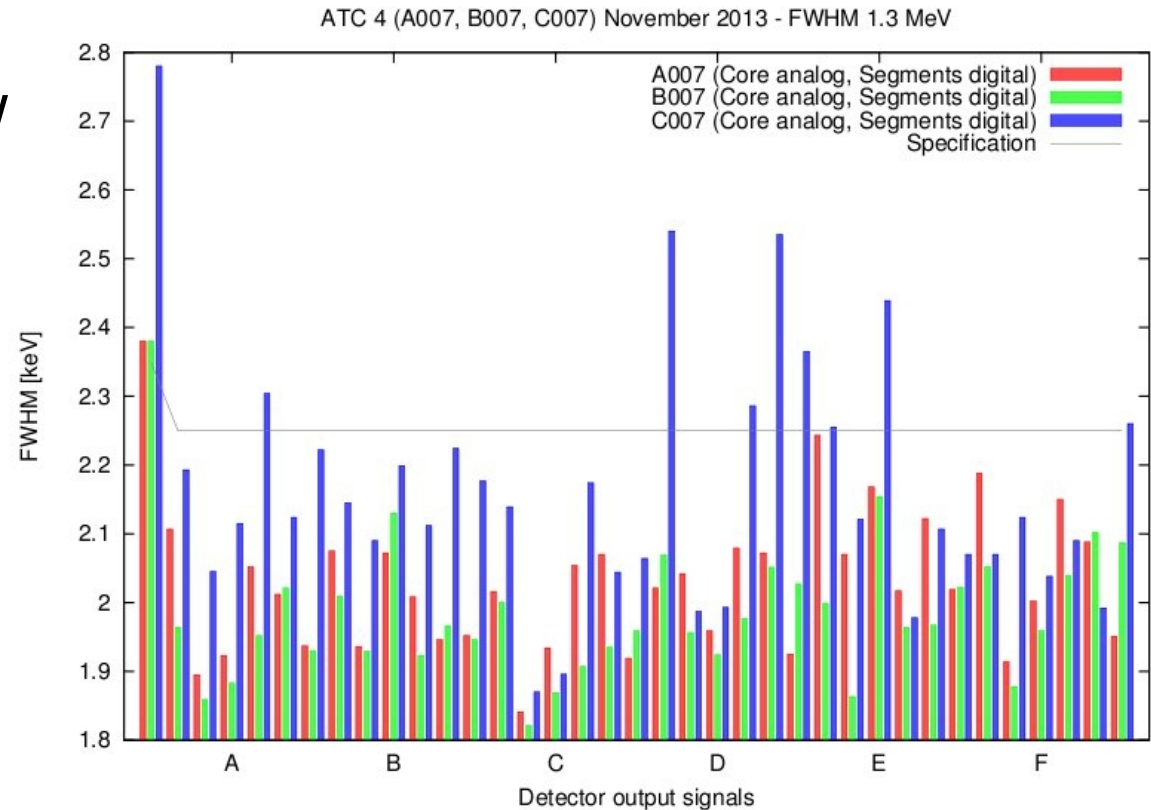
Cryostat equipped with the new  
ceramic feedthroughs and new  
corresponding cabling

FWHM Core:

A007 1.36/2.28/2.38 keV

B007 1.43/2.16/2.28 keV

C007 1.48/2.52/2.62 keV



Current status: Mounted in the frame at GSI

# Repair AGATA cryostats: ATC5

Leak after accidental warm up

- feedthroughs repaired by good will from CTT
- all 111 FET replaced
- several warm preamplifiers replaced

A004: leakage current on core + segment B1

FWHM core: 1.86/2.82/2.90 keV

Segment B1: 1.73 keV

B002: FWHM core: 1.21/2.10/2.23 keV

C009:

leakage current at nominal voltage though segment E3

FWHM core: 1.30/2.24/2.34 keV (at 4000V)

Segment E3: 1.19 keV (at 4000V)

1.31 keV (at 5000V)

Current status: Mounted in the frame at GSI



# Summary and Outlook

23 detectors will be prepared by the detector group

18 detectors are at GSI:  
ATC2, ATC3, ATC4, ATC5, ATC6  
ADC1, ADC2

13 detectors are mounted in the frame

8 detectors are running with good performance, commissioning ongoing

2 detectors will be mounted (ADC3)

3 detectors were removed from the frame due to vacuum leak (ATC3)

5 detectors will be delivered from Cologne to GSI (ATC1 & ADC2 )

