

Status of the AGATA cryostats

University of Cologne

Benedikt Birkenbach, **Herbert Hess**, Jürgen Eberth, Lars Lewandowski,
Peter Reiter, David Schneiders – IKP Köln



AGATA detectors at GANIL November 2014

12 detectors at GANIL:

ATC1: A008, B001, C003

ATC3: A002, B010, C001

ATC4: A007, B007, C007

ATC5: A004, B002, C005



AGATA detectors for GANIL

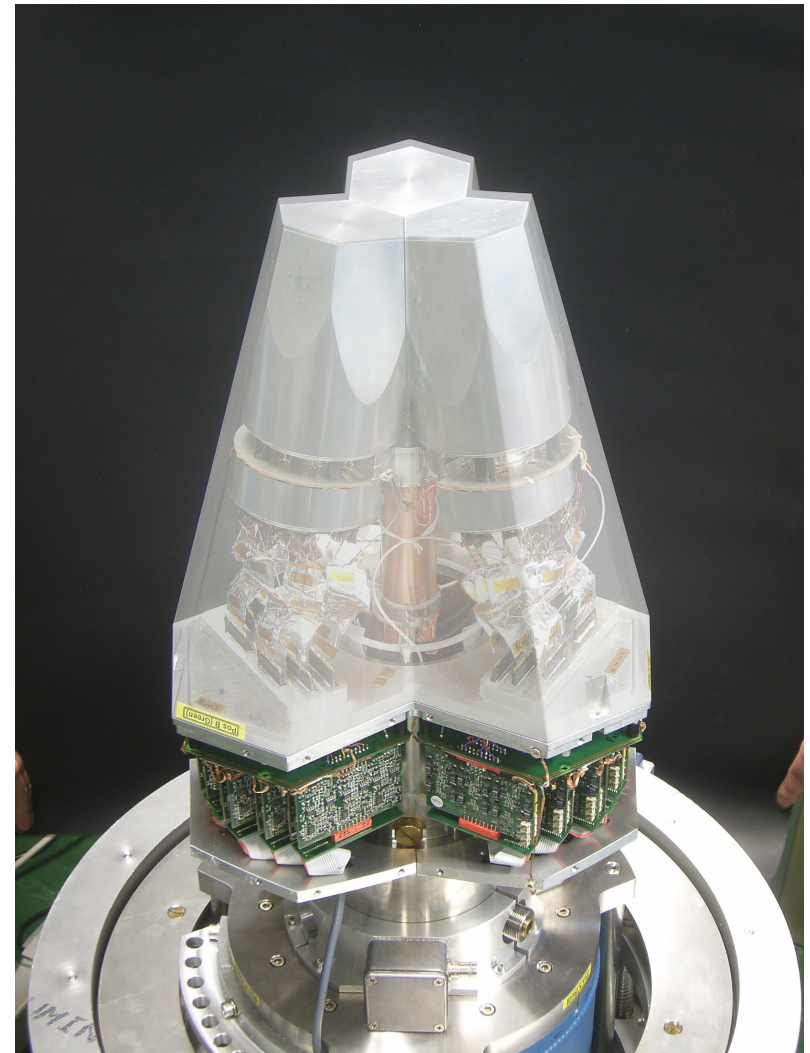
Additional 12 detectors had to be delivered to GANIL until begin of February 2015:

ATC2: A003, B003, C005
dewar replaced

ATC6: A001, B004, C004
maintenance after GSI

ATC7: A006, B013, C006
converted from ADC4

ATC8: A009, B005, C008
newly built up by CTT



AGATA cryostat: ATC7(CTT)

Feedthroughs: Ceramic

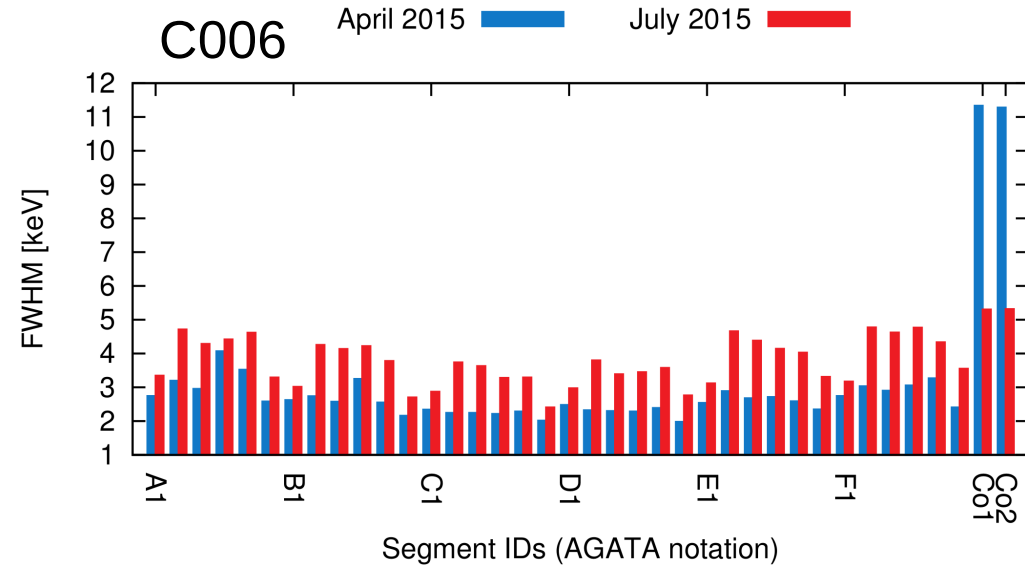
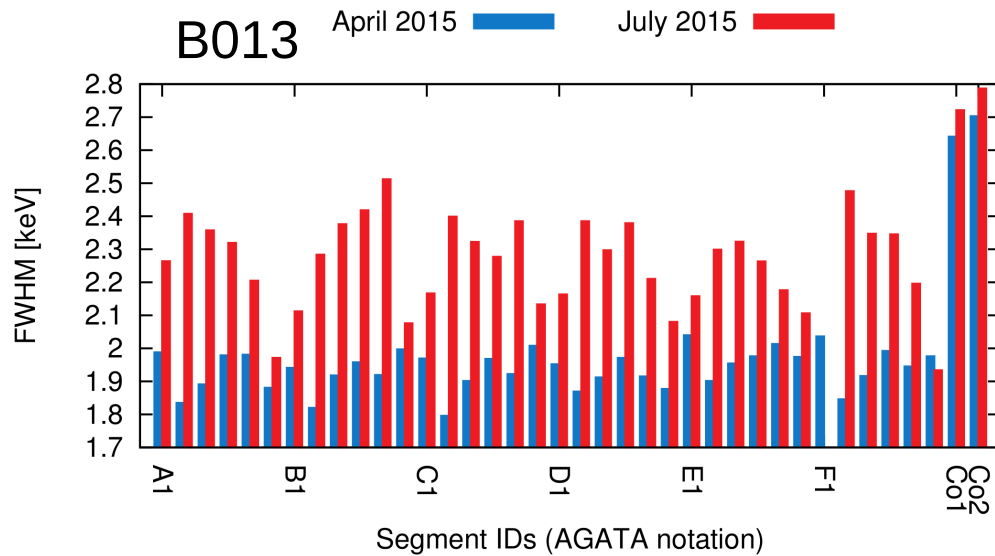
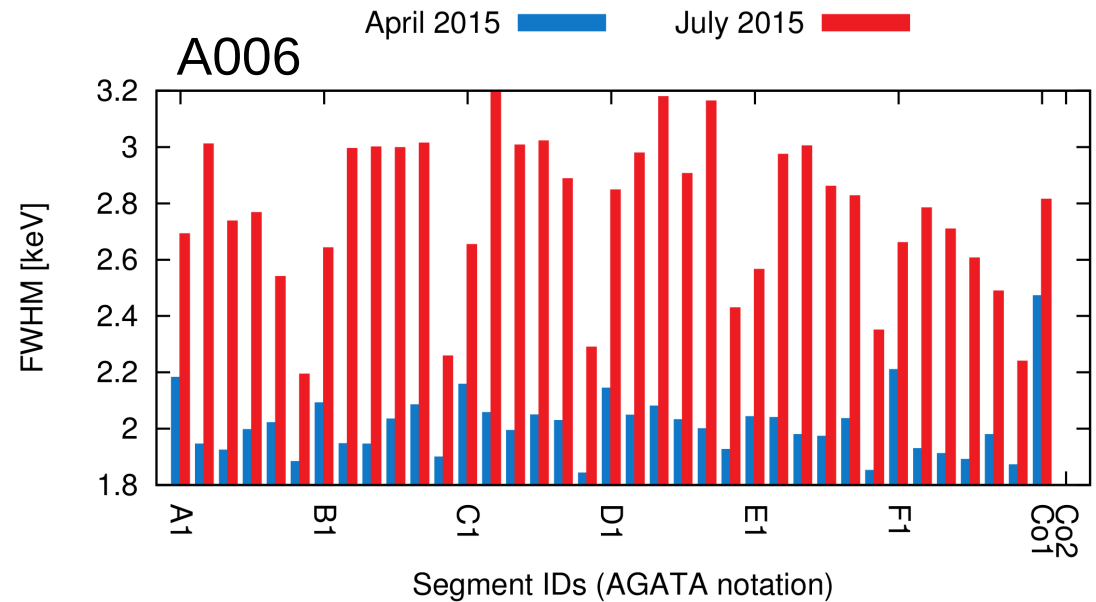
FWHM Core ($^{241}\text{Am}/^{60}\text{Co}$):

A006: 1.46/2.51 keV

B013: 1.24/2.71 keV

C006: 1.62/2.42 keV

Delivered to GANIL Jan. 2015
Measurement by GANIL group



AGATA cryostat: ATC6

Feedthroughs: Glued

FWHM Core ($^{241}\text{Am}/^{60}\text{Co}$):

A001: 1.39/2.41 keV

B004: 1.28/2.66 keV

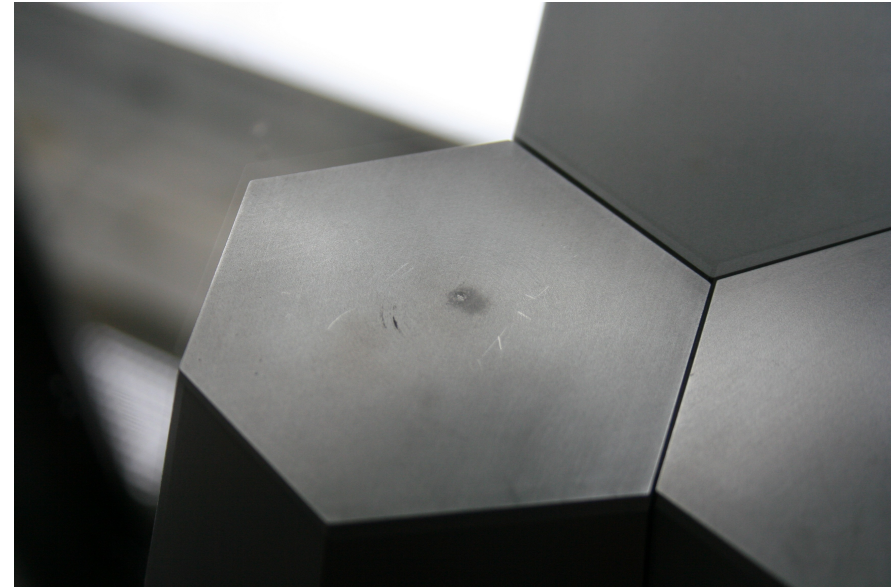
C004: 1.70/2.66 keV

C004 suffered from leakage current,
Segment C1 & D5 were affected:

FWHM C1 (^{241}Am): 2.73 keV

FWHM D5 (^{241}Am): 1.86 keV

Detector was within warranty → replaced by C010



AGATA cryostat: ATC6

Feedthroughs: Glued

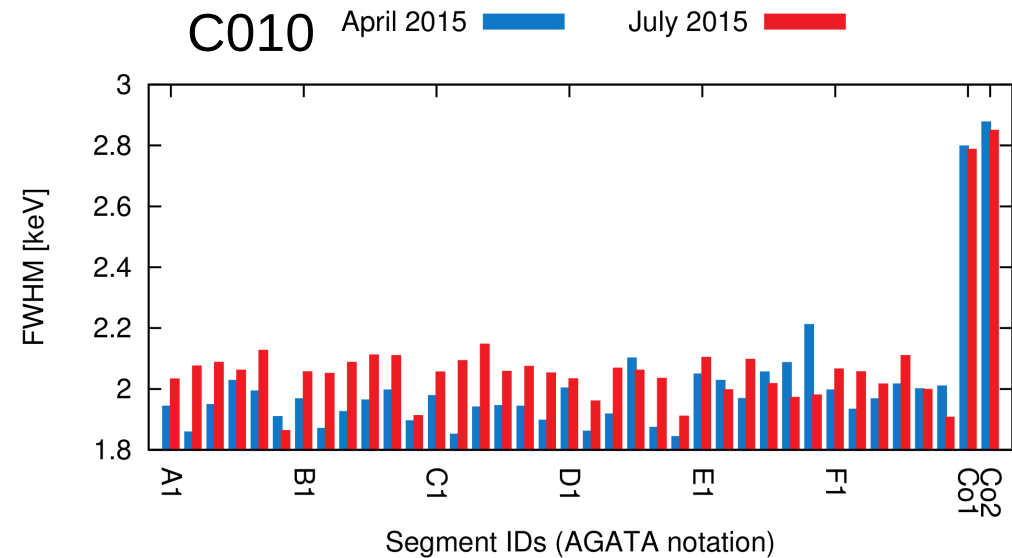
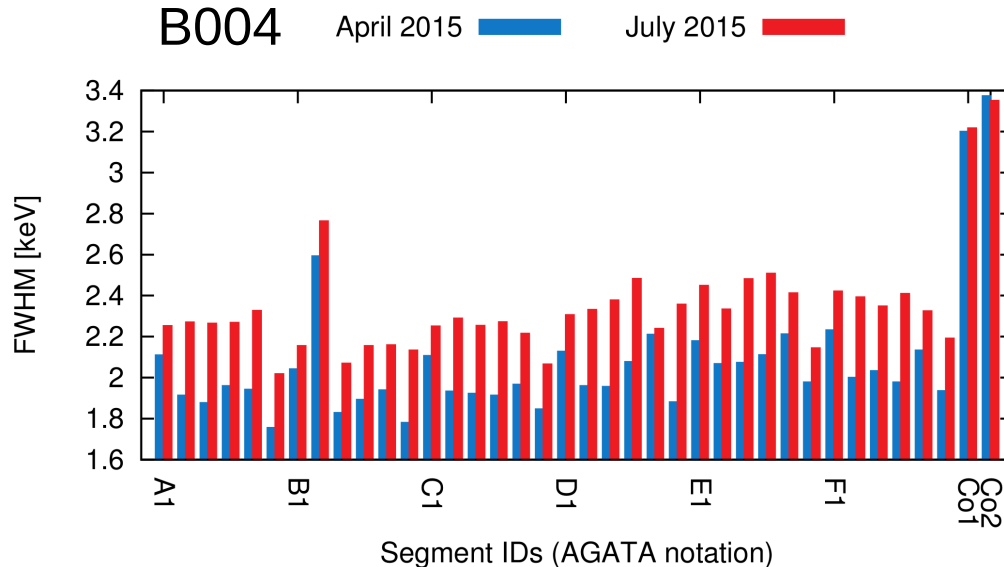
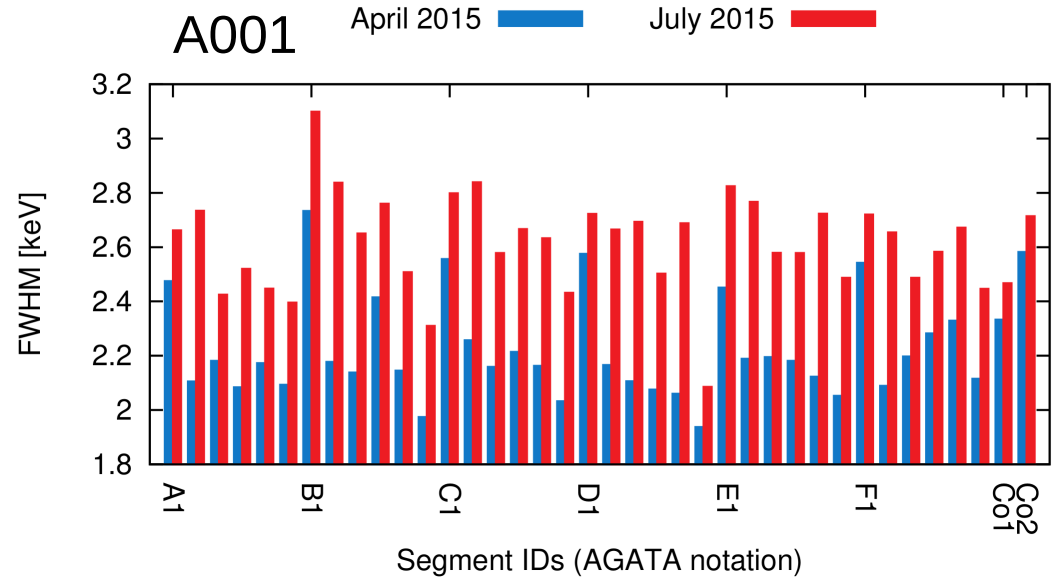
FWHM Core ($^{241}\text{Am}/^{60}\text{Co}$):

A001: 1.39/2.41 keV

B004: 1.28/2.66 keV

C010: 1.31/ - keV

Delivered to GANIL Jan. 2015
Measurement by GANIL group



AGATA cryostat: ATC2 & ATC8(CTT)

Status end of January

ATC2:

Feedthroughs: Ceramic

FWHM Core ($^{241}\text{Am}/^{60}\text{Co}$):

A003: 1.34/ - keV

B003: 1.23/2.37 keV

C005: 1.24/ - keV

ATC8:

Feedthroughs: Ceramic

FWHM Core ($^{241}\text{Am}/^{60}\text{Co}$):

A009: 1.39/2.41 keV

B005: 1.28/2.66 keV

C008: 1.31/ - keV

AGATA cryostat: ATC2 & ATC8(CTT)

Status end of January

ATC2:

Feedthroughs: Ceramic

FWHM Core ($^{241}\text{Am}/^{60}\text{Co}$):

A003: 1.34/ - keV

B003: 1.23/2.37 keV

C005: 1.24/ - keV

ATC8:

Feedthroughs: Ceramic

FWHM Core ($^{241}\text{Am}/^{60}\text{Co}$):

A009: 1.39/2.41 keV

B005: 1.28/2.66 keV

C008: 1.31/ - keV

NEW PROBLEM:

→ Huge leak of 10^{-4} mbar*l/s in both new dewars,
appears just when the dewars are at 77 K

No spare dewars available

Delivery of new dewars (June) → delay of ATC9

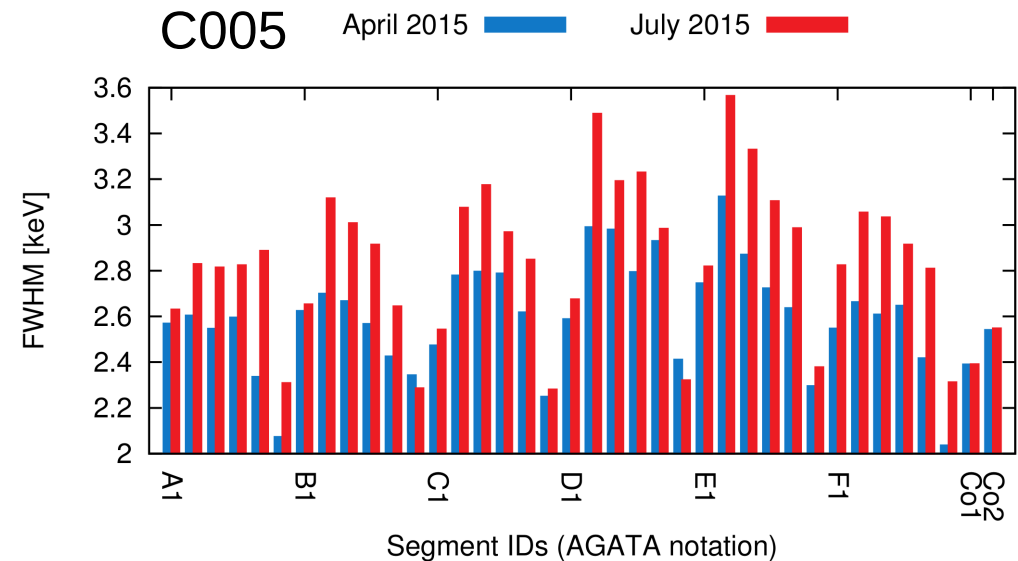
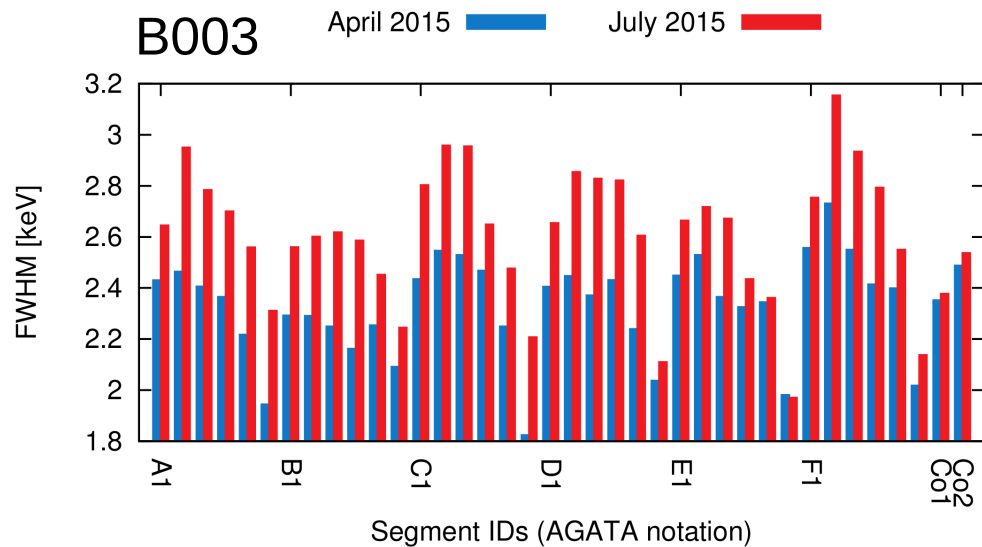
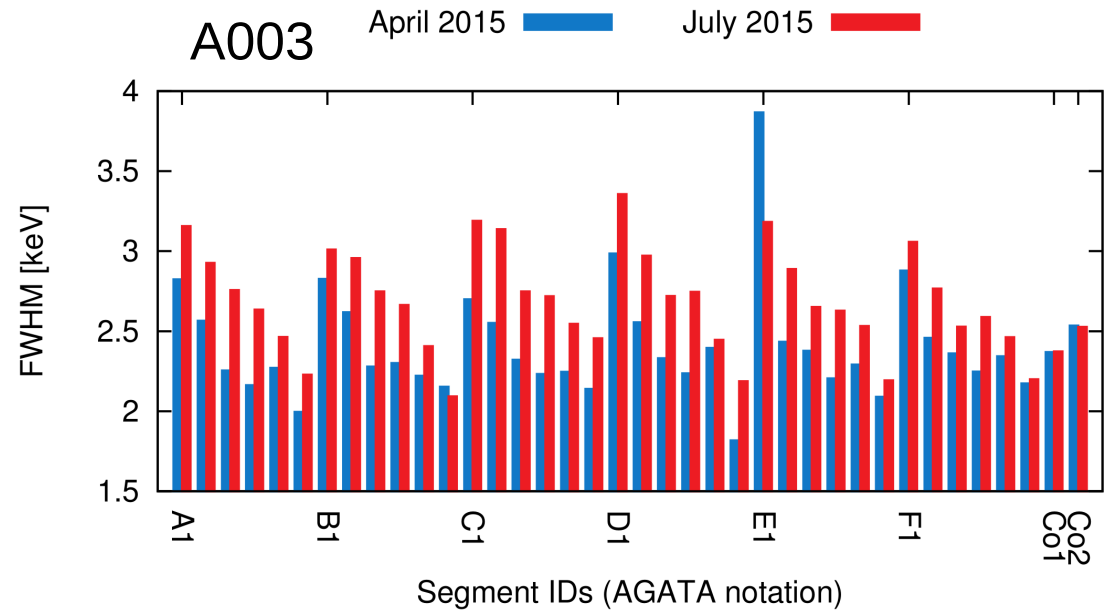
AGATA cryostat: ATC2

Constructive collaboration with CTT
Dewar replaced with dewar
from ADC1

First quick test at Cologne

Delivered to GANIL Feb. 2015
Debugging and last tests at GANIL

Measurement by GANIL group



AGATA cryostat: ATC8(CTT)

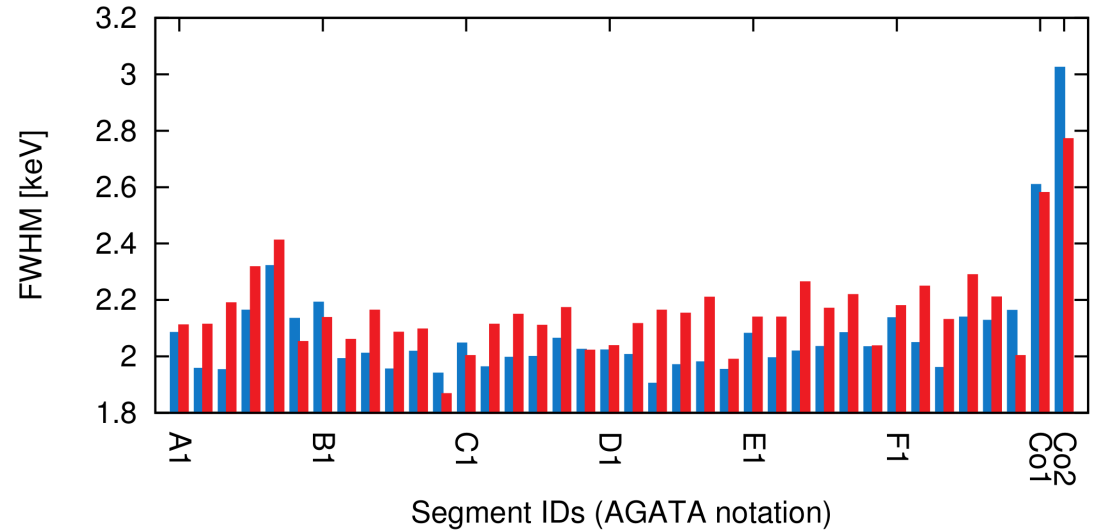
Dewar replaced with dewar from ADC2 by CTT

First quick tests at Cologne

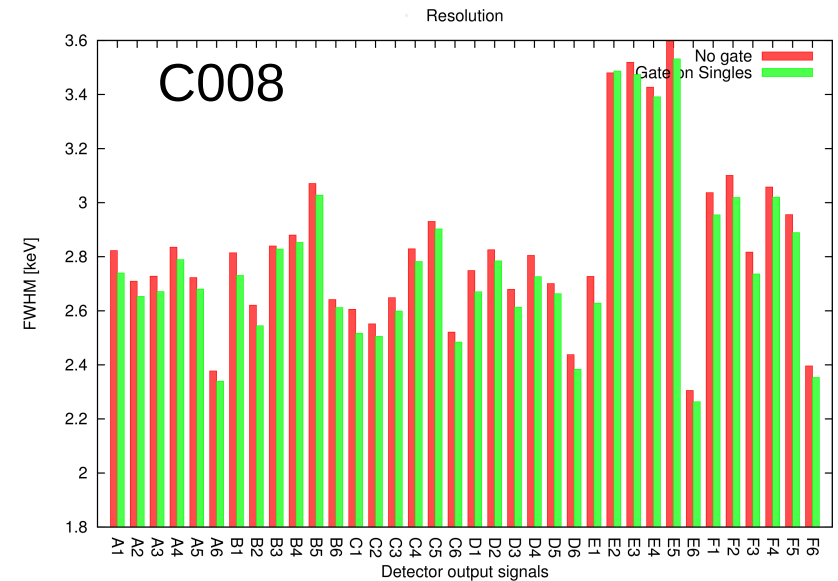
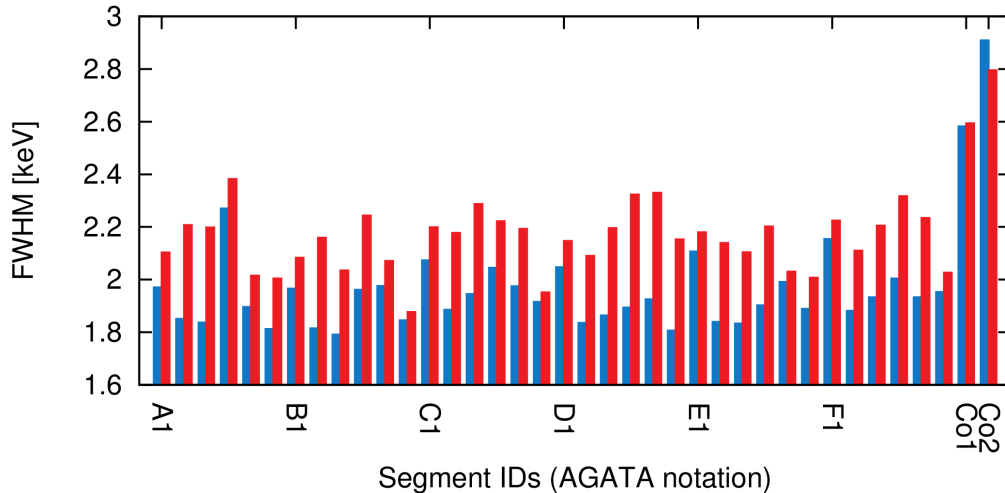
Delivered to GANIL Feb. 2015

Measurement by GANIL group

A009 April 2015 █ July 2015 █



B005 April 2015 █ July 2015 █



Summary

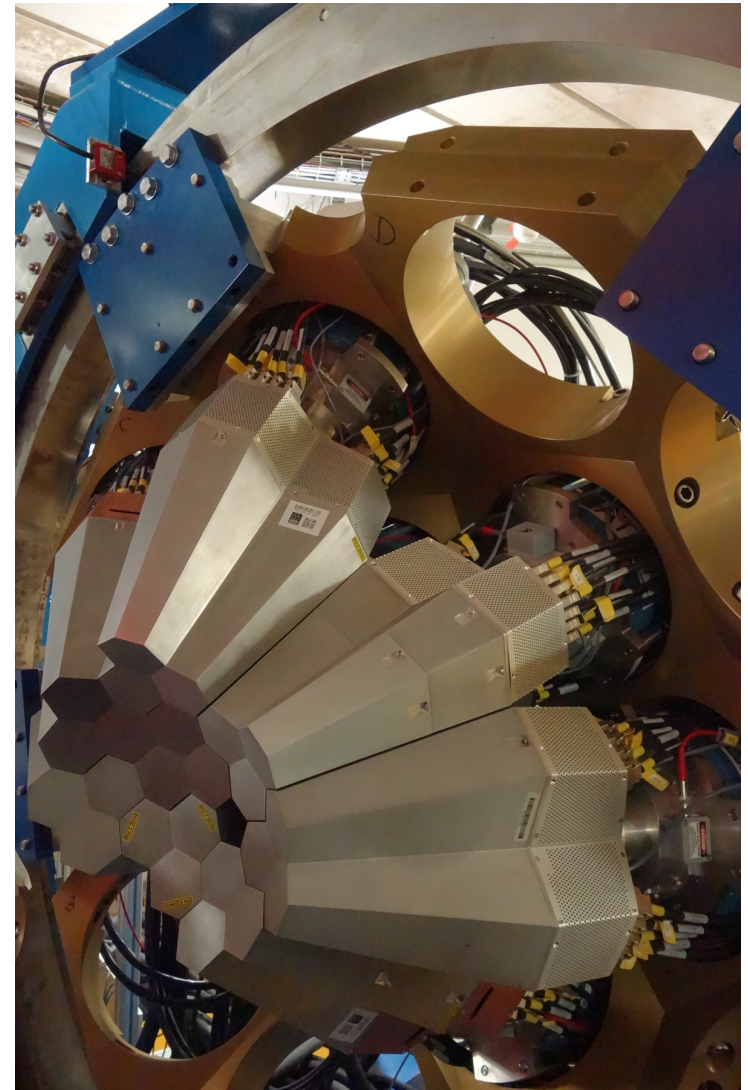
24 detectors were prepared by the detector group for the first GANIL campaign

Debugging at GANIL:

ATC3: exchange of the cold segment preamplifier
B1 -B6 of detector B010

ATC7: oscillations removed

→ System running with 887 out of 888 high-resolution spectroscopy channels at the beginning of the physics campaign



Summary

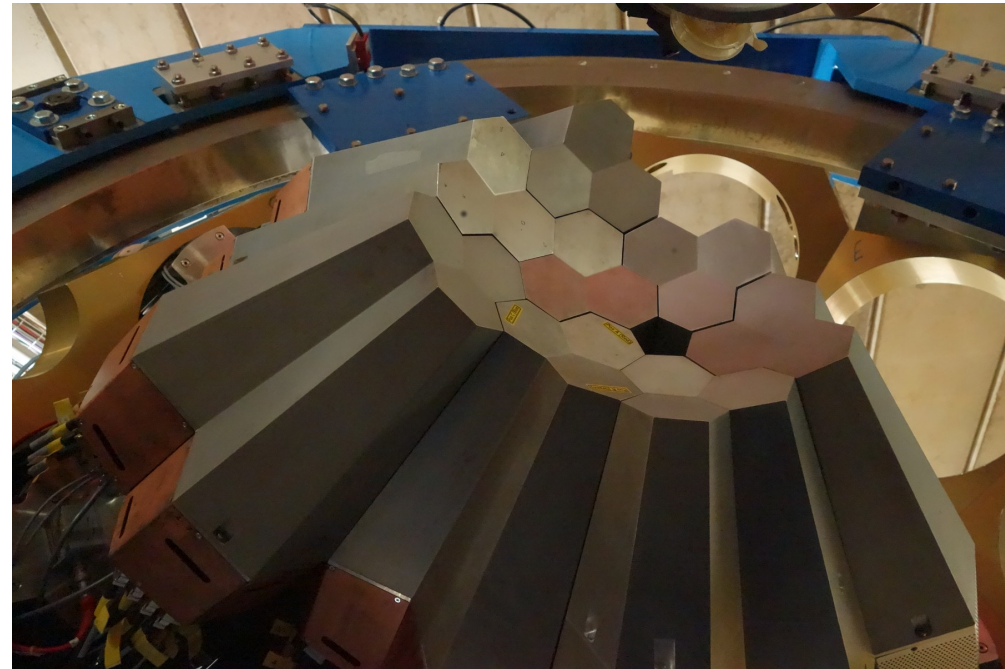
End of July: 23 out of 24
detectors operational

ATC8:
detector C008 disconnected
from low-power supply
due to oscillations

PT100 at capsule disconnected

ATC5:
detector A005 segment C1 missing

All detectors suffer from neutron damage



Outlook

ADC3:

FWHM Core ($^{241}\text{Am}/^{60}\text{Co}$):

B011: 1.23/2.49 keV

C011: 1.33/2.35 keV

will be delivered soon

ATC9:

equipped with A010, B008, C013
debugging ongoing

Maintenance of ATC8 & ATC5
Schedule will be discussed during
AGATA week (begin week 40)

