Report from the AGATA detector lab at Saclay

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AGATA capsules tested in the Saclay lab

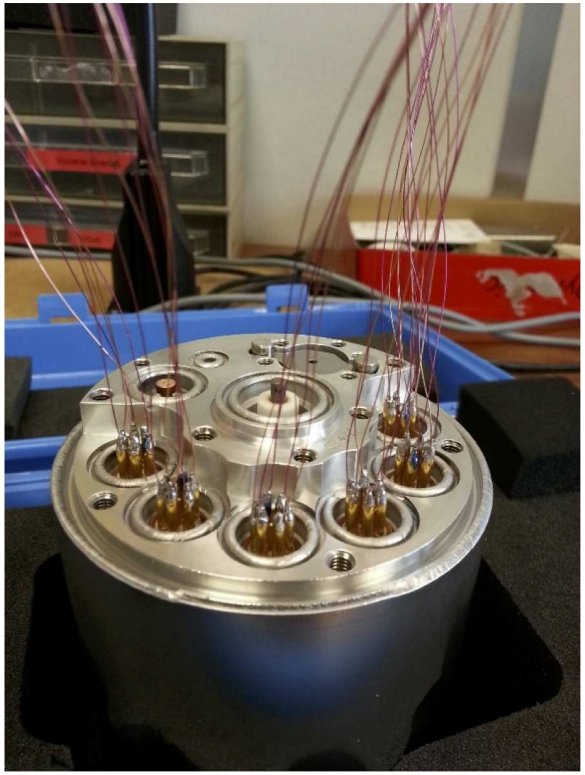
- 2007-2013: 13 capsules ($\sim$2 per year)
- 2015: C012 (started in 2014), C014, B014 (finished in 2016)
- 2016: A011, C002 (after repair), A012
- 2017: A008, B001, C001 (after annealing), C013 (faulty at Ganil), C501 (DEGAS)
- 2018: B010 (after annealing, test started in 2017)

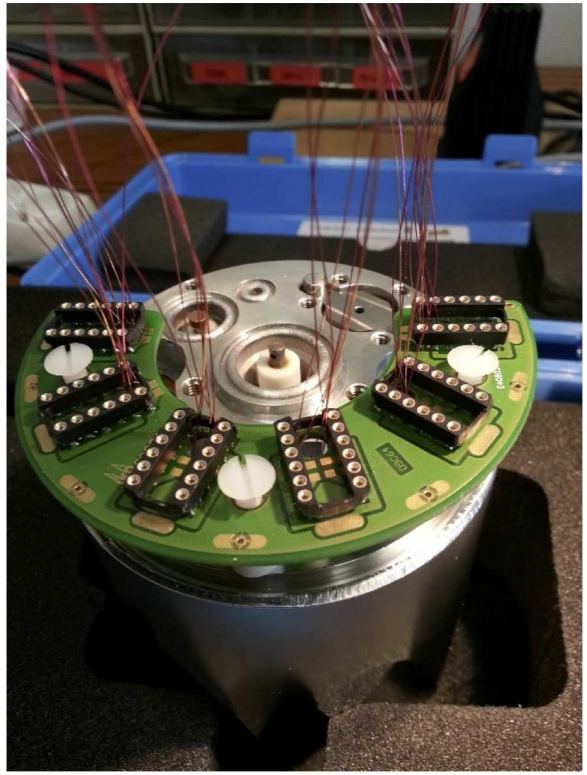
- A008 and B001 received January 11, 2017, report March 28, 2017
- C013 received March 24, 2017, test finished May 4, 2017
- C001 received July 12, 2017, report July 28, 2017
- C501 received September 28, 2017, report October 20, 2017
- B010 received November 10, 2017, report January 12, 2018

Preparation of a CAT

- mounting of the PCB, mounting in a cryostat, pumping, cooling down: about a week
- ramping HV up: one day
- all signals present after cooling down in at least last 10 procedures







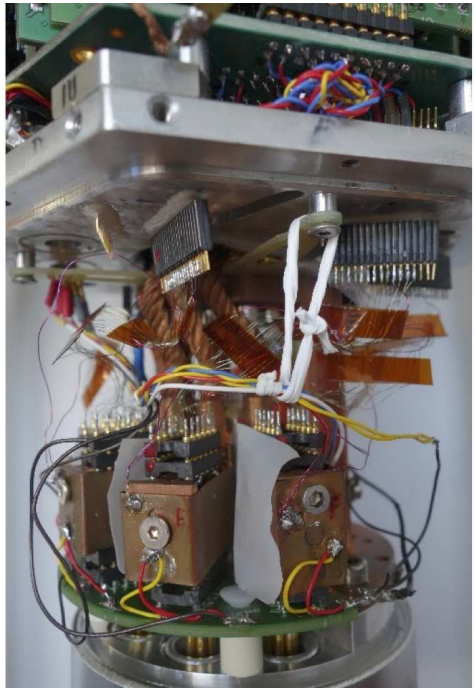
Recent upgrades of the lab

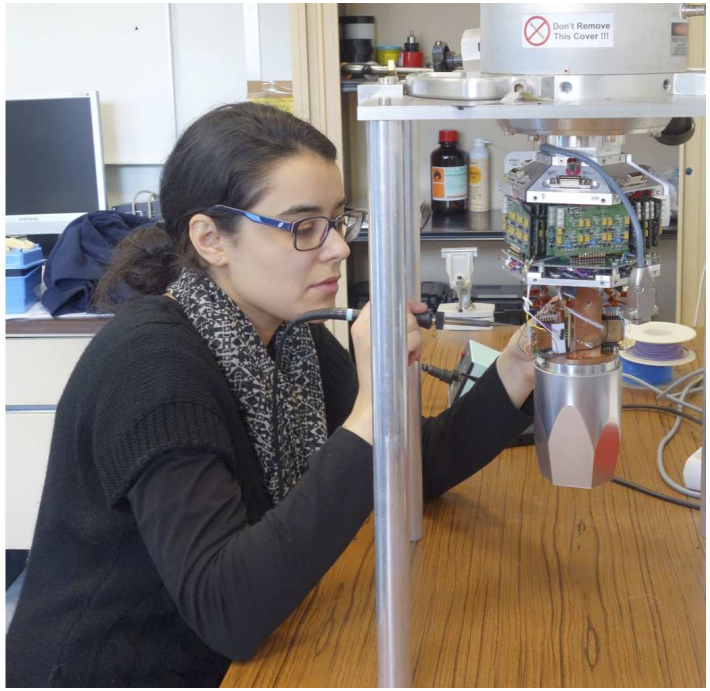
- new multi-channel analyser: we passed from 3 to 6 channels (end 2016)
- new ^{60}Co (end 2016) and ^{57}Co sources (2017)
- one new spectroscopic amplifier (Ortec 671) – May 2017
- new, more performant pumping unit delivered this week after the previous one broke down end 2017

- now possible to cool down a detector on Monday and make all tests by the end of the week:
  - resolution at 59 keV/122 keV and 1.3 MeV
  - efficiency (not required in a CAT but useful for the performance group)
  - cross talk (also not required and thus skipped if we need to deliver the capsule quickly)

After a CAT

- warming up and dismounting (2-3 days)
- analysis of cross-talk data (few days)
- transport to GANIL/IKP/Lingholsheim

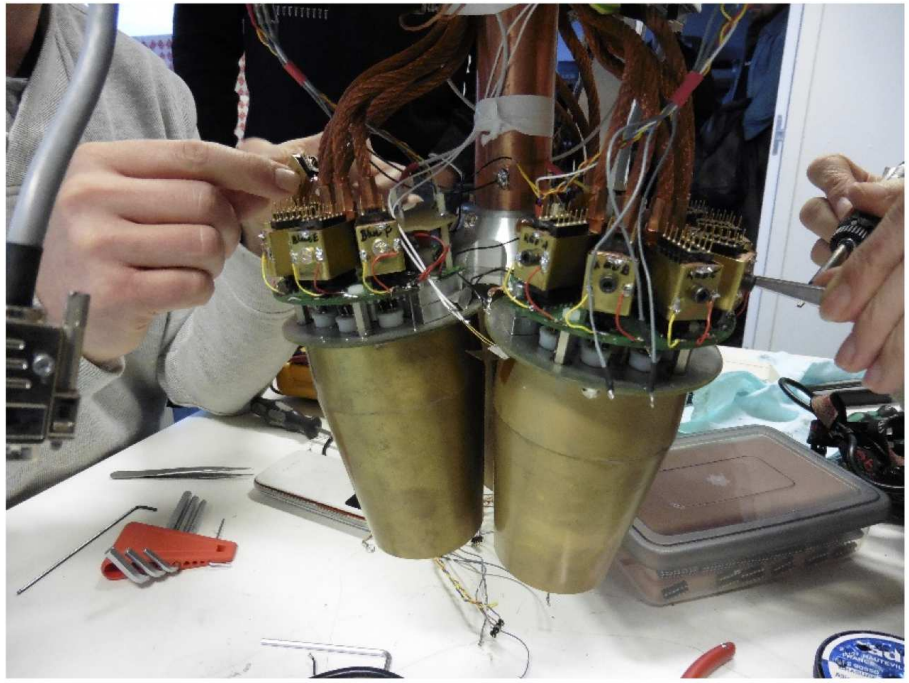






Participation in maintenance of ATCs at GANIL

- January 2018:
  several members of the Saclay team participated in ATC maintenance, together with GANIL and IPHC teams, under direction of Herbert
  - changes of FETs and internal cabling

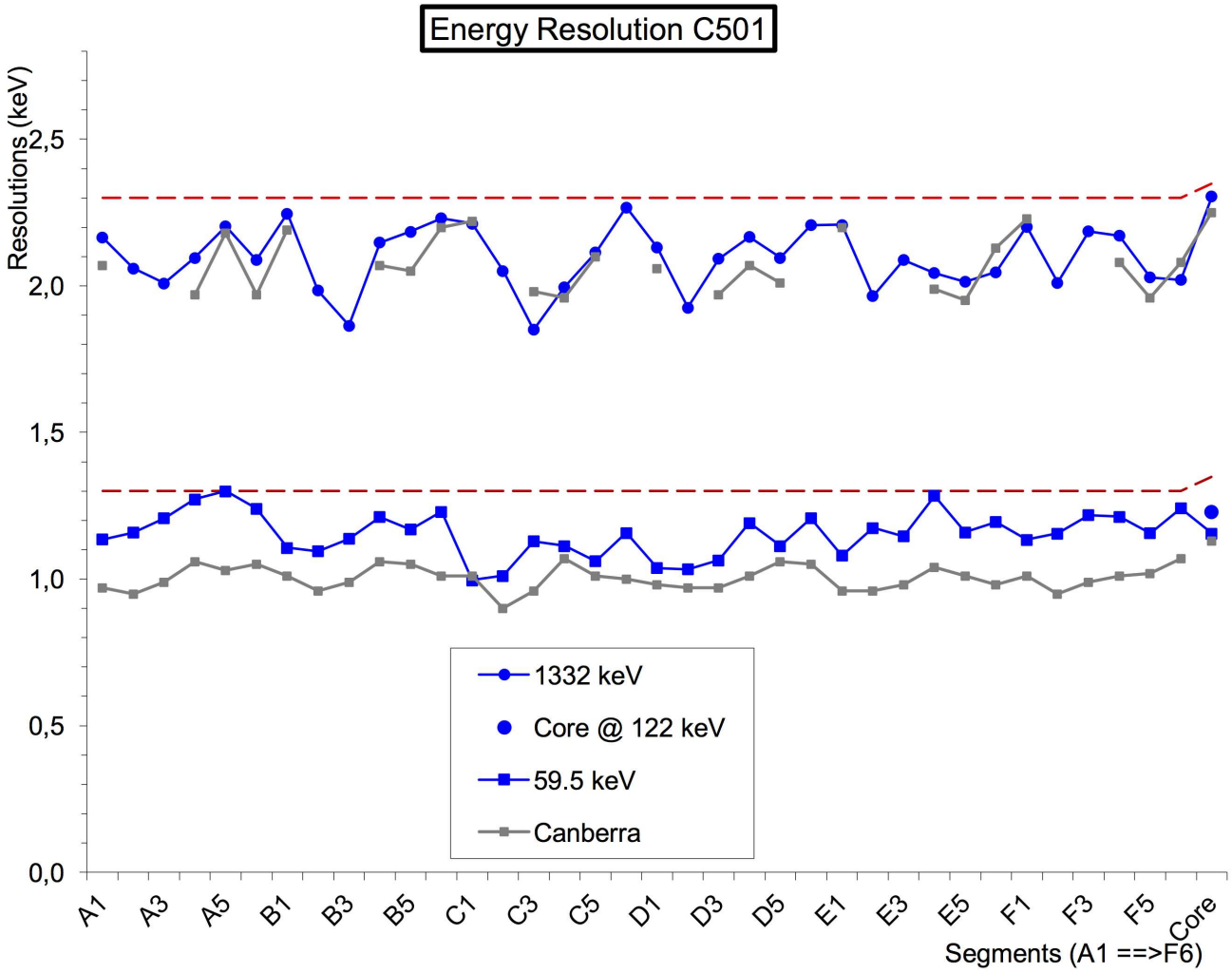




Pictures from 2017, sorry – we didn't take any in 2018!

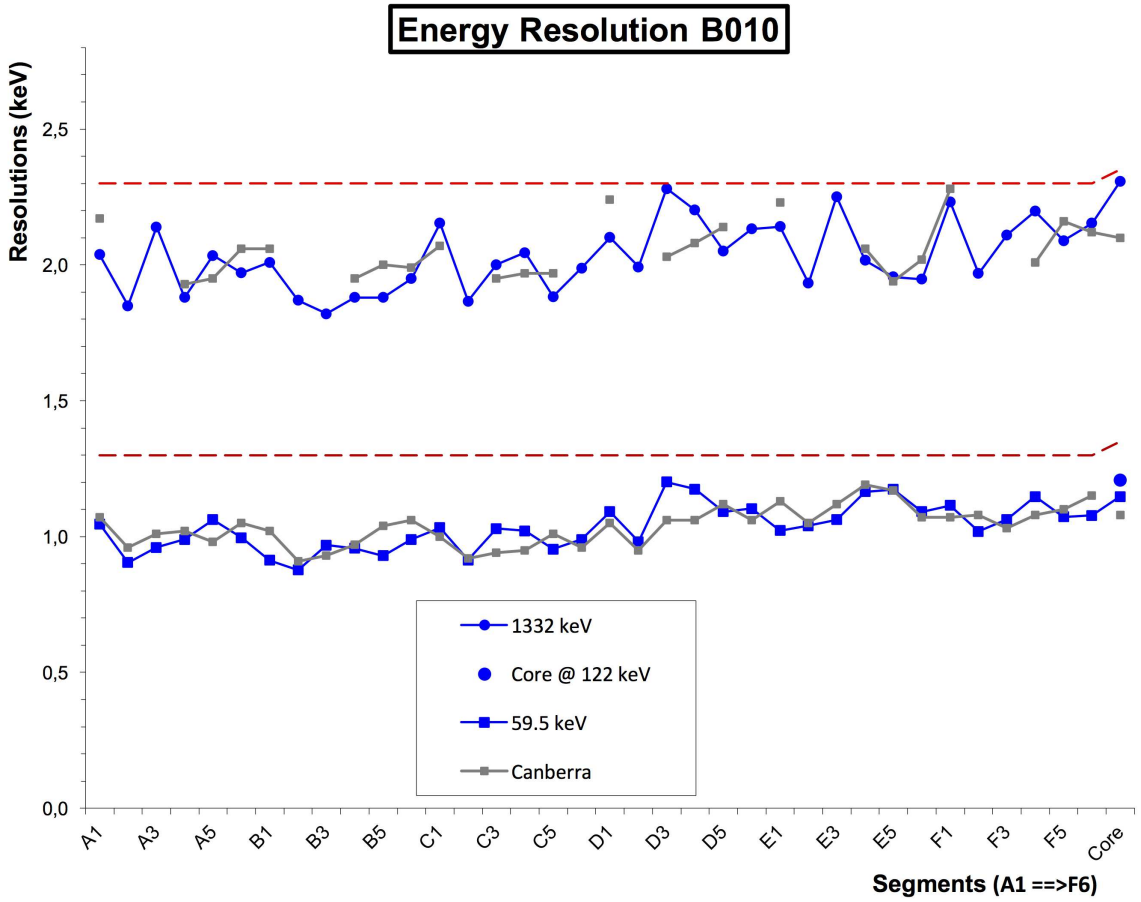
Tests of a DEGAS capsule: C501

- very good performance: detector accepted



Tests of capsules following annealing: B010

- detector used in ATC3, dismounted and annealed in July 2017
- subsequent test in Liverpool revealed leakage current in segment A1
- returned to Mirion, delivered to Saclay on November 10, 2017, following repair and tests at Mirion



Tests of capsules following annealing: B010

- excellent performance of B010 at Saclay, no trace of leakage current, resolutions fulfill the requirements for new capsules
- after integration in a triplet, leakage current reappears
- B010 returns to Mirion for repair

- shouldn't we keep track of temperature cycles for each capsule?