



AGATA AMB Phone conference 18th February 2026

Sujet : AGATA AMB Feb 2026 – Extended meeting with team leaders

Apologies:

LNL Status (A. Goasduff)

The 2nd EXOTIC experiment is running. Next run is coulex, and then a 3rd EXOTIC beam time. SPES is going for commissioning of the LEB section (RFQ-MMS) in summer. There will be an impact on the TPA program, in particular for heavy beams (238U ?).

Gameplan to 0° campaign : Mechanic test completed and ready to be installed.

Pré-PAC to be schedule for 0° campaign only.

PARIS sub system via CAEN and xDAQ is ready. NEDA via numexo2 to be completed.

Additional activity : V2 test benches; 2 are running. One for the DATA integrity checks and the second one for the GTS implementation (see FEBE section).

ASC Report / ASC Matters (M. Gorska)

Next ASC meeting end of April in York. The next ARRB meeting is schedule on zoom on the 23rd of March. A point will be made on the status of the amendment signature and discussion / decision on the new policy concerning countries which have difficulties to contribute financially to the collaboration. It is reminded that any evolution can be discussed at the ARRB but ASC is deciding.

ACC Report / ACC Matters (J.J. Valiente Dobon)

AGATA web page: next meeting 19/2. Later meeting with everyone 3/3 at 11,00 via zoom. O.S. prepared a document with questions pre-data policy final document. Questions in a google form format. Not easy to do. Now it is in thehand of some beta testers to make sure colleagues can get the meaning of all questions to get a meaningful result. Prizes EPJ: Anyone knows if someone applied? JJVD was not contacted. AGATA week 7-11 September – ACC opening 1st of May. Soon change of the ACC member of HIL (Warsaw).

GSI Status (K. Wimmer)

- No report

GANIL Status (E. Clement / C. Ciampi)

- Mechanical design for shaft completed
- LN2 and cable management nearly completed

- AF discussion with the infra group : AF modification discussed as well as DSS racks. Roberto communicated the detailed information on the cryo-valve used at LNL.
- DAQ box evaluation: footprint in the previous room checked. Waiting for the end-of-march burning test at Orsay to evaluate the power consumption of the V2 nodes. CEPH is estimated to 5kW.
- Common DMP (GRIT – AGATA VAMOS) distributed inside the local team
- Host Agreement drafted but delayed due to the GRIT change of management and structure.

REPORTS FROM THE WORKING GROUPS

Detector Module (H. Hess)

Three new detectors have been delivered. The CTT – MIRION is progressing very well. After the next 4 orders, MIRION will be the AGATA supplier. Many questions now arise for the future maintenance of the CTT cryostat : only within the collaboration or upgrade by MIRION. AGATA A014 repair is OK in final control, need FAT. AGATA B101-TUD repair will be in final control next week, another FAT opportunity . AGATA C003 annealing has severe leakage current after annealing, this will need repair.

Infrastructure (B. Million)

Discussion on the upgrade of the AF system for the GANIL campaign on-going. A detailed listing from Saclay will be delivered to see how to distribute the CORE investment. 2 LVPS bought covering now fully 3pi. A new batch of patch box in preparation. The GANIL team will visit LNL for infrastructure discussion.

Mechanics : all on-going. Meeting with the GANIL team for the latest configuration and GRIT interfaces. 2 detectors will be moved from the top to allow the cryogenic targets. Richard to check the equilibrium of the array → no problem; calculations done and report to be distributed.

Data base : meeting with Olivier, new LVPS to be added during the 0° move
Detector location to be updated to.

Front End Electronics (A. Gadea)

Coordination: last Electronics W.G. VC was on Wednesday, February 11th, 2026
next Electronics W.G. VC meeting on Wednesday, March 20th, 2026, 10:00 AM 9:00 U.K.

Status at LNL (A.Goasduff)

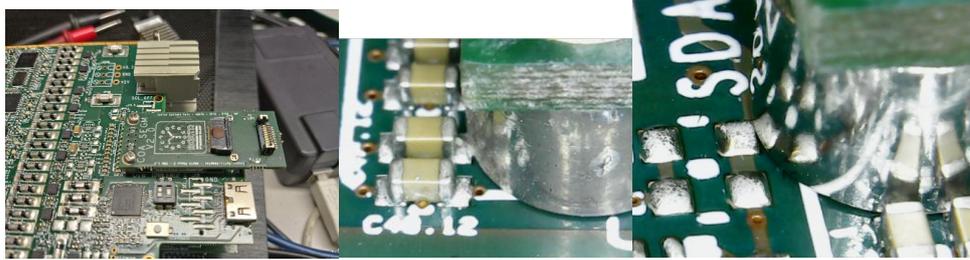
29 Phase 1 systems operational (also limited by the number of ATC in the setup)

DIGIOPT12 (A.Pullia):

All available 261 DIGIOPT12 segment boards (all but the 9 in test setups), updated, to add the chip to enable/disable fast reset from slow control, are have been delivered to IFIC Valencia by mid February.

While doing the test of the aforementioned DIGIOPT12 boards, it was noticed that in the DigiOpt12 units, is to be installed a plug-in card called ‘COA SEGM V2.0’. The

problem is that have been installed spacers with too large a diameter, which touch the decoupling capacitors of the digital output signals. These short circuits are potentially very problematic and cannot remain like this, spacers with a smaller diameter, or insulators should be install. The existing screws guarantee ground contact.



PACE (J.Collado, A. Goasduff, A.Gadea, V.Gonzalez, J.M. Deltoro)

PACE Production

After the problems with the wrong components and wrong procedures during the population of the PACE boards, the company has difficulties to deliver promptly. Teydisa has 80 PACE boards to process and deliver. Other 2 with failures are still in Valencia. From the other 8 delivered to Valencia 3 are tested and working and 5 are still to have the extended test.

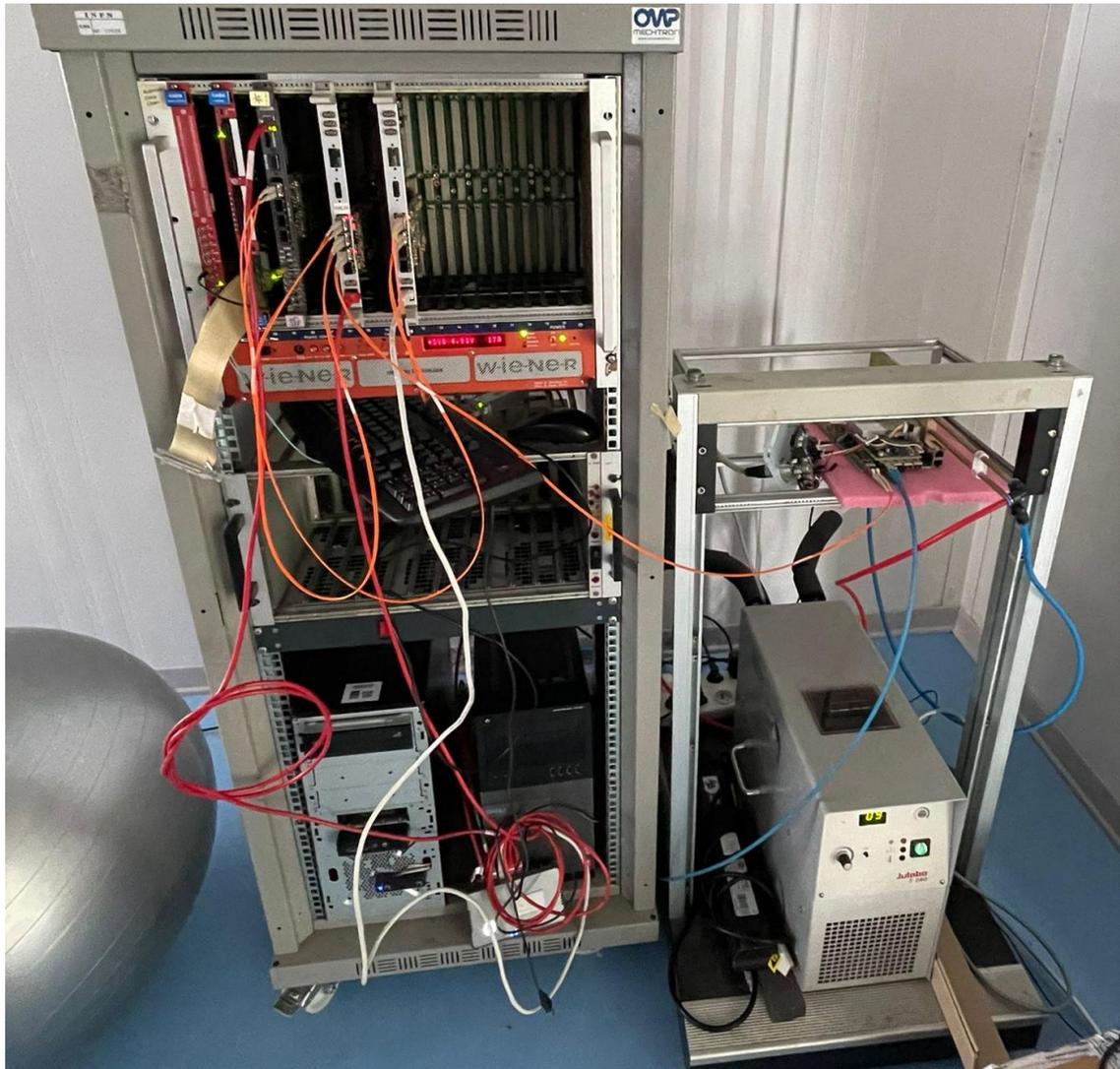
31 PACE boards have been repaired by Teydisa with the following result:

- 26 are ok in the Factory acceptance test
- 2 with small issues (soldering of connector or switch) Repairing on-going
- 3 with more severe issues: short-cut when the SoM is plugged, 3.3V not ok or TLK not detected. Enquires and test on-going.

The 50 TE0808-05-BBE81-E ordered by GANIL and the 40 TE0790-03 (AMD compatible) are at GANIL and will be delivered to IFIC and ETSE Valencia. The INFN tendering for 50 PACE boards is now open, Teydisa is preparing the documentation. The PCB order failed and we need to find funds to order them.

PACE Firmware

Two debugging setups presently at LNL build by A. Goasduff. One in the experimental hall 1, connected to an AGATA capsule in the array, for data taking. The second one is outside the experimental hall, with a GTS tree and an AGAVA readout system to debug the GTS firmware.



Zeptonova 2025 contract completed and deliverable report sent to GANIL. We will attached the report to the minutes.

Documentation available now at:

<https://pacedocumentation-6e73de.pages.in2p3.fr/>.

and the different version of the firmware developed are stored at:

<https://gitlab.in2p3.fr/agata/daq/pace-bitstreams>

New brief contract started with GANIL with few urgent tasks, mainly related with the GTS integration, namely:

1. Maintenance of AGATA Ph2 PACE GTS to Trigger processor communication for Ph2 Firmware.
2. Maintenance and verification of the GTS fine delay measurement.
3. Maintenance and verification of the External Trigger signal for PACE Board and global time synchronization.

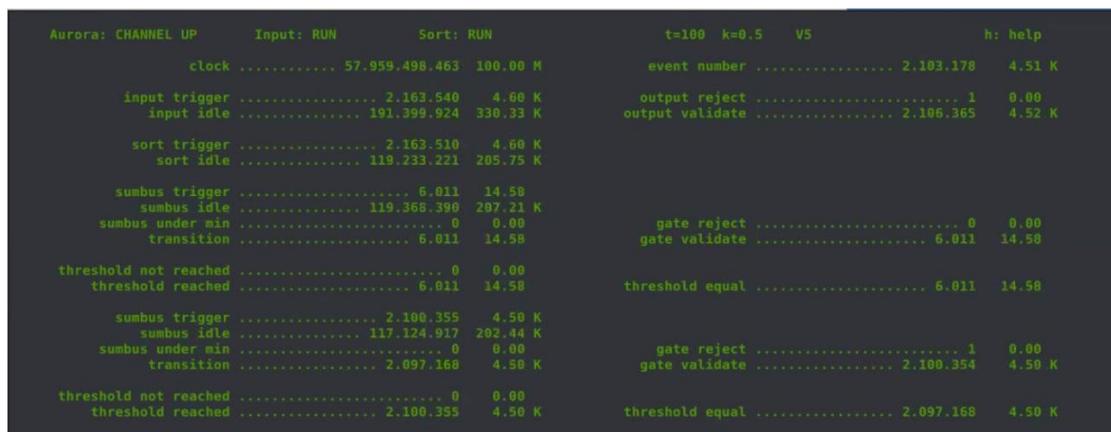
Presently we are completing the first task: Now the messages to and from the Trigger Processor are properly decoded. J.Collado performed a full simulation of both the NUMEXO2 encoder and PACE encoders to overcome the differences. Now the NUMEXO2 and firmware are perfectly matching.

Presently we are able to perform the coarse alignment always.



GTS tree and PACE recovered clocks

We have seen messages arriving to the TP and recognized as idle or Trigger Request and contributing to the trigger sumbus.



Some issues found:

-The arrival of the Trigger Request to the Trigger Processor does not happened always, is not reproducible. Our conclusion is that we have an issue with the clocks, in particular with the ones use in the Coarse Delay FIFO

-We don't know the reason, it could be that same, but when the triggers arrive, we have an issue with the validations identified at PACE, only about 50% seems to be seen by PACE

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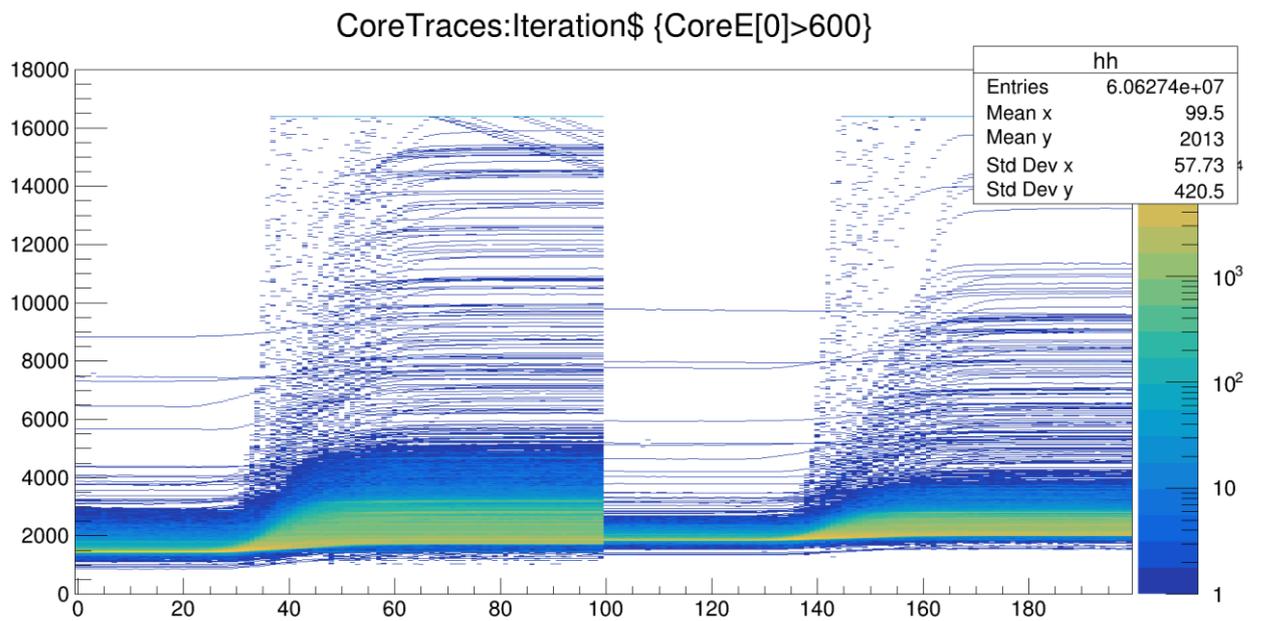
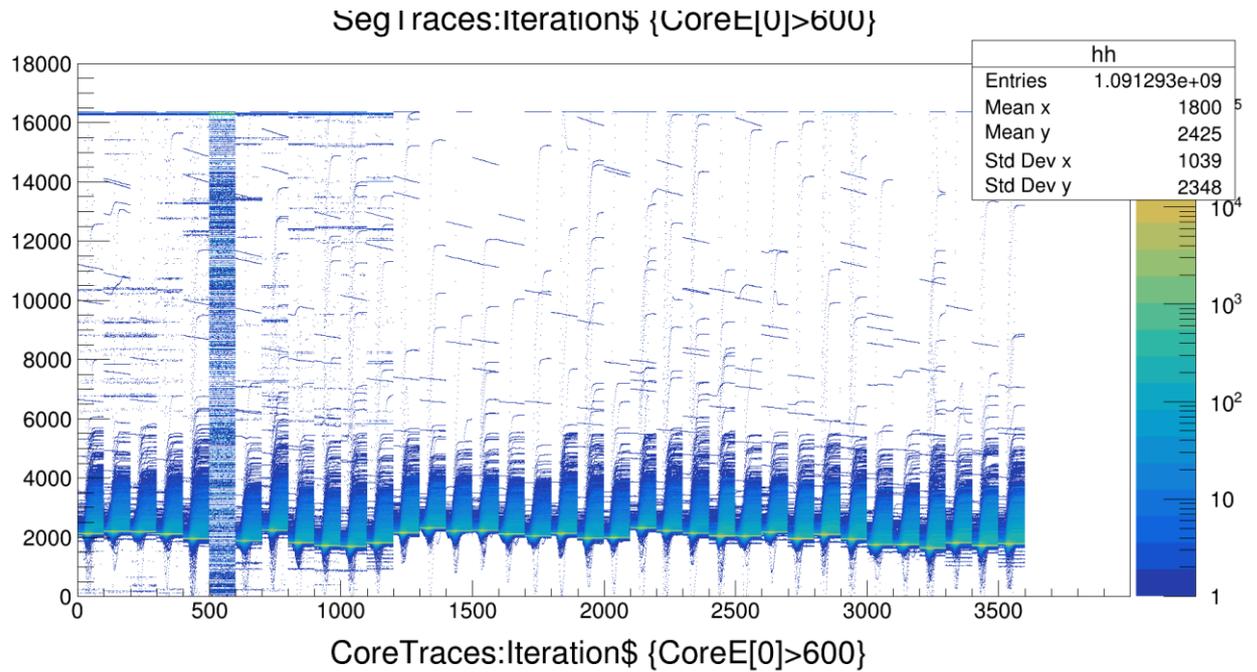
userelec@c6400-20 (172.16.40.6... x   daq@galileo01: ~/FW/Base9-bit... x   +
|PACE| PACE_HLTH_live
----- PACE Live Status -----
----- Events ----- Rates ----
Local 18177 4385
valid 8891 2152
reject 9108 2152
--- GTS: Ready
--- STARE: 2
No data lost
|PACE| PACE_HLTH_live
----- PACE Live Status -----
----- Events ----- Rates ----
Local 2281983 4599
valid 1107823 2081
reject 1108540 2081
--- GTS: Ready
--- STARE: 0
No data lost
|PACE|

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A.Goasduff, J.Collado and A.G. have been meeting to work on the issue during the last days and we have identified that a large delay is introduced in the TS without being requested. The issue has been tentatively identified as a clock issue and a new version of bitstream is being prepared to be tested later today. 10 minutes ago, J.Collado informed us that the internal switch control that goes from 100MHz local throughout the system to 100MHz external GTS was always disabled. So the reading clock, which was those 100000000MHz we read, was slower than the 100000180MHz of the GTS. Now it is controlled directly by slow control in the new version that will be ready in about 3 hours

The Data formatting part of the firmware has also be modified under the request of the DAQ Working Group. The samples use 16 bits while the information is 14 bits. The location of the 2 extra bits is relevant for compatibility with the previous electronics and filters. A.Goasduff and G. Baulieu has checked the format and it seems ok, issues with the energy estimates in the Root tree.



Next steps:

- GTS fine alignment is to be checked
- Trigger match procedure (ADC interface) to be tested and debug
- External Trigger and monitoring of this external trigger in the firmware

PSU and Mechanics: (V.Gonzalez)

Missing PSU components for the new AGATA PSU-PH2 v2.13 delivered and sent for the pre-production series. When checked we will proceed with the production:

The GANIL received orders:

ACCELERATEUR D'LONS LOURDS		2_SIGBPLv2.5		
ACCELERATEUR D'LONS LOURDS		J-PH2 v2.13		
ACCELERATEUR D'LONS LOURDS		2-PWRBCKPLN2		

ACCELERATEUR D'LONS LOURDS		2_SIGBPLv2.5		
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Production of the mechanics

On-going now partially subcontracted because of issues with the CNC machine.
90 PACE dissipaters and 84 heat exchangers ordered.
Studying the inner cabling and the heat transmission elements to improve reliability of the mounting.

STARE production and Firmware Status (N. Karkour, X. Lafay)

Production

Received TE0841-03-41131-A SOMs 25 purchased by INFN and 39 by GANIL.
Now enough for 135 STARES + spares.
All STARE motherboards will be now populated and tested.

Firmware

New version of the UDP firmware with counters for diagnostic, distributed.
STARE UDP protocols tested with source and receiver in different buildings and going through switched. Achieved 875 MB/s corresponding to ~7 Gbps, about 2 times the necessary transfer rate for 50 kHz AGATA data rate.

Summary of Procurement and Delivery Schedule (March 2026)

DIGIOPT12 v3.6, v3.7 and v3.7.1: delivered 90 core boards and 270 segment board, update of the fast-reset logical component almost completed for all segment board ready by mid February 2026.

STARE hardware: 64 production boards + 10 pre-production boards are ready and 77 SoMs already available for completing up to 135 STARES + spares. Ordered 64 STARE SoMs TE0841-03-41I31-A, 25 by INFN expected to be sent to Orsay first week of December and 39 by GANIL expected to be delivered on 2nd week of January 2026.

Expected to have ≥ 87 STARES by the end of the year.

STARE Firmware: existing for all versions of TE0841 SoMs. The existing firmware is based in UDP data transfer and UDP does not handle packet loss without implementing a retry mechanisms

PACE hardware: first 90 boards, including 33 repaired exchanging the wrong voltage regulator, are built. Test system operational at the company since June and supporting all TE0808 SoM versions. Only 31 PACE boards tested, 24 ok 7 with issues already discussed. The 25 TE0808-05-BBE81-E ordered by INFN were delivered on 3rd December 2025 and 12 are sent to Teydisa already. GANIL purchased 50 TE0808-05-BBE81-E delivered mid February 2026. Order for the 50 remaining PACE boards will be placed by INFN using 2025 funds.

PACE firmware: Mostly completed. Data format is now working and monitoring as well. Started GTS integration.

Necessary to explore how the MWD algorithms implemented work at high rates.

PSU and backplanes: 50 PSUv2.5 existing since end of June, minor modification to gain stability ongoing.

PSUv2.5 supports already all DIGIOPT12 boards v3.6, v3.7 and v3.7.1. Changed design to PSUv2.6 (t13_rev1) due to component obsolescence. The PSUv2.6 board available since October. Purchasing order for 30 units to be placed by INFN on 2025 funds and 30 more already ordered on O.C. existing at GANIL. A total of 110 PSU will be existing early 2026.

Power backplane: 77 units existing and Signal backplane: 85 units existing.

Ongoing order by GANIL of 70 power backplane and 60 Signal backplanes, on core and O.C. by GANIL, to complete the production including spare

Mechanics:

- Boxes: 90 units
- Crates: 90 units
- Cooling plates + heat exchangers:
 - 29 PACE cooling blocks (+8 to be update to new design)
 - 78 STARE cooling blocks
 - 240 DigiOpt12 cooling blocks
 - 59 Heat exchangers, Alodine treated
- Frontal and rear panel, only prototypes existing.

Outsource the production of the PACE cooling blocks (90) and Heat exchangers (84)

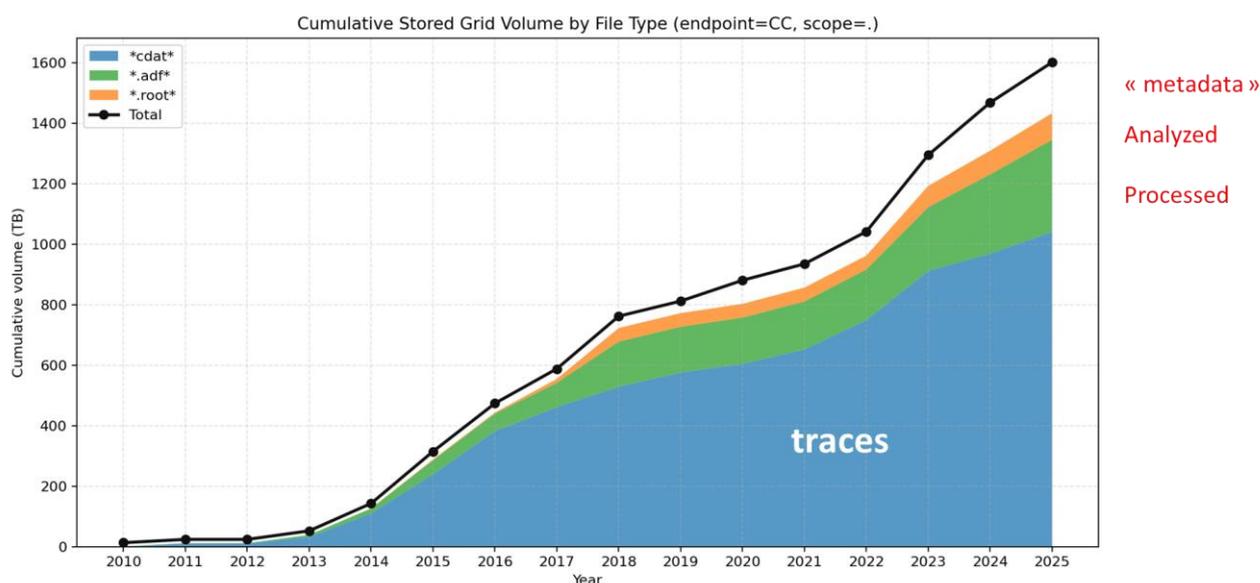
Data Processing (O. Stézowski)

Test of the V2 data flow from the LNL test bench using the last FW : data and traces are OK. It is seen that some events have very strange energy calculation with negative values for instance.

On the STARE side, UDP data transfer between IJCLab building done.

DAEmule docker swam replay software delivered to LNL and know-how transferred to the local team.

Jeremie is developing a script to scan all AGATA data on the GRID and create the data catalogue. Out of the 1600 TB of data in CCIN2P3, 800 are traces. Cross check between CNAF and CCIN2P3 to be done. Most of the traces are ^{60}Co . Maybe to be removed at some point ? Next point : what to do with this catalogue and with which access right ? No specific news on the DAQ box.



MySQL data base extracted from GRID – completed (2026)

→ AGATA Data catalogue

Courtesy J. Dudouet (IP2i)

PSA and Tracking R&D (A. Boston)

Report on the A601 neutron test. Kept delayed due to Birmingham technical difficulties. Postpone for spring –summer.

IPHC scanning table. In 2025, A005 was fully scanned and analysed (see AGATA week); B003 scan completed, data are in Lyon and the new PD is learning the code to process the neural network. C016 scan is starting. At the end, A,B,C scan will be done.

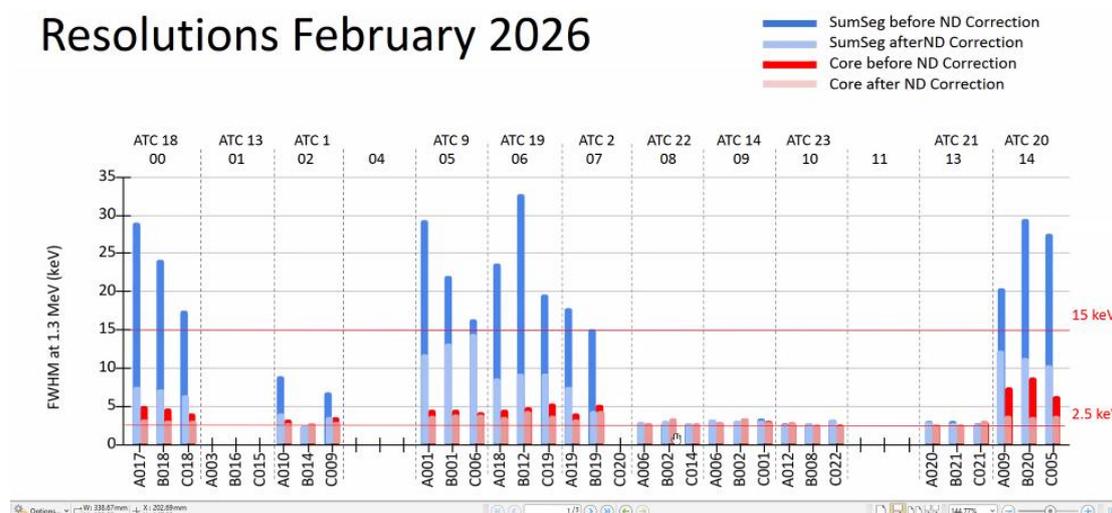
Liverpool activities : some issues in the porting to AGAPRO. An on-line meeting between Lyon and Liverpool is needed.

Next June, A.I meeting organized by Joa (on-line).

We need to make a decision on the used of PSA basis for the on-line. Should we keep using the ADL or the new AGATAGem basis by Joa ? → ACTION on the WG

Performance and Simulation (M. Labiche)

The overall situation at LNL was presented. ATC18, 9 and 19 to be the next on the annealing line.



High energy run still under analysis. Data vs Simulation on-going

On the simulation aspect, progress on the documentation and validation on G4.11.

GDML file for the 0° campaign included and to be checked.

PARIS and NEDA are already in the package.

0° campaign commissioning to be defined after Pre-PAC overview.

Financial Reports (B. Million)

Still INFN order for new capsules open.

Capsule Total funded 2025]= 57 + 24 = 80 capsules

2026 Proposal : 2x GANIL, 1x IN2P3, 1x CEA, 2x INFN, 1x Spain, = 7

+ D-AGATA (3x) on OC if ASC agreed on the document

90 capsules (2π)

4 new cryostats ordered at CTT- will be the last one.

Dissemination (I. Kuti)

Technical paper : “*The combined AGATA-DSSD set-up for the measurement of very small heavy-ion fusion cross sections*” by M. Del Fabbro et al was distributed to the AMB; comment have been given on the AGATA items and green light was given for publication.

AOB

March AMB in presence in CNRS headquarter, Paris 30th – 31st March; noon-to-noon, 3 Rue Michel Ange, 75016 Paris

AGATA week registration are open : <https://indico.in2p3.fr/event/37746/overview>