News from the AGATA Steering Committee (ASC)

Magda Górska & Magda Zielińska

GSI Darmstadt CEA Saclay

ACC 12th September 2024

Christophe Theisen
ASC chair elect (deputy):
2022-2024

Thank you Angela!

ASC Chair: 2022-2024

Among other achievements:

- Organized AGATA location discussions up to end of 2026
- Angela remained ASC chair in the interim until next chair was announced (June15th)
- Coordinated with France and remaining countries to enable a decision on how to proceed
- Prepared the ground for the 2027-2031 AGATA location discussions
- Initiated discussion on the Review 2025

….

Main topics discussed at ASC in 2024

- **Funding issues**

The German Science Ministry (BMBF) did not evaluate the grant request including staff and capital contribution to the project.
ASC expressed strong support for Germany and LoS to BMBF was provided, signed by A. Bracco and S. Leoni.
Partial bridging of the issue: GSI facilitated purchase of 1 ATC during 2024, and …
Other countries face funding issues…

- AGATA phase 2

The status of the AGATA MoU discussed including the mid-term review.
The current MoU phase 1 runs from 2021 – 2025, the phase 2 from 2026 – 2030.
ASC expects that the review enabling phase 2 of the project should be a much smaller scale than that at the start of the current MoU period. To be discussed in the next ARRB meeting in Oct.

- **AGATA location beyond 2026 (preferably 5 years period)**

ASC requested ACC for suggestions according to the scientific merit and the optimal time usage.
Opting for decision in the next ASC meeting 1st/2nd Oct. at GSI

Report from ACC (AGATA spokesperson: S. Leoni)

- New member of the AC : University of Birmingham,
  adding up to 13 countries and 41 institutes
- Reporting on the status of the unpublished AGATA data (talks tomorrow)
- Webpage updated: **https://www.agata.org** thanks to J. Nyberg!
- AGATA core author list updated to about 50%
- Data management plan (under development) : *Discussions resumed in connection with LRP TWG9 "Open Science and Data", O. Stezowski*

NuPECC 2024 LRP is well advanced with key recommendation on AGATA construction.

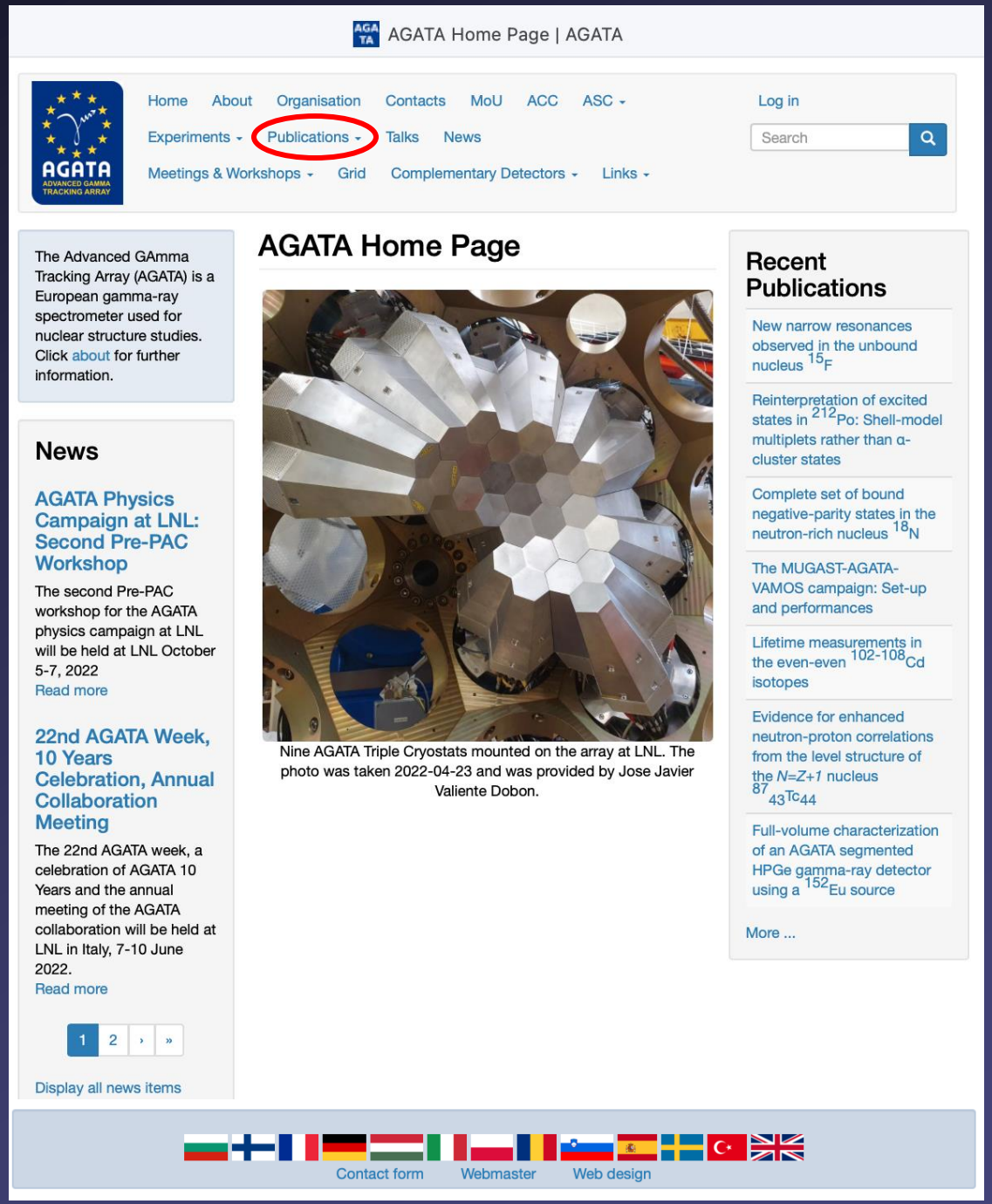
- Draft document presented at Town Meeting in Bucharest 15 – 17 April 2024
- AGATA to be a general recommendation
- FAIR LEB also a key recommendation

AGATA web page

https://www.agata.org

fully updated

maintained by Johan Nyberg



The European Physical Journal A

special issue · january · 2024

Topical Collection on AGATA: Advancements in Science and Technology

Edited by
Nicolas Alamanos, Maria Jose Garcia Borge, Angela Bracco, Emmanuel Clement, Andres Gadea, Wolfram Korten, Silvia Leoni and John Simpson

(Continuation on the reverse page)

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Hadrons and Nuclei

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Società Italiana di Fisica

Springer

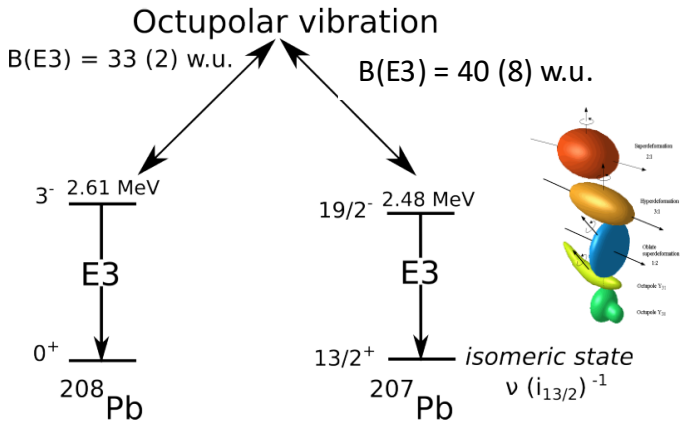
Freely accessible until 22 March 2024

https://www.epj.org/epja-news/2725-epja-topical-collection-agata-advancements-in-science-and-technology

Some highlights of AGATA@GANIL.1

courtesy: E. Clément

Evidence of octupole-phonon at high spin in ^{207}Pb : Study of the octupole phonon in the ^{208}Pb region.

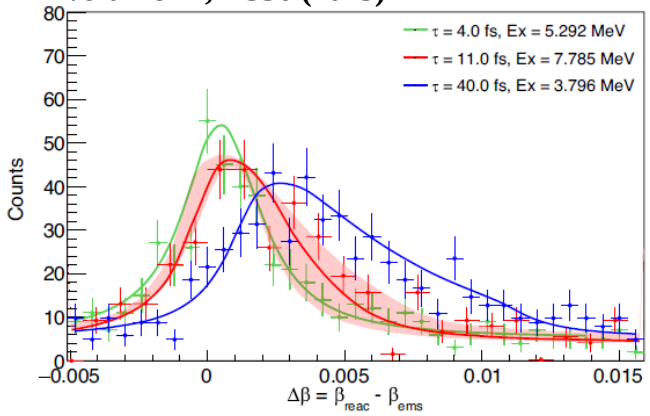


D. Ralet et al Phys. Lett. B 797, 134797 (2019),

Search for ^{22}Na in novae supported by a novel method for measuring femtosecond nuclear lifetimes

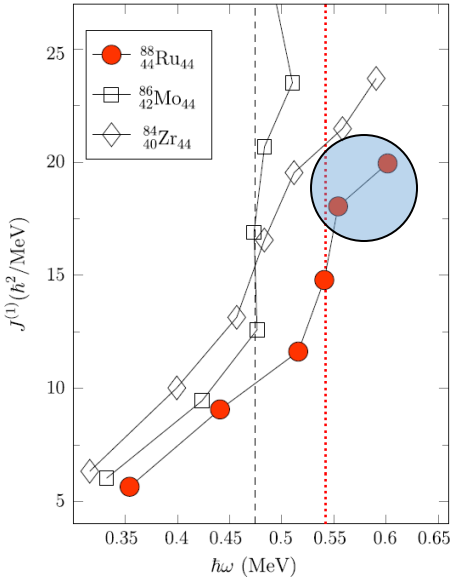
Constraining the ^{22}Na(p, γ)^{23}Mg reaction from the spectroscopy of the 7785.0(7) keV resonance in ^{23}Mg.

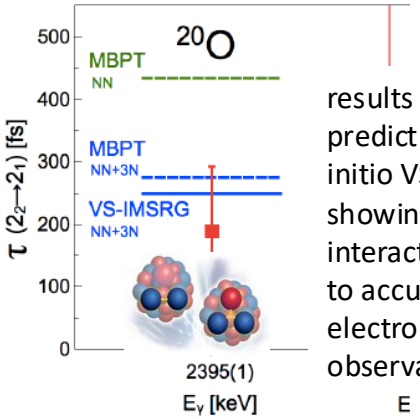
Ch. Fougère et al Nature Communications volume 14, 4536 (2023)



Direct observation of a "delayed" rotational alignment in a deformed N = Z nucleus (^{88}Ru), in agreement with theoretical predictions related to the presence of strong isoscalar neutron-proton pair correlations.

B. Cederwall et al, Phys. Rev. Lett. 124,062501 (2020)



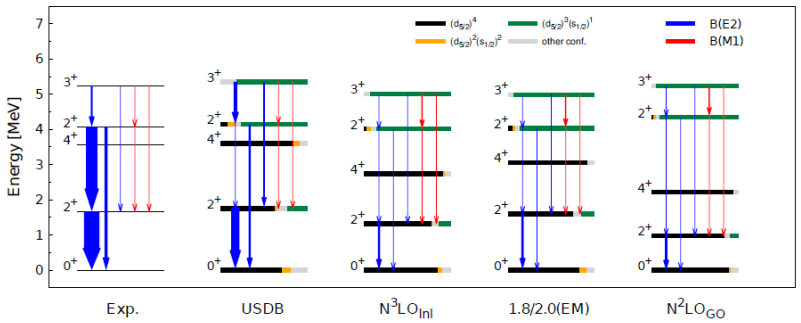


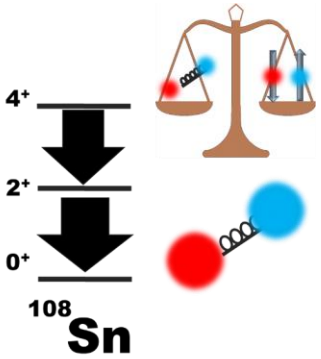
results agree well with predictions from ab initio VS-IMSRG for ^{20}O showing that 3N interactions are nee(to accurately describ electromagnetic observables

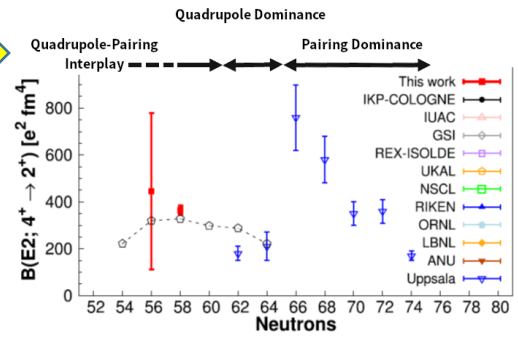
E

M. Ciemala et al, Phys. Rev. C101, 021303(R) (2020)

More accurate and holystique description from MUGAST-AGATA data, **Phys. Rev. Lett. 131, 262501 (2023), I. Zanon, E. Clément, et al.**







M.Siciliano et al, Physics Letters B 806 (2020) 135474

- 2^+ wave function is dominated by the p-n quadrupole interaction
- 4+ wave function is a balance between p-n quadrupole and pairing interactions
- Revisit our predictions on the ^{100}Sn structure to be investigated at S3

Investigation of the Seniority Conservation in the $\pi g_{9/2}$ shell

R.M. Pérez-Vidal et al, Phys. Rev. Lett 129, 112501 (2022)

Plans for LNL so far:

04/2022: AGATA with STABLE BEAMS

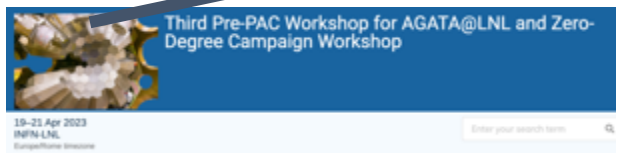
2022 TANDEM | TAP | TAP

1. PAC Feb. 22

2. PAC Dic. 22

01/2023-12/2023: AGATA with STABLE (Tandem-Piave-ALPI) BEAMS

2023 TAP | TAP | TAP | TAP | TAP | TAP | TANDEM | TANDEM | TANDEM | TANDEM



3. PAC July 23

13-14 May 2024 5th prePAC for TANDEM and request LoIs U

01/2024 … AGATA with STABLE (Tandem-Piave-ALPI) BEAMS

2024 TAP | TAP | TAP | TAP | TAP | TAP | TANDEM

4. PAC Gen. 24

5. PAC July 24

2025 TANDEM | TAP: Maybe Uranium

6. PAC Gen 25?

7. PAC July 25?

2026 Change of Zero Degrees (6 months?)

8. PAC Gen 26?

9. PAC July 26?

2027 Request extra months to finish the Zero degrees campaign

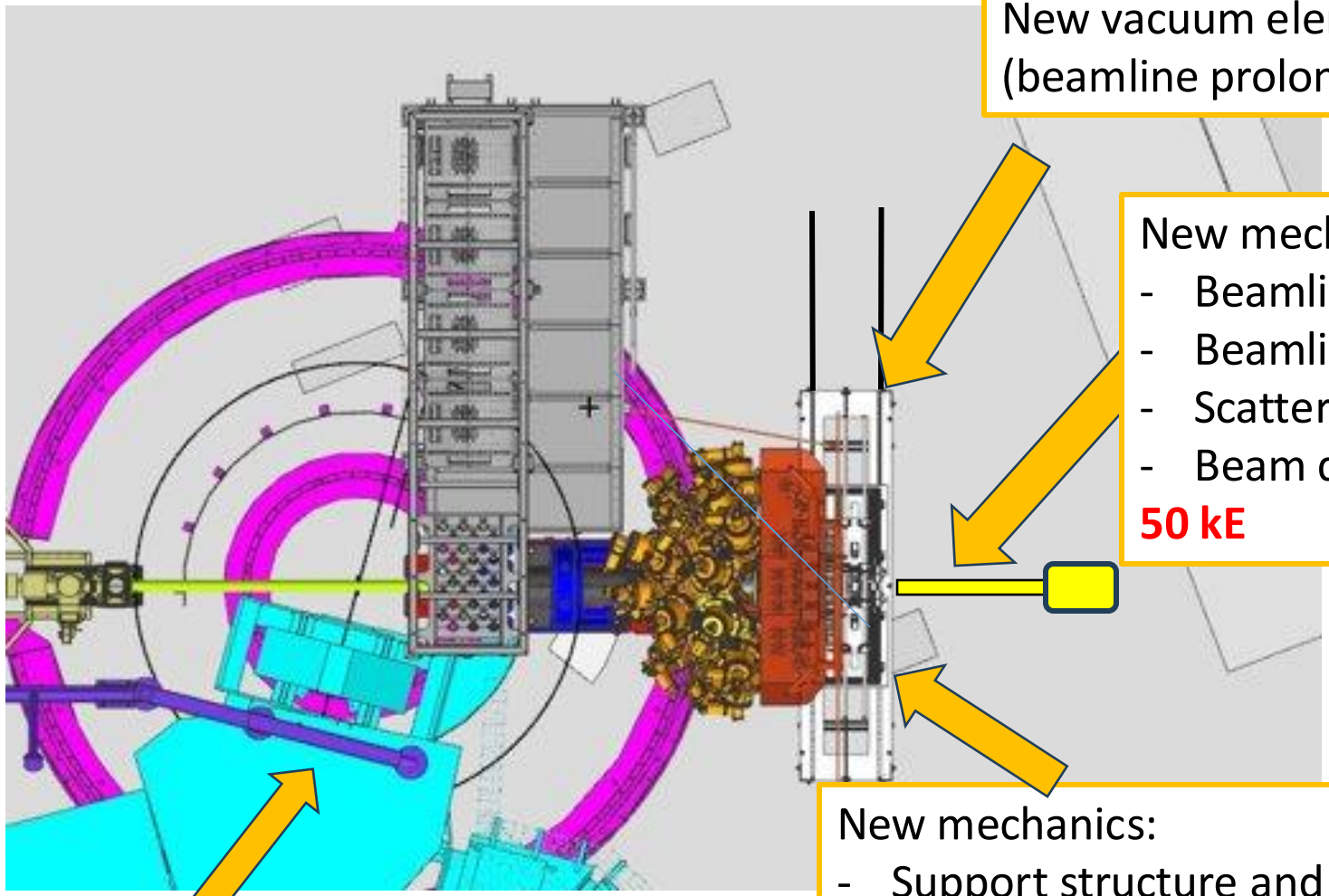
10. PAC Gen 27?

LNL Director in favor to extend AGATA at LNL for a period in 2027-2030

INFN costs for Zero Degrees configuration (115 kE) – approved

in addition to original installation costs (~570 kE)

preparation started



New vacuum elements
(beamline prolonged by > 5m) **25 kE**

New mechanics:
- Beamline elements upstream
- Beamline elements downstream
- Scattering chamber
- Beam dump

50 kE

New mechanics:
- Support structure and movements of ancillary detectors **30 kE**

Prolongation of LN2 distribution line: **10 kE**

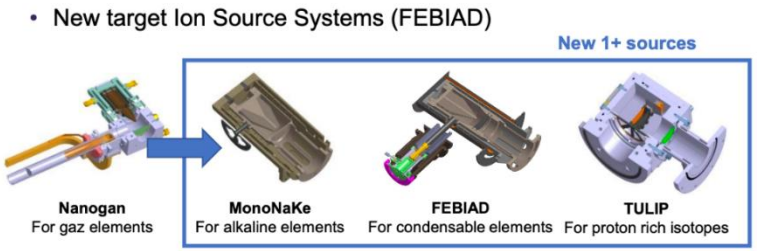
AGATA@GANIL.2 Proposal : 2028-2030

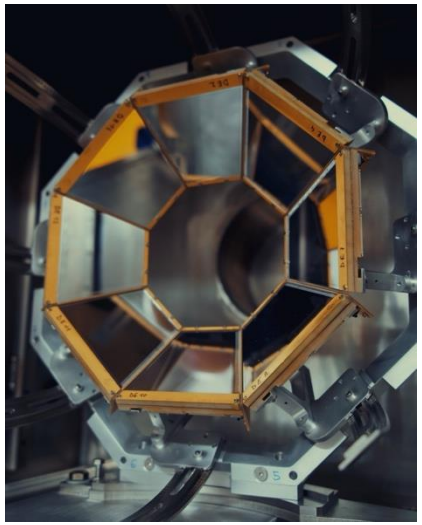
0° degree campaign using the SPIRAL1 beams with MUGAST/GRIT and VAMOS

- SPIRAL1 experiments have a strong impact (1 PRL and 1 Nature with AGATA+MUGAST under referee procedure at the moment) and are “uniqueness” experiments using coulomb excitation and transfer reactions in the fields of nuclear structure, astrophysics and dynamic.
- **He, Ne, Ar, Kr, O, N, F, K beams are operational.** GANIL is putting a strong effort on SPIRAL1 in-beam tests. Several tests have been performed in 2021-2023 leading to a list of **50 new isomers/isotopes** with intensities suitable for acceleration using CIME

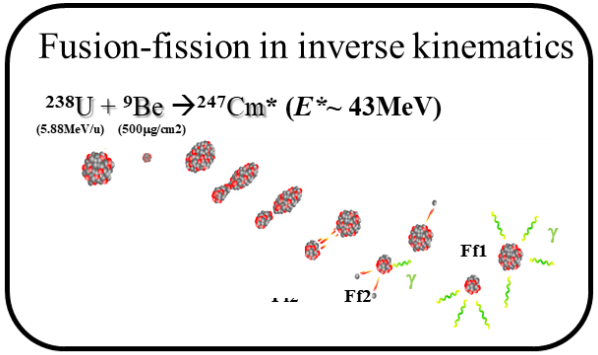
see : **https://www.ganil-spiral2.eu/scientists/ganil-spiral-2-facilities/available-beams/**

- On-going developments on cryogenic targets at IJCLab (H, He) *(F. Galtarossa et al, NIMA 108 (2021), 165830)*





~28° degree campaign for fission using the newly PISTA-VAMOS setup



VAMOS++

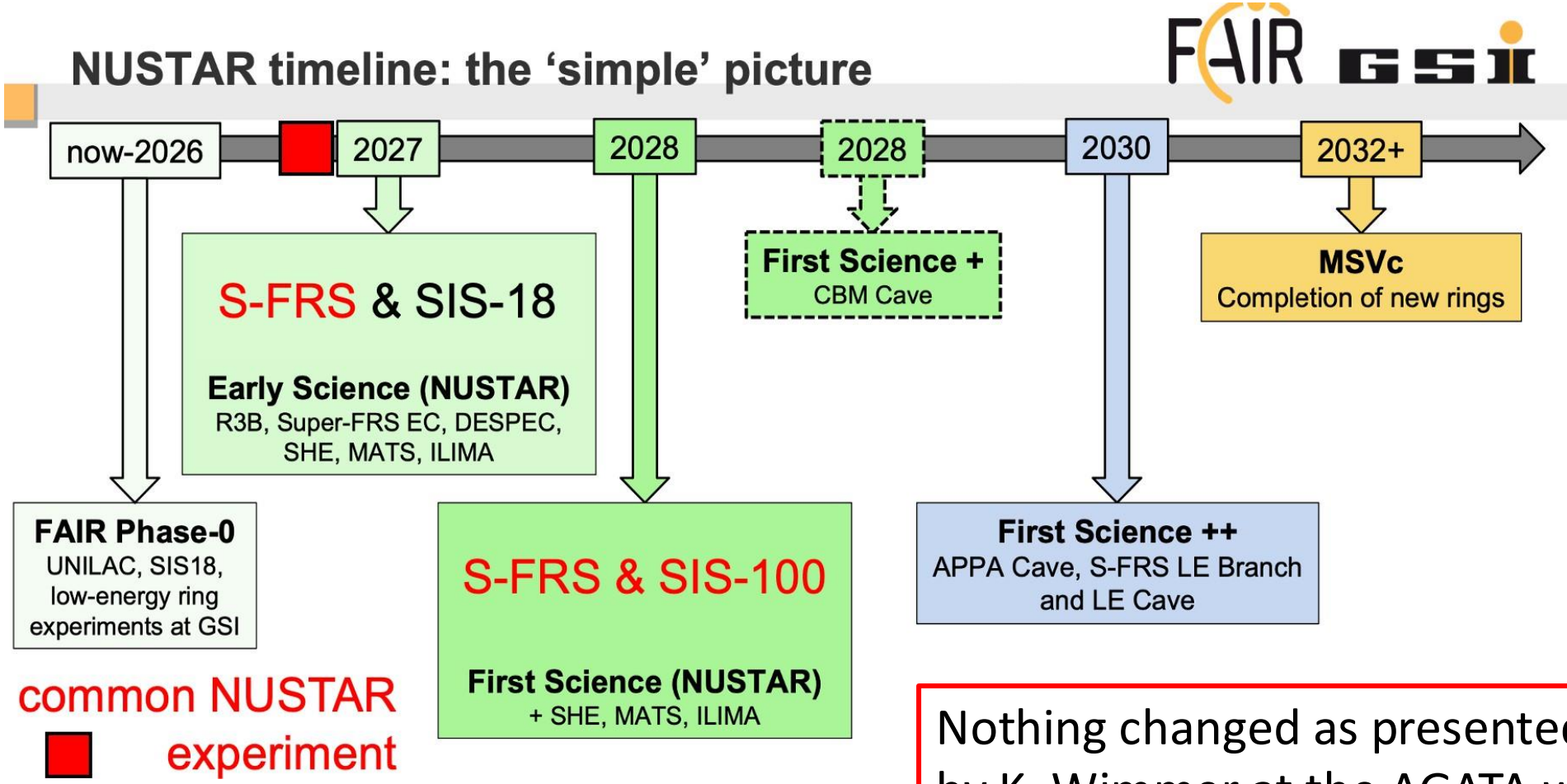
New PISTA array at forward angle
For E* and fissionning system identification

High intensity and high quality Pb, **Th (new)**, U beams are available

Isotopic identification of fission fragments from Ni to Gd elements

Location Beyond 2030:

A report was received from Z. Podolyak on the status of NuSTAR



Nothing changed as presented by K. Wimmer at the AGATA week on Monday

Experiments are planned to run year 26/27

SuperFRS operation is possible at the end of 2027

SIS100 starts in 2028, LEB in 2030 when AGATA can be installed.

Report on Budget by the Resource Manager (B. Million)

- 8 capsules ordered in this calendar year
- Cryostat 1 ATC

- To complete MoU Phase 1 up to 2025: Still need 12 capsules, 1 cryostat and associated electronics items. The issue will be dealt by ARRB.

- Discussion of long-term OC required for capsule/detector maintenance

Report on the Project by the Project Manager Report, (E. Clément)

- Data flow and Acquisition – training and data analysis school.
- Status of neutron damage to the detectors vs time reported.
- Impact on the performance. Annealing cycles and long term impact.
- Status of IMATRA2 and its renewal

ASC chair/chair elect team 2024 – 2026: Magda G. & Magda Z.

Next meeting: October 1st/2nd

Main topics:

- detector maintenance strategy
- MoU mid term review 2025
- Location decision
- …

(with help of Jurek Grębosz everything is possible)

AGATA with all its phases is a great scientific adventure and has collected a large amount of the most clever people on this planet!
It is an opportunity for every single one of us, as well as, for ALL of US TOGETHER.
So let us keep on going to MAKE IT HAPPEN!