

PARIS & AGATA LOIs at LNL with Stable beams

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- AGATA will move from GANIL to LNL during second semester 2021
- Expected time for Commissioning: end of 2021 beginning of 2022
- AGATA will measure in LNL with stable beams in 2022

There is a big effort of the italian community to keep this time schedule

- Project Coordinator for AGATA at LNL -> Javier Valiente Dobon
 - Roberto Menegazzo -> responsible for infrastructure
 - Giovanna Benzoni -> responsible for mechanics (experiment)
 - Daniele Mengoni -> responsible for ancillaries
 - Goasduff + Toniolo -> responsible for DAQ + electronics
 - Crespi + Bottoni -> responsible for performances

The first campaign will probably have AGATA coupled to PRISMA
PARIS needs to coordinate with AGATA for performances, electronics and mechanics

AGATA – Array of HPGe

- 20-30 triple Clusters – ($\varepsilon_{\text{FEP}} @ 1 \text{ MeV} \approx 10\text{-}17\%$)

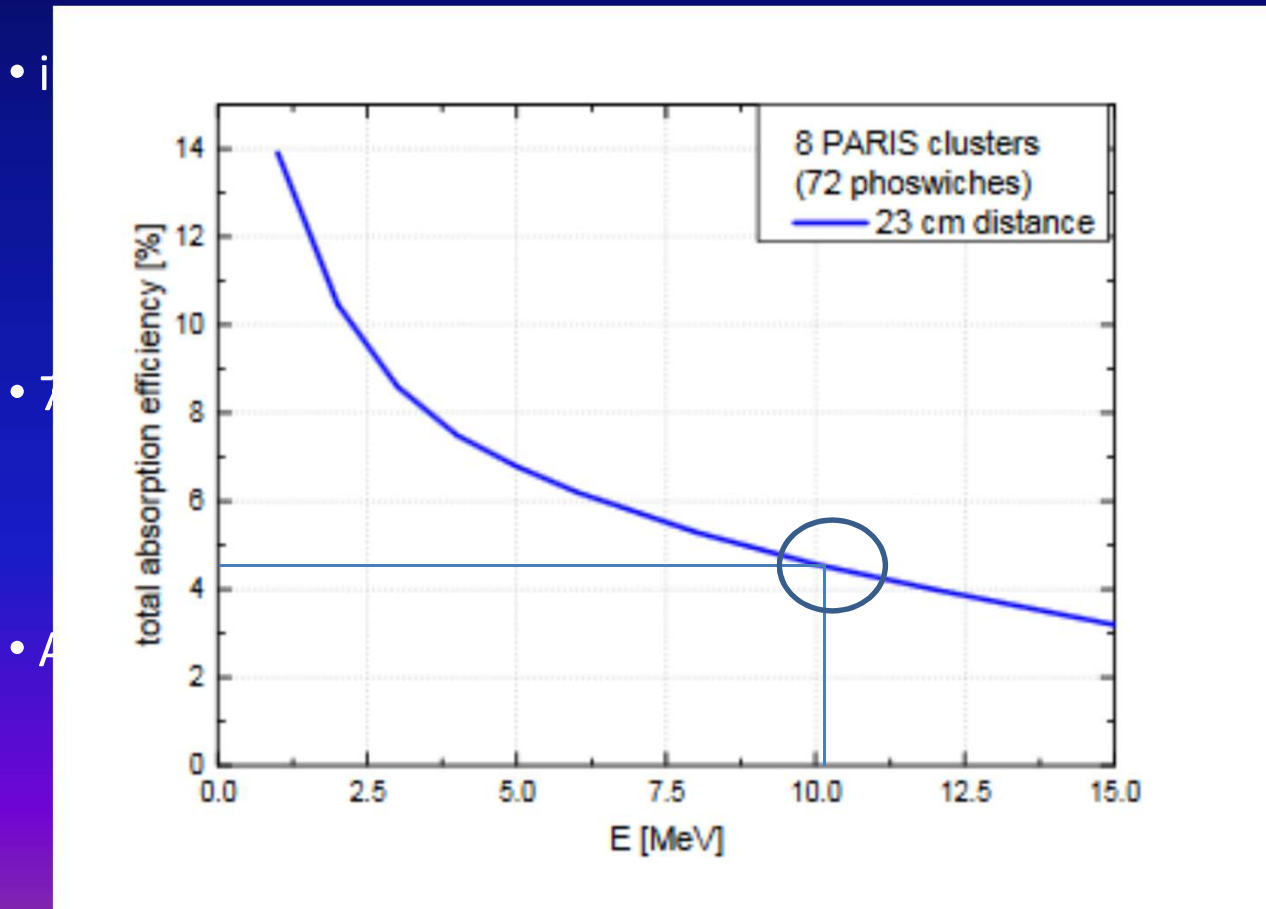
PARIS – Array of Phoswiches (1 cluster => 9 phoswiches)

- in 2022 eight clusters are expected to be ready
 - 8 PARIS clusters -> 72 phoswiches
 - 72 phoswiches -> 72 rectangular $\text{LaBr}_3\text{:Ce} / \text{CeBr}_3$ 2"x2"x2" + 72 rectangular NaI 2"x2"x6"
- 72 crystals of $\text{LaBr}_3\text{:Ce}/\text{CeBr}_3$ are expected to be available
 - A 'multiplicity filter' with 72 elements
 - A measurement of the low energy gamma multiplicity
- A volume of ≈ 28 Liters of NaI is expected to be available
 - High efficiency for high energy γ -rays

AGATA – Array of HPGe

- 20-30 triple Clusters (probably 20 at the beginning 30 at the end)

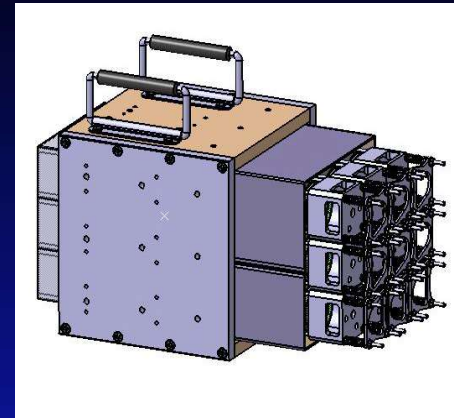
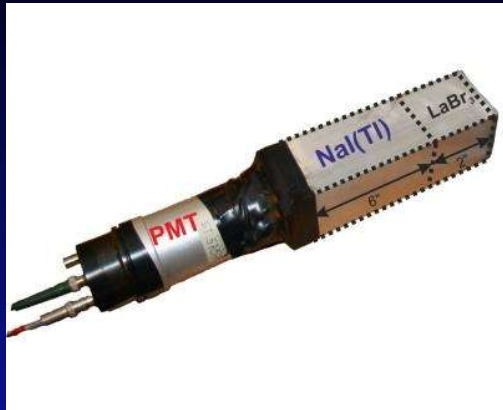
PARIS – Array of Phoswiches (1 cluster => 9 phoswiches)



2"x2" +

e

PARIS



PARIS is a detector array which which can

- provide time resolution (better than HPGe, namely AGATA)
- provide large efficiency for high energy γ -rays
- provide the multiplicity information from frontal LaBr_3 or CeBr_3 in addition to Agata fold

LoI Lists

LOI n. 3 - M. Krzysiek et al.

Study on the single particle structure of Pygmy Dipole Resonance

LOI n 10 - M. Kmiecik et al.

The search for Jacobi shape transition in hot rotating nuclei from the Mo-Ba region

LOI n. 17 - P. Bednarczyk et al.

Investigation of a high spin distribution structure in the vicinity of ^{44}Ti via discrete and continuum gamma spectroscopy with AGATA+EUCLIDES+RFD and PARIS detectors

LOI n. 19 - M. Ciemala et al.

Lifetime measurement of excited states in neutron-rich C isotopes: a test of the three body forces

LOI n. 24 - F. Crespi et al.

Gamma and Particle Decay of Giant Resonances Excited by Inelastic scattering of ^{17}O ions at 20MeV/A

LOI n. 28 - G. Gosta et al.

Measurement of Isospin Mixing

LOI n. 29 - G. Benzoni et al.

GDR feeding of SD states: a LOI for AGATA@LNL

LOI n. 39 - K. Handynska et al.

Coulomb Excitation of the Super-Deformed structures in $A \sim 40$ mass Region

LOI n. 46 - M. Vanderbrouck et al.

Study of the Isovector Giant Dipole Resonance in hot superheavy nuclei

LOI n XX – J. Isaak,

Gamma strength functions and decay pattern of dipole excitations

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From Lols to Proposals

The Lols , should be followed by real concrete proposals and it is up to the LNL PAC to decide which of them will be accepted and get beam

Obviously, new proposal might come but they should be discussed with PARIS management. The spokespersons of the accepted proposal have to work hard with the PARIS Management Board to prepare the experiments.

2 Lols explicitly requires PRISMA

LOI n. 19 - M.Ciemala et al.

Lifetime measurement of excited states in neutron-rich C isotopes: a test of the three body forces

(PRISMA Spectrometer is required to select populated residue)

(Differential plunger is required)

LOI n. 46 - M. Vanderbrouck et al.

Study of the Isovector Giant Dipole Resonance in hot superheavy nuclei

(PRISMA Spectrometer + second arm is required to select fission fragments)

**In the first part of AGATA@LNL campaign (namely the one where AGATA is coupled to PRISMA).
However, it is not necessary to have PRISMA in the trigger**

Conclusion

The physics cases of

- HOT GDR, PDR, Nuclear Structure

requires the measurement of

- High and low energy γ -rays
- The multiplicity of the gamma radiation (in addition to AGATA information)
- good time resolution

Some of the LOI Requires the additional use of

- TRACE, RFD and Prisma

It is an excellent opportunity to prepare an AGATA+PARIS campaign

There will be a non negligible mechanical and electronics work to couple the two arrays during this campaign .

Thank you for the attention