2022 AGATA physics campaign at LNL

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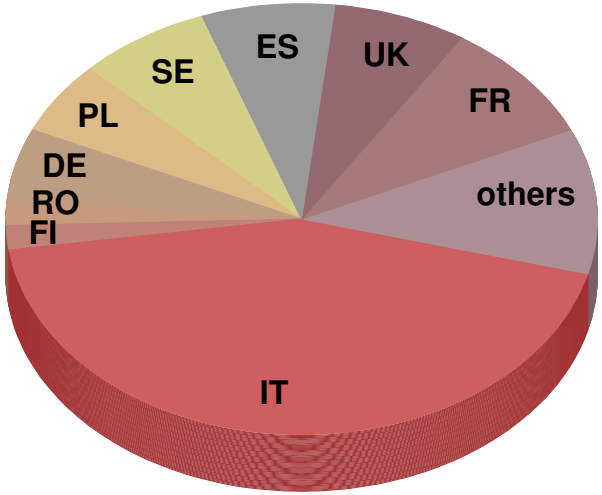
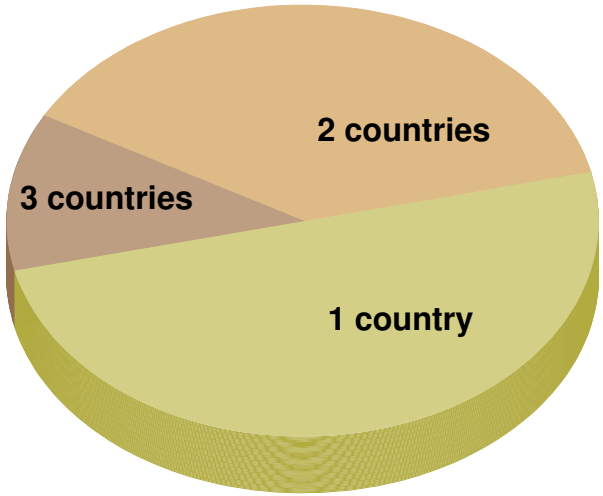
Letters of Intent

- overwhelming response from the community: 34 LoIs submitted



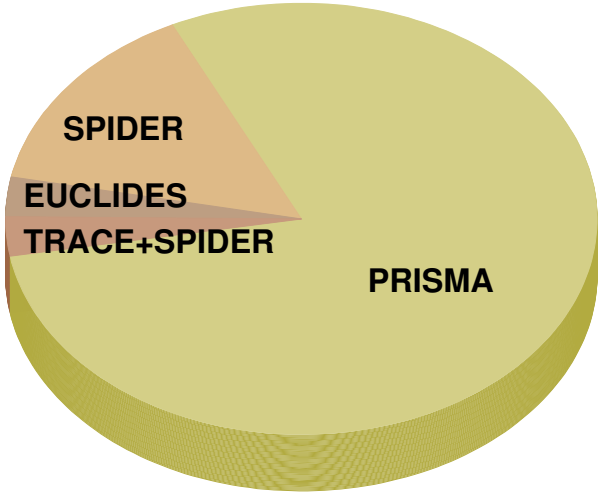
- large majority (24) with at least one Italian spokesperson
- 9 out of 13 countries of the AGATA collaboration represented by LoI spokespersons
- co-spokespersons from Croatia, Belgium, Norway, US, Australia

- 56 persons from 14 countries act as spokespersons



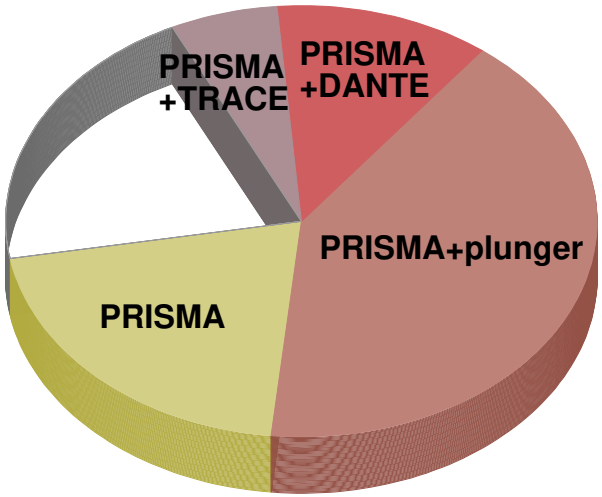
Experimental constraints for the first campaign

- stable beams from the Tandem-ALPI-PIAVE complex
- ancillaries compatible with PRISMA
- ready to run in 2022 (excludes projects that need long-term beam development or detectors used elsewhere in 2022 (e.g. PARIS))



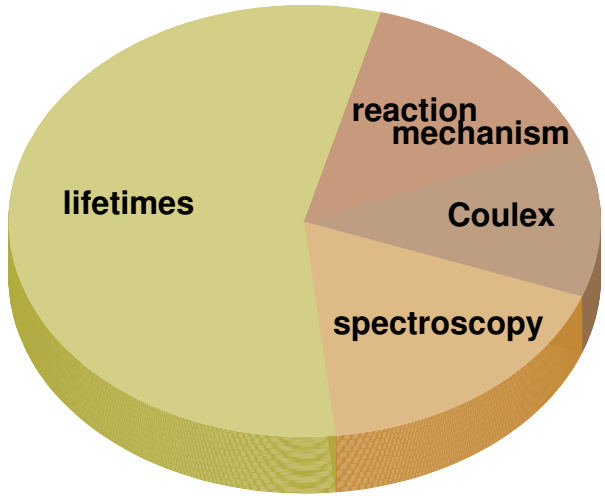
- large majority (27) require PRISMA
- strong group of projects (6) with SPIDER (mostly Coulomb excitation)

Observables and ancillaries

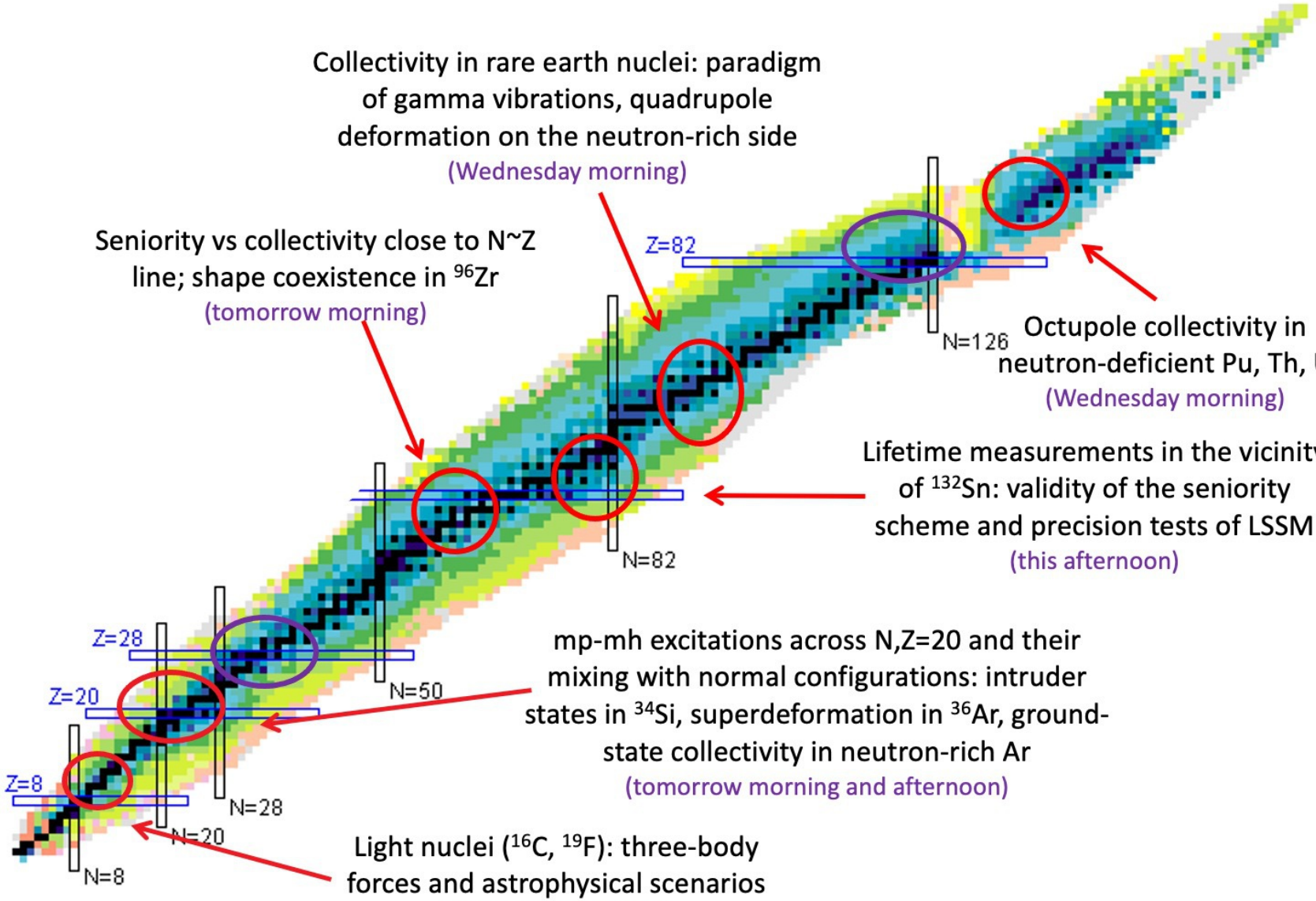


- combination of PRISMA with a plunger preferred (14 projects)
- 7 PRISMA standalone, 6 PRISMA + DANTE/TRACE
- use of $LaBr_3$ scintillators and simple Si detectors also considered

- prevalence of lifetime studies (20) over pure spectroscopy (6), reaction mechanism (5), Coulex (4)
- one g-factor measurement proposed



Proposed physics cases



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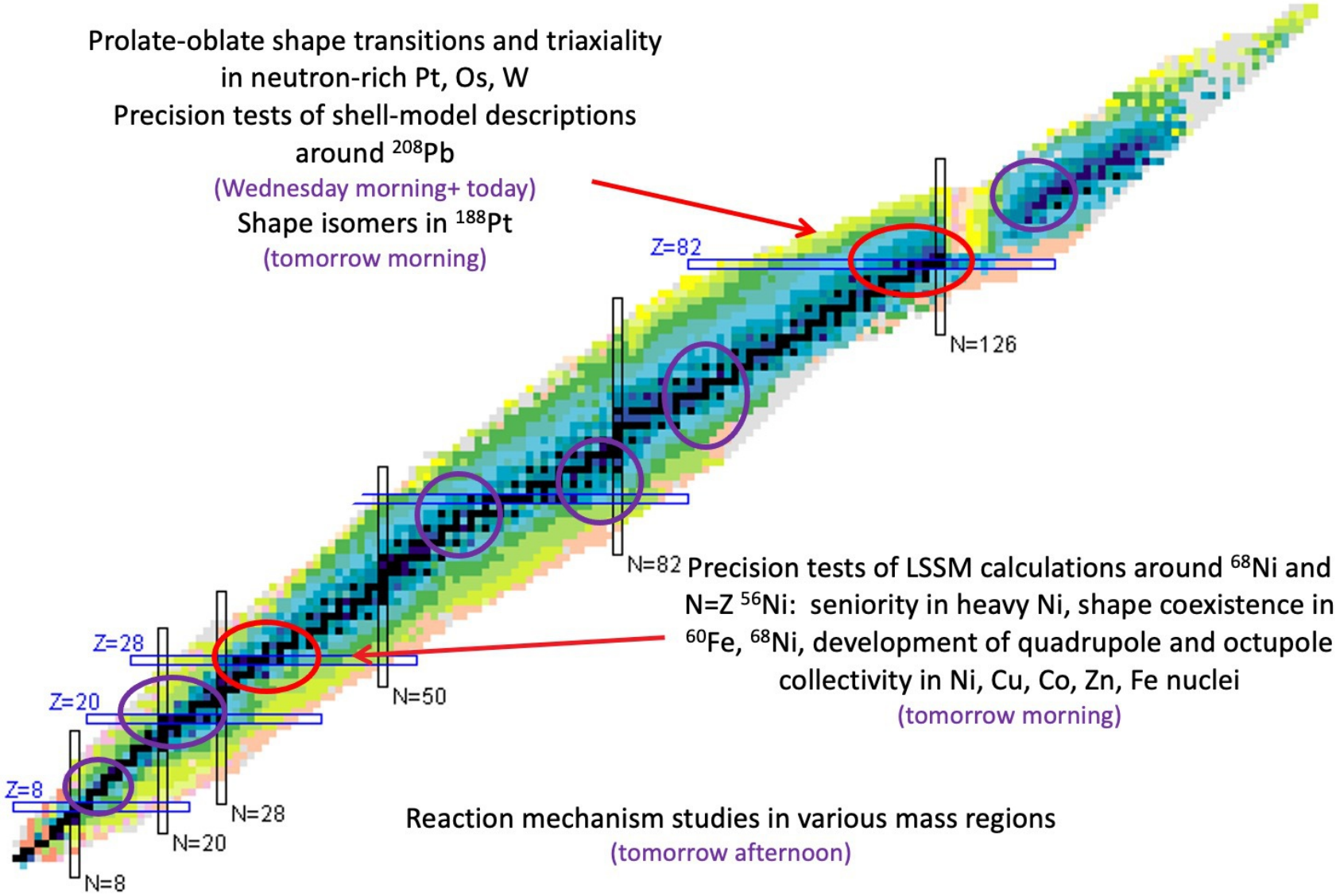

Examples of emerging threads

• First AGATA physics run: superdeformation in ^{42}Ca (2010 – K. Hadyńska-Klęk et al, Phys. Rev. Lett. 117 (2016) 062501)

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LoIs to study multiparticle-multihole structures in ^{36}Ar, ^{44}Ca

• Anomalies in 4^+ lifetimes in $^{70-74}$Zn observed with AGATA in Legnaro (2011 – C. Louchart et al, Phys. Rev. C 87 (2013) 054302)

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E708 experiment with AGATA at GANIL (2016, C. Michelangoli, I. Celiković – presentation of T. Milanović at the ACC meeting on Thursday)

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LoI for high-statistics remeasurement at LNL

• Transition probabilities in the vicinity of ^{208}Pb studied within the AGATA campaign at GSI (e.g. T. Alexander, PhD Surrey, 2016)

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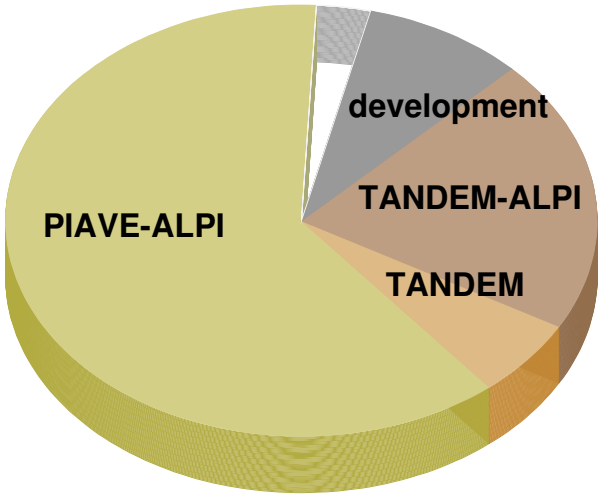
LoIs for lifetime measurements in this region

Feasibility and other concerns

- overlaps between certain projects (around ^{68}Ni, around ^{208}Pb, ^{34}Si)
- some cross-section estimates seem too optimistic
- some targets may be tricky, especially for plunger



- certain developments needed to achieve requested currents, energies, or deliver the requested element – not before 2023
- Hg beam not authorised

- in total, about 300 days of beamtime requested