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Future AGATA Proposals

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- 2 x 1π plus option for Legnaro
- Scheme for 2π and 4π
- Scheme for detector installation

1π plus option for GANIL

- Added central ring of detectors similar in principle to NW / NEDA experiment
- Space for additional 8 detectors
- Machine support structures from solid aluminium machined billets
- Use existing slide rails for Neutron Wall/EXOGAM
- Central ring of detectors can be driven open for access
- Can use full range of ancillary detectors including DIAMANT
- Good access for installation of detectors
- AGATA can move 80mm towards compact/forward position
- AGATA can be moved 340mm upstream for target chamber access
- VAMOS can be rotated 45˚ without clashing with centre ring detectors

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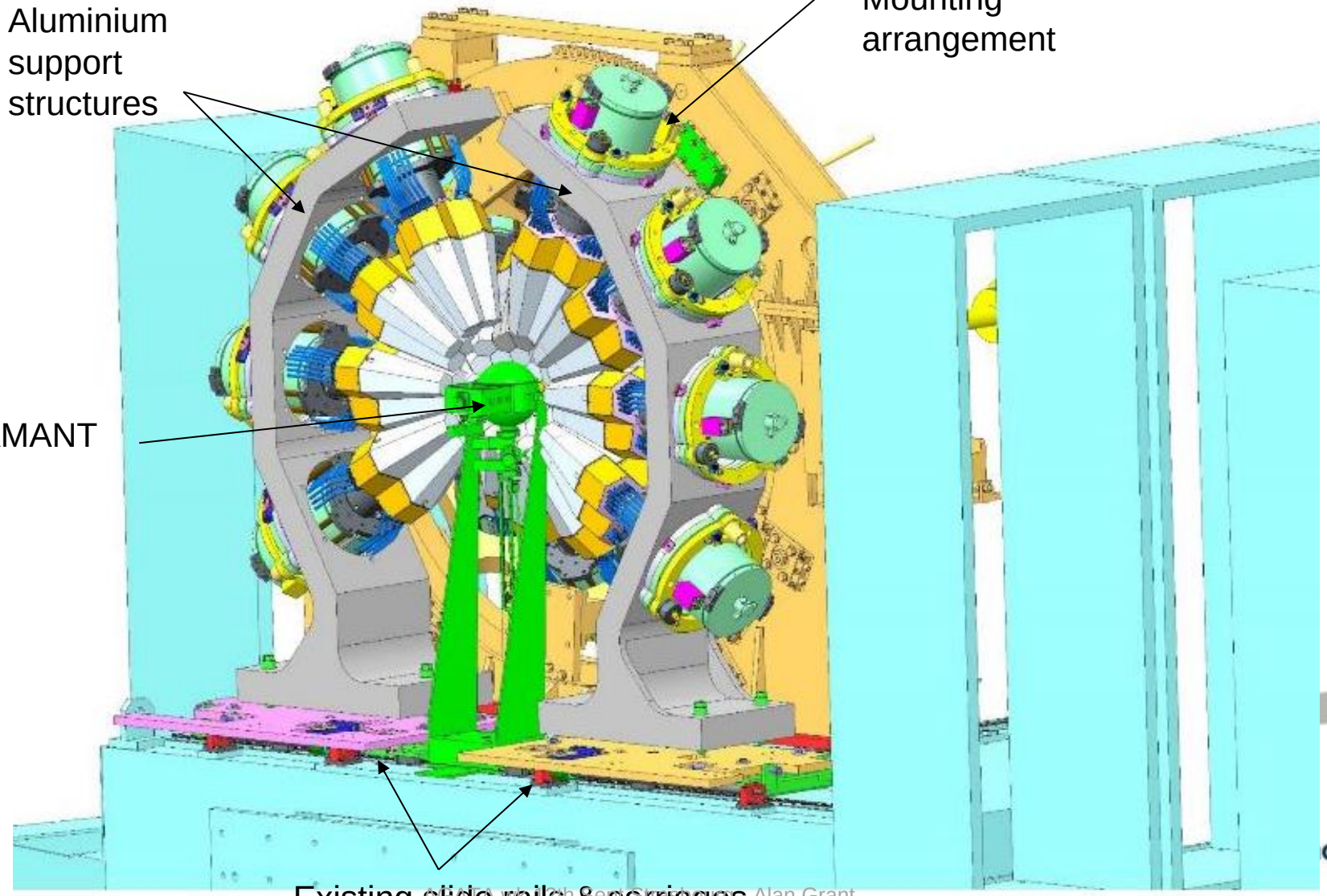
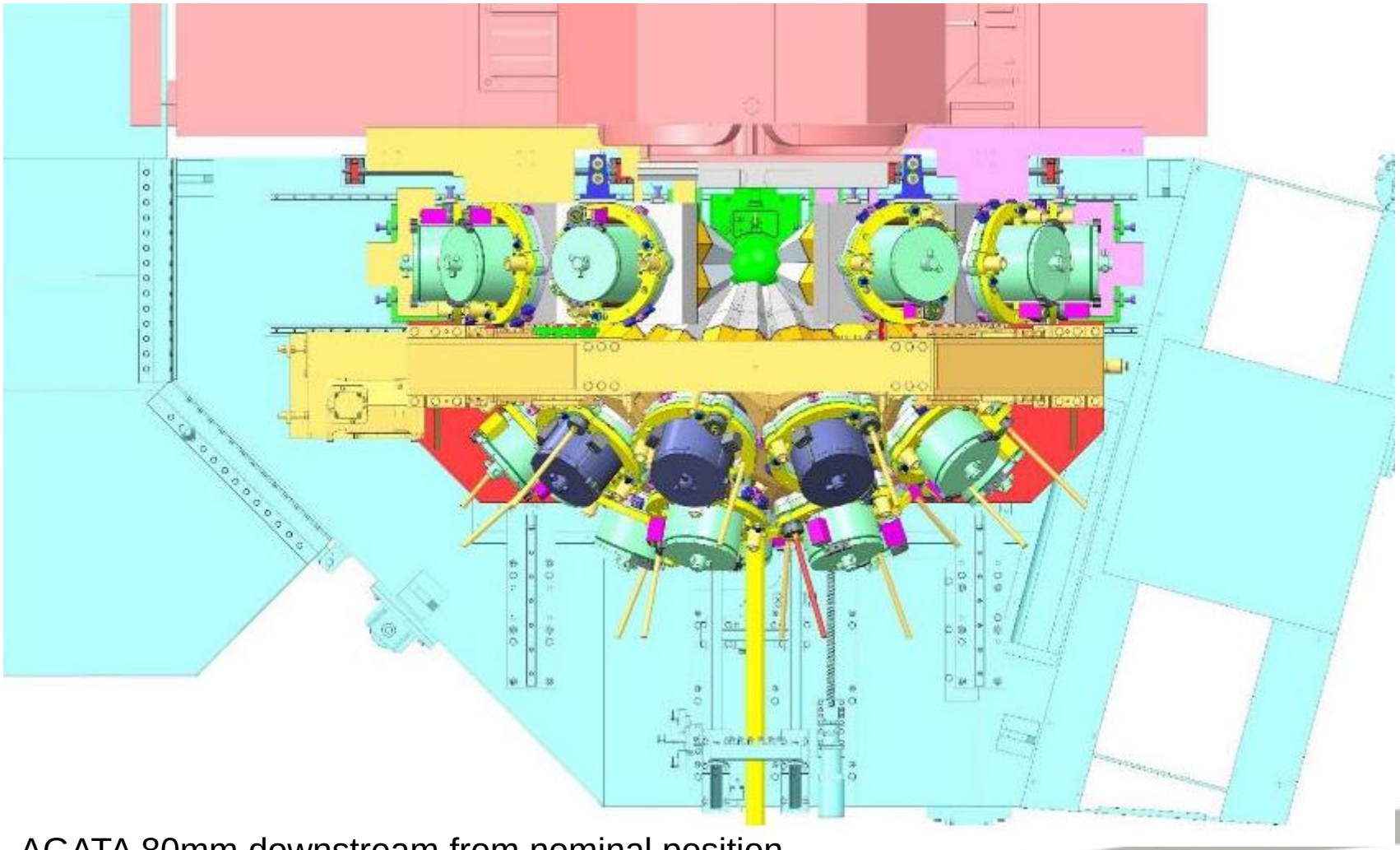
1π plus option for GANIL

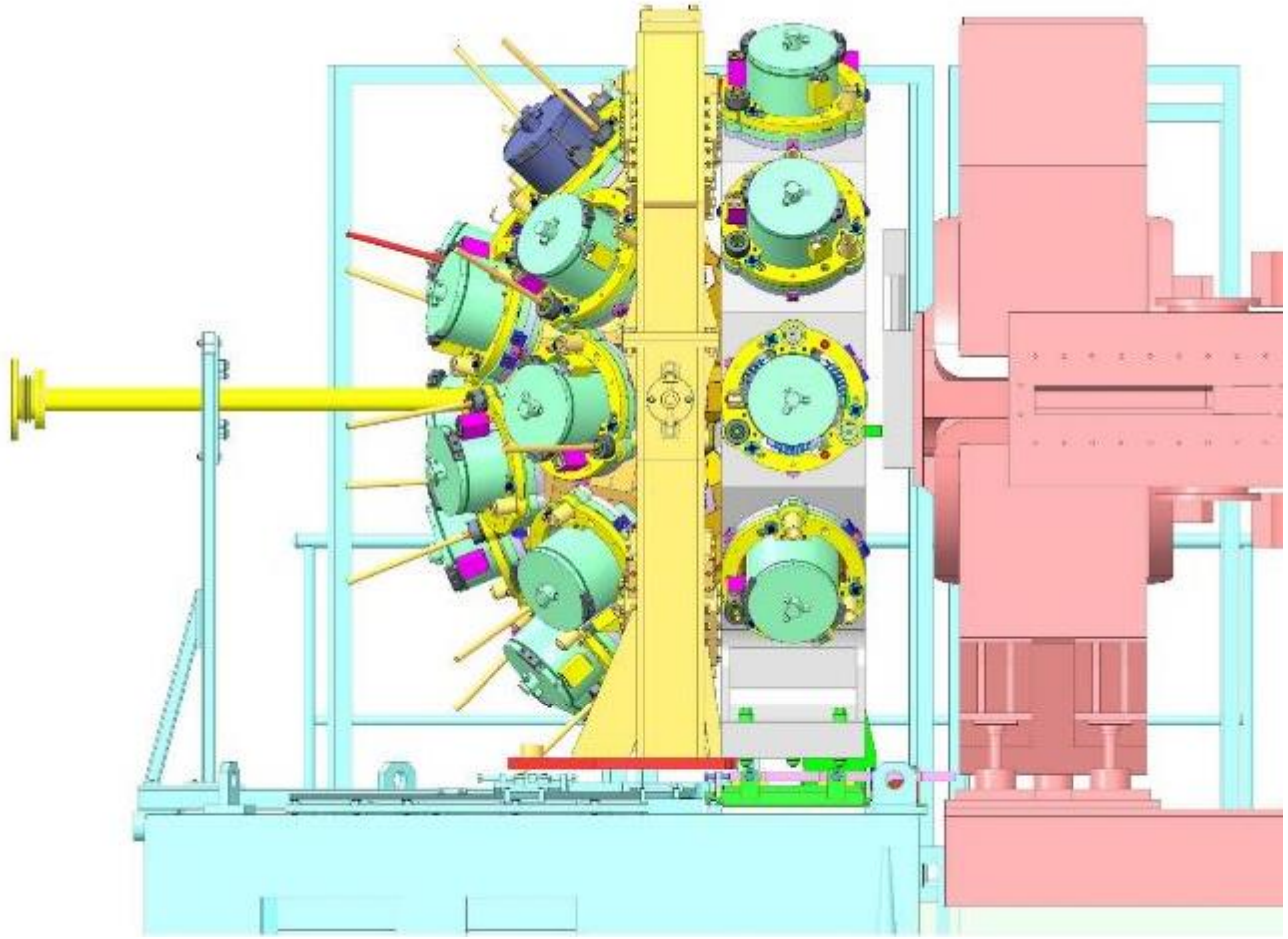


VAMOS in forward position

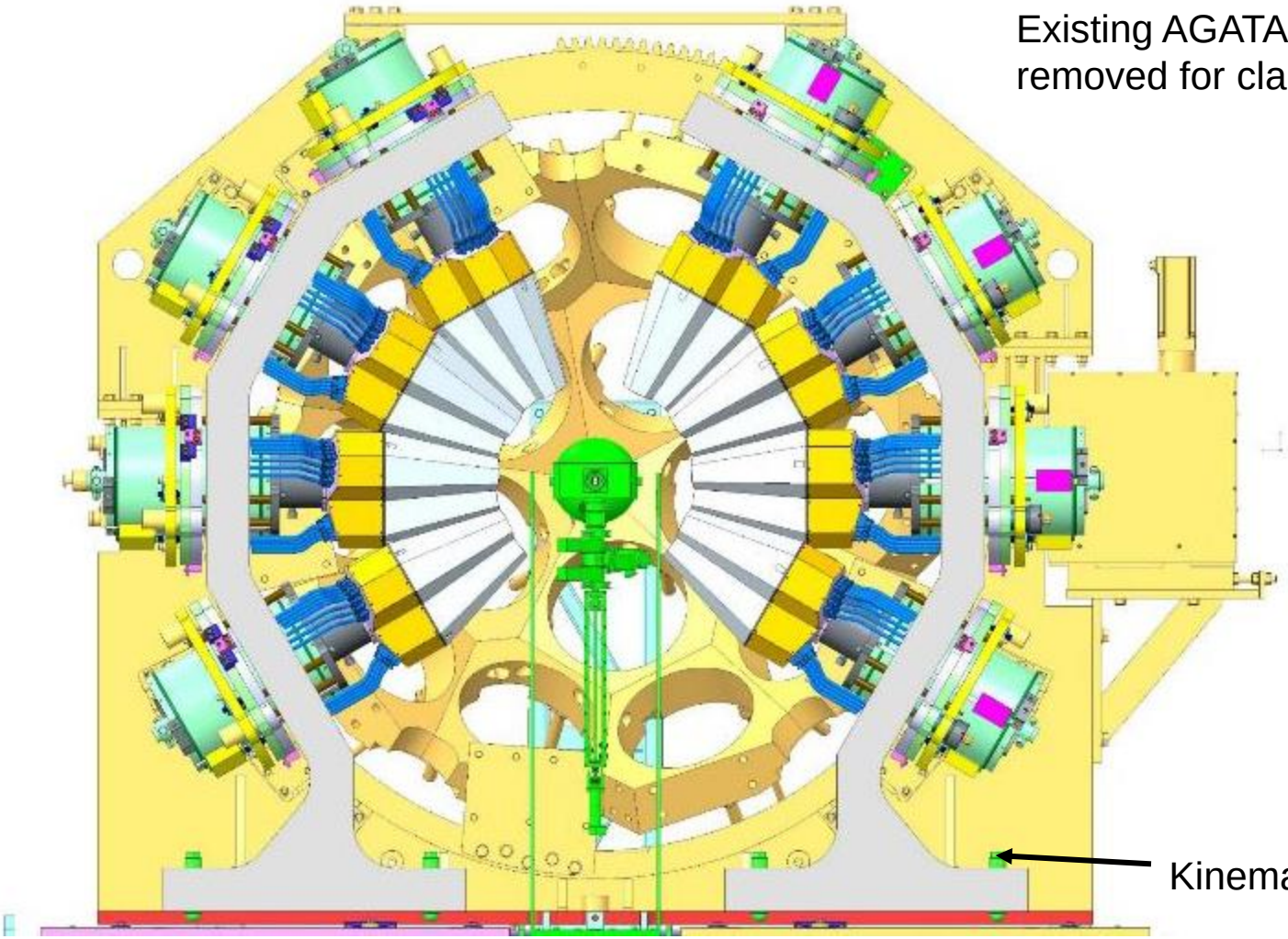


AGATA 80mm downstream from nominal position

VAMOS in forward position



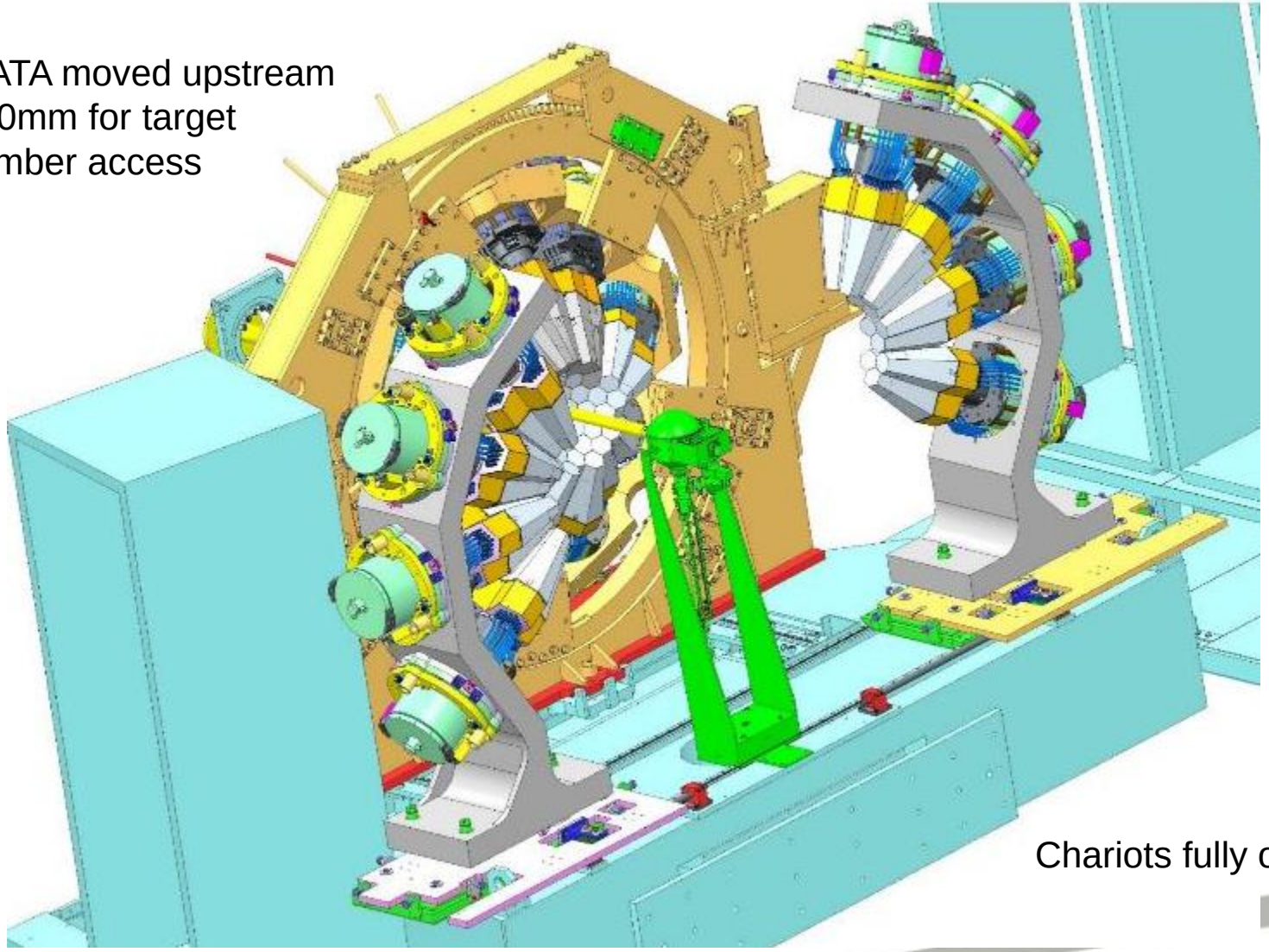
View looking outwards from target



Existing AGATA detectors removed for clarity

Kinematic mounts – M40x2

AGATA moved upstream ~340mm for target chamber access

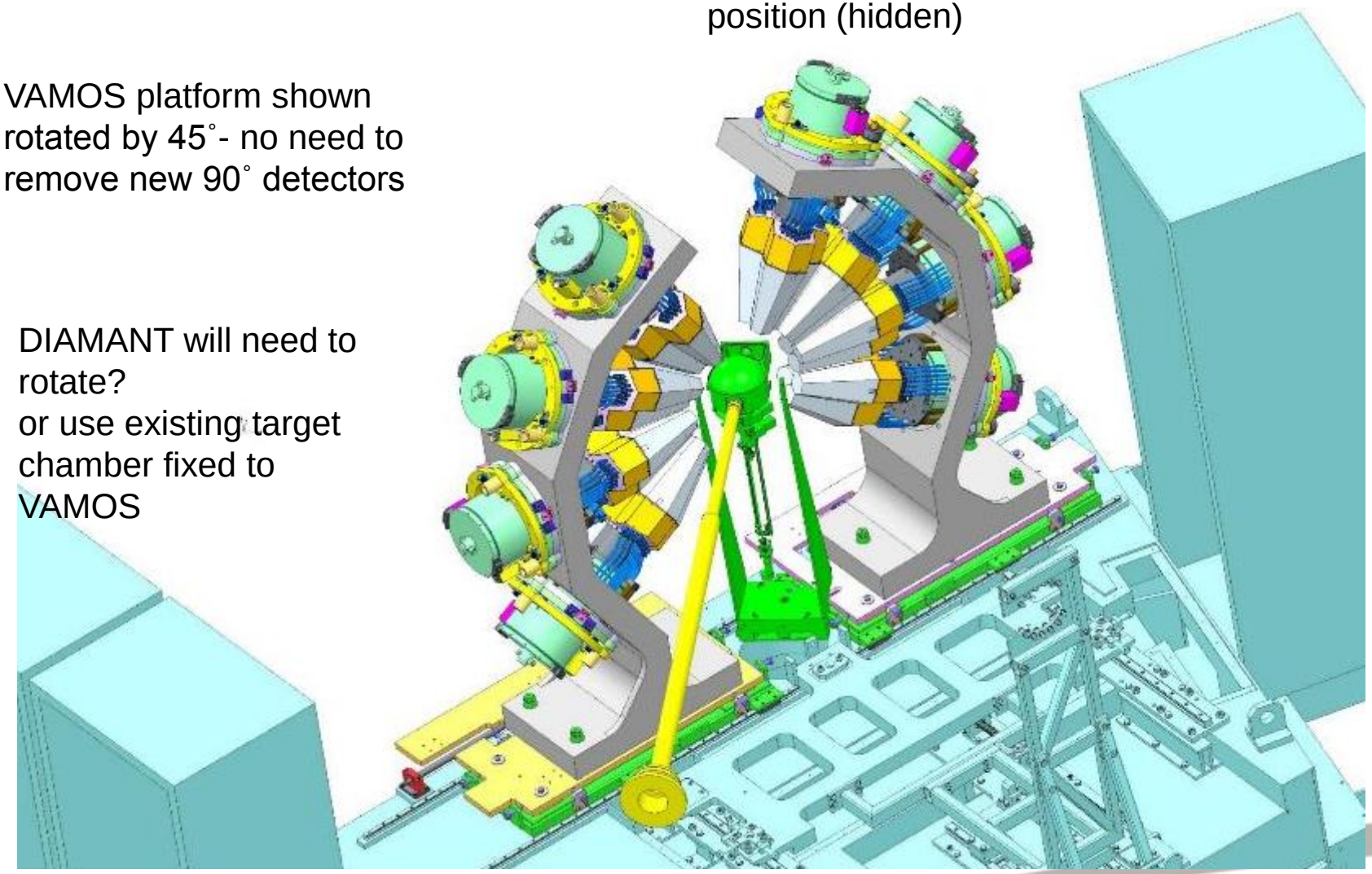


Chariots fully open

AGATA at nominal position (hidden)

VAMOS platform shown rotated by 45˚- no need to remove new 90˚ detectors

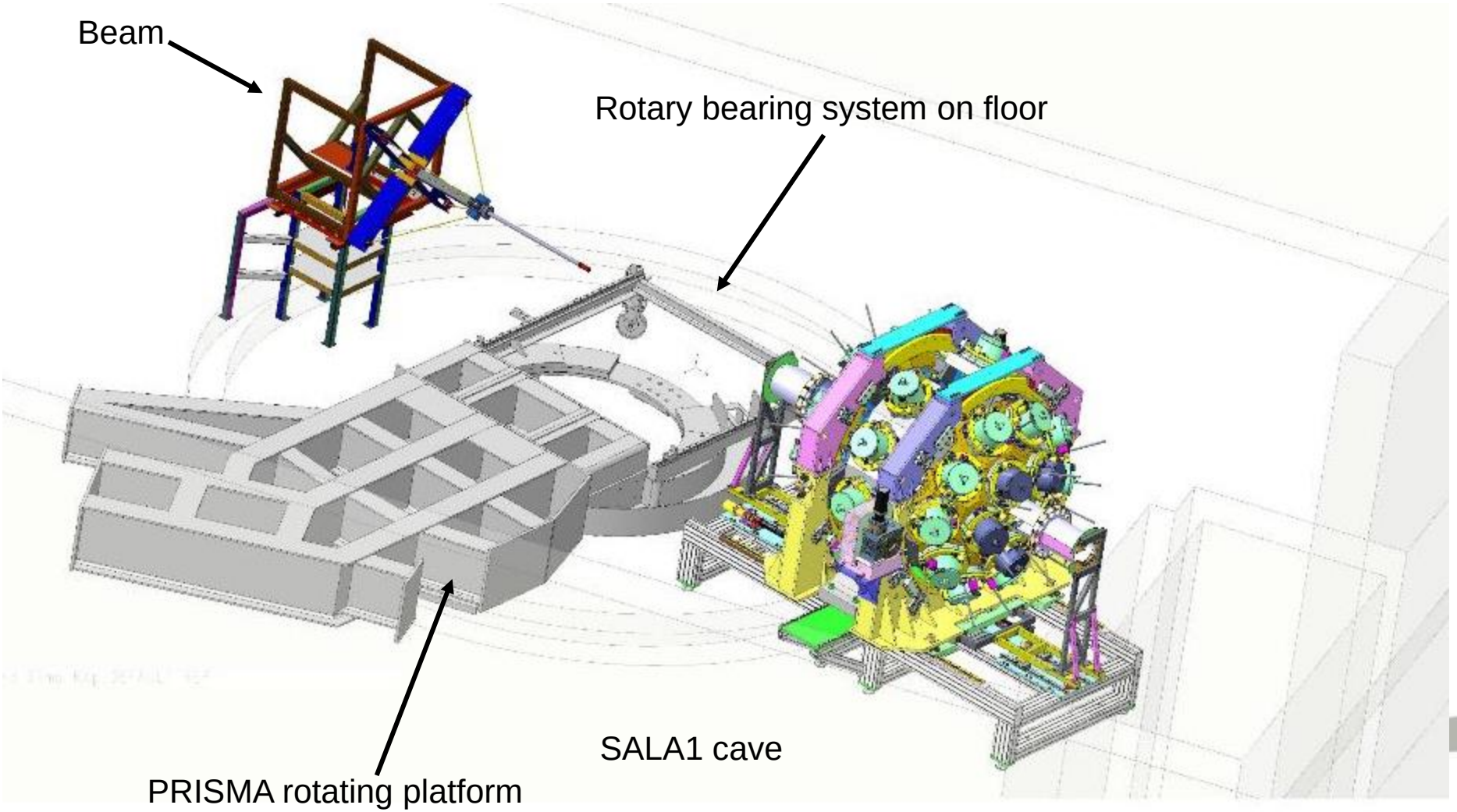
DIAMANT will need to rotate?
or use existing target chamber fixed to VAMOS

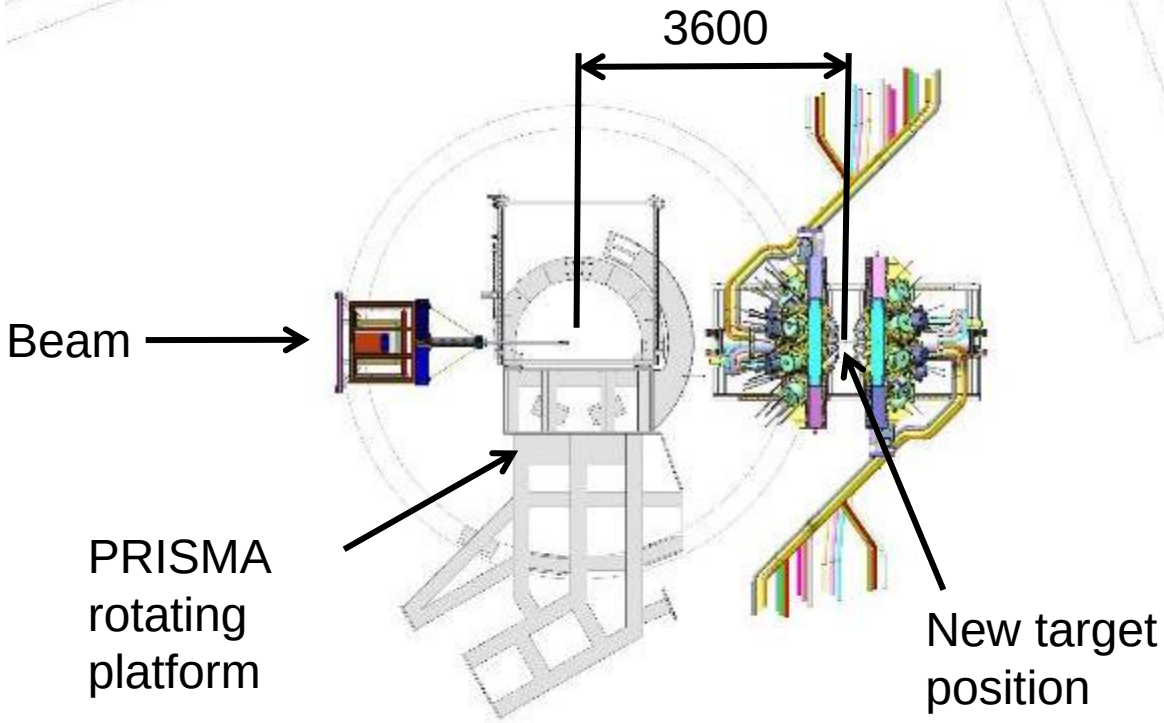


2 x 1π plus option for Legnaro

- Assume move AGATA 1π plus to Legnaro
- Add another 1π same as current design for GANIL
- Assumes operation without PRISMA
- Installation down stream of PRISMA rotating platform
- Additional magnet system required upstream to move to new target position which has moved approx. 3.6m downstream
- Not considered as yet, cable management system and dewar lines.

2π+ at Legnaro

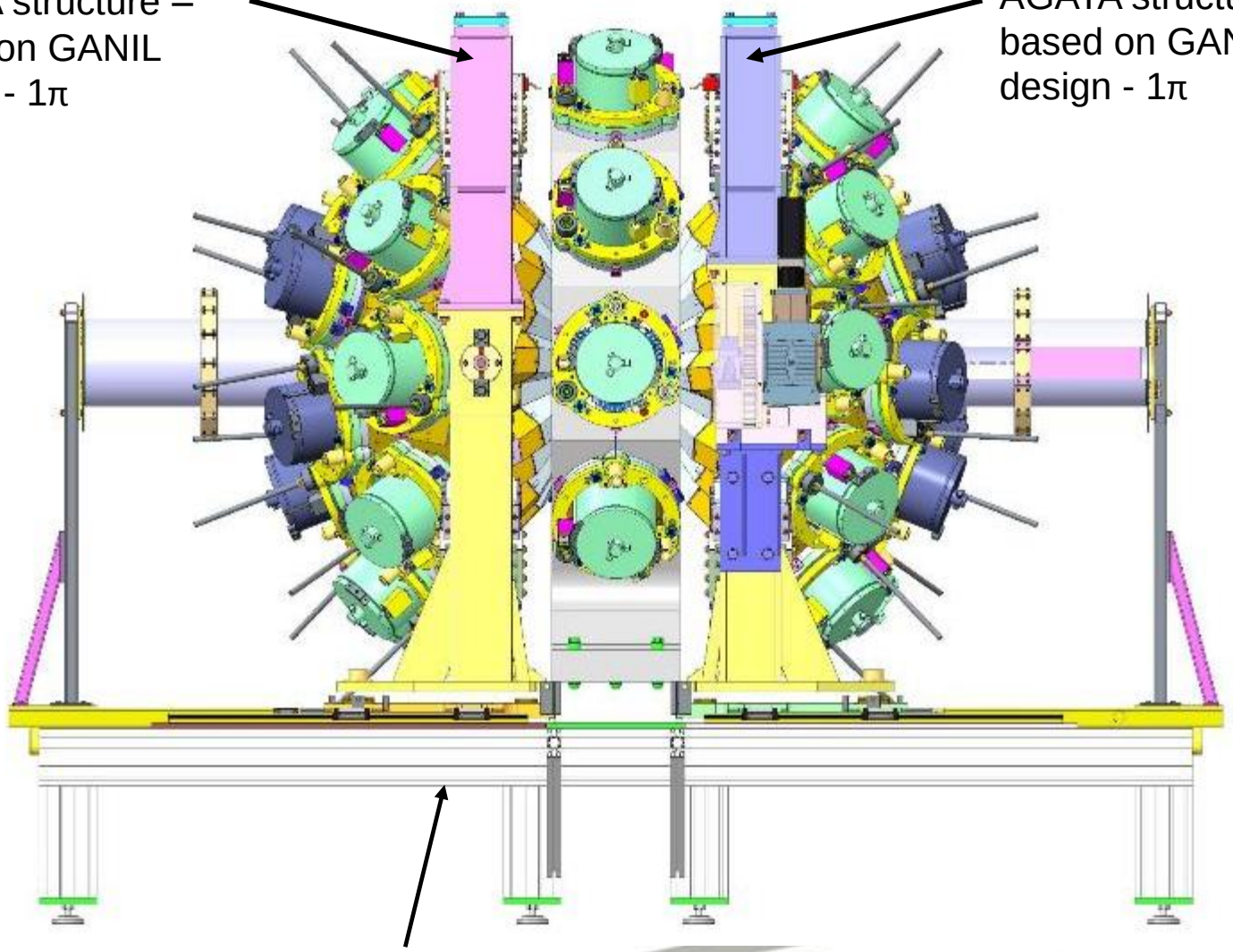




Existing SALA1 cave

AGATA structure – based on GANIL design - 1π

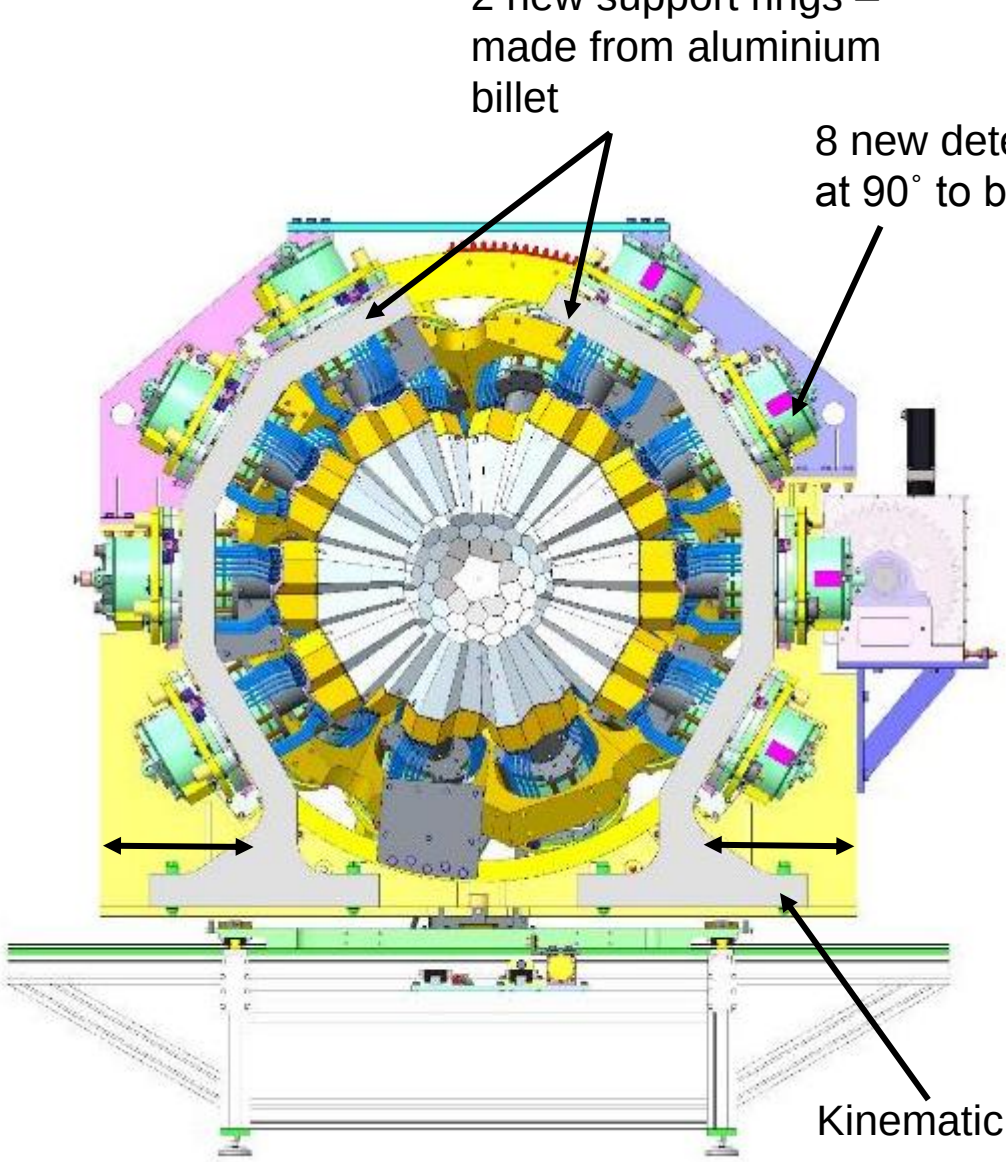
AGATA structure – based on GANIL design - 1π

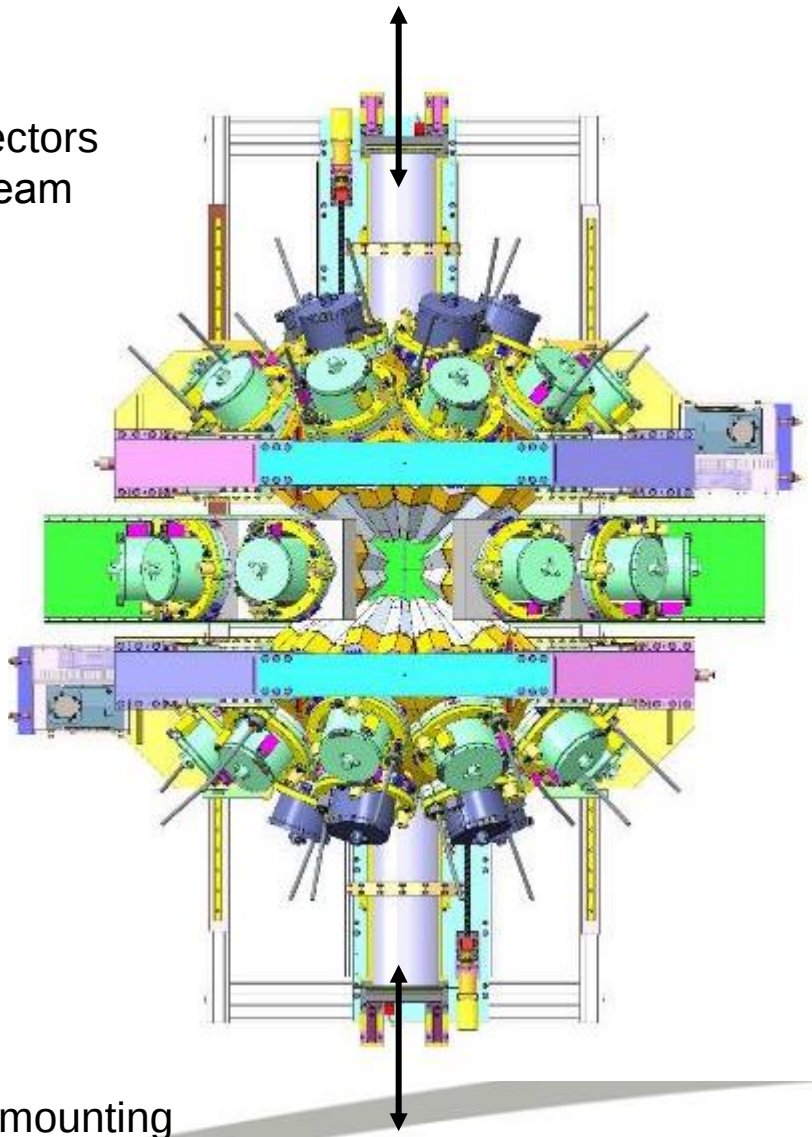


New support system required

2 new support rings – made from aluminium billet

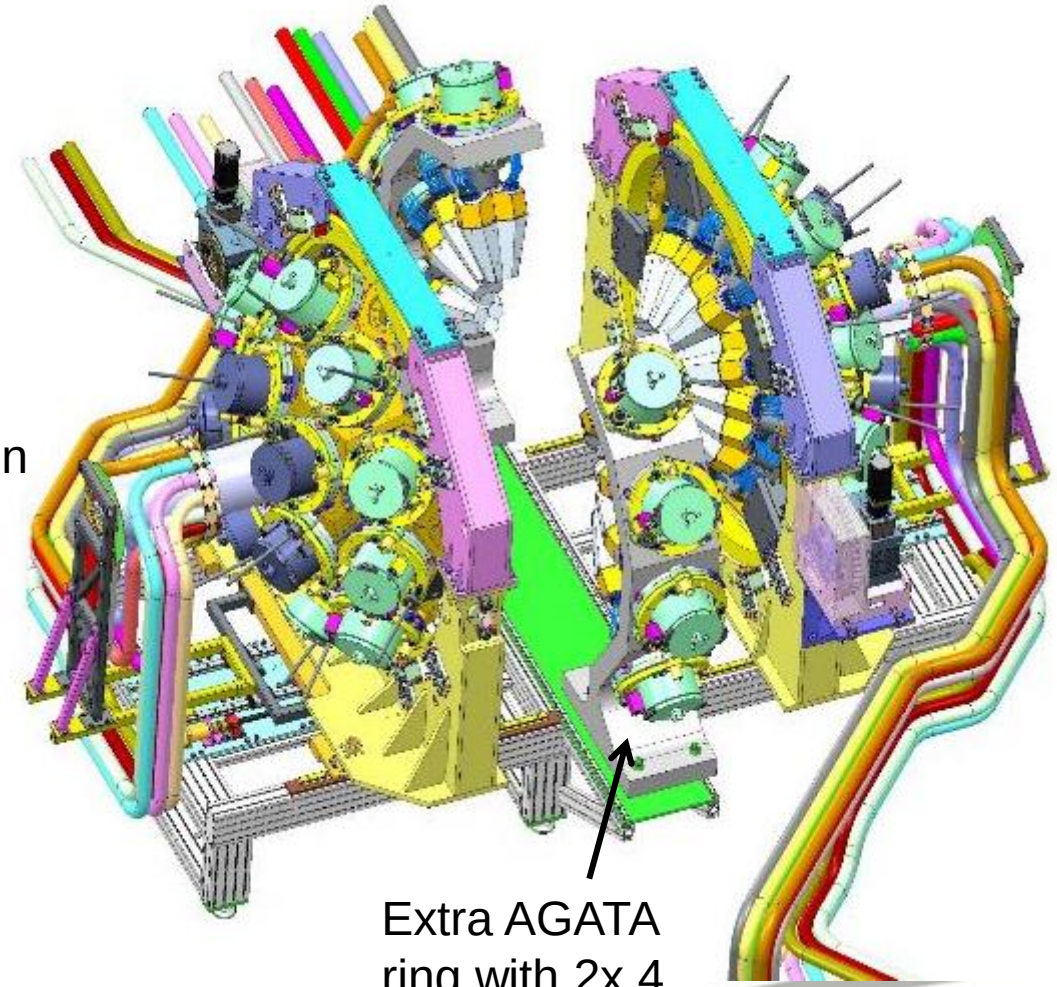
8 new detectors at 90˚ to beam





Kinematic mounting

All detector systems open for target access – option to increase distances if necessary

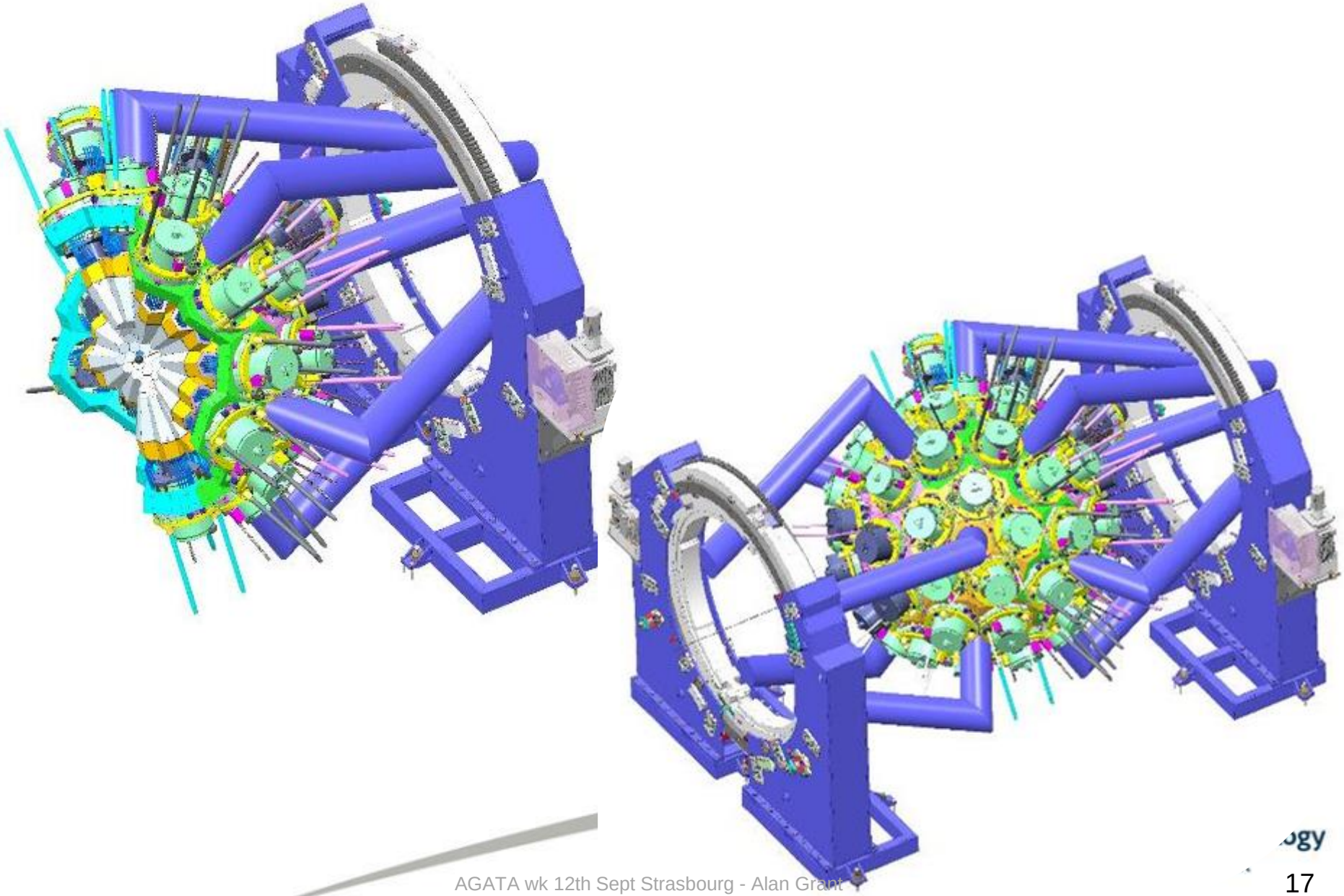


Extra AGATA ring with 2x 4 cryostats

Scheme for 2π and 4π

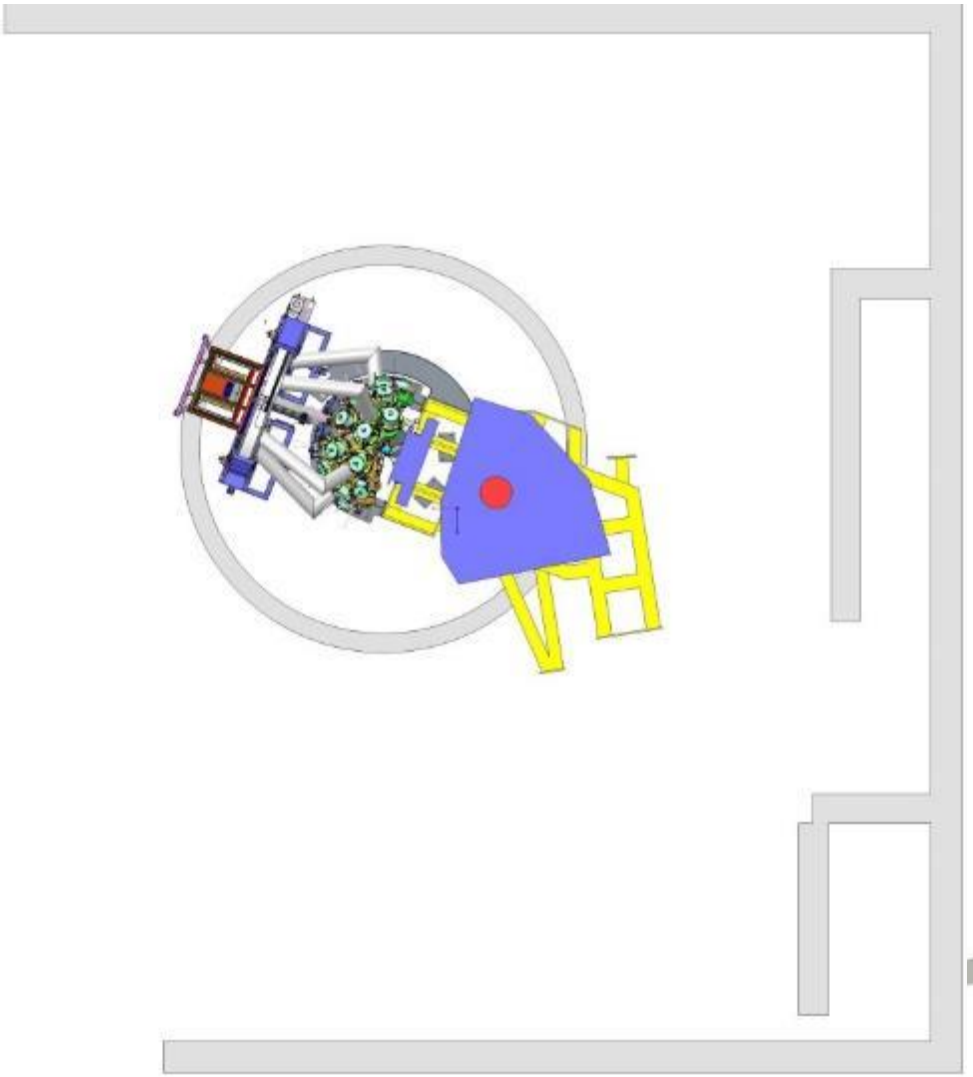
- Current AGATA ring structure designed to support 2π assembly
- Hold AGATA segments from rear of the ball assembly, opposite to current method
- Use vacant segments for mounting spider support legs, 5 in total for each 2π
- Can remove local spider support leg for installation of individual detectors
- Need to re-design mounting system
- Not considered as yet, cable management system and dewar lines.

Scheme for 2π and 4π



Option to Use With PRISMA

Angle - 0 degrees



Assumptions

- AGATA 2pi design….90 detectors
- New design of AGATA support
  - Spider legs 5 off in the position of the pentagons
- AGATA positioned at nominal position in relation to the target ~ approx. 235mm
- Re-use GSI AGATA blue support frame if possible
- Blue support frame to be coupled to rotating ring (or similar) to PRISMA ring
- Will need to investigate new design for mounting AGATA detectors….similar to GRETA arrangement.

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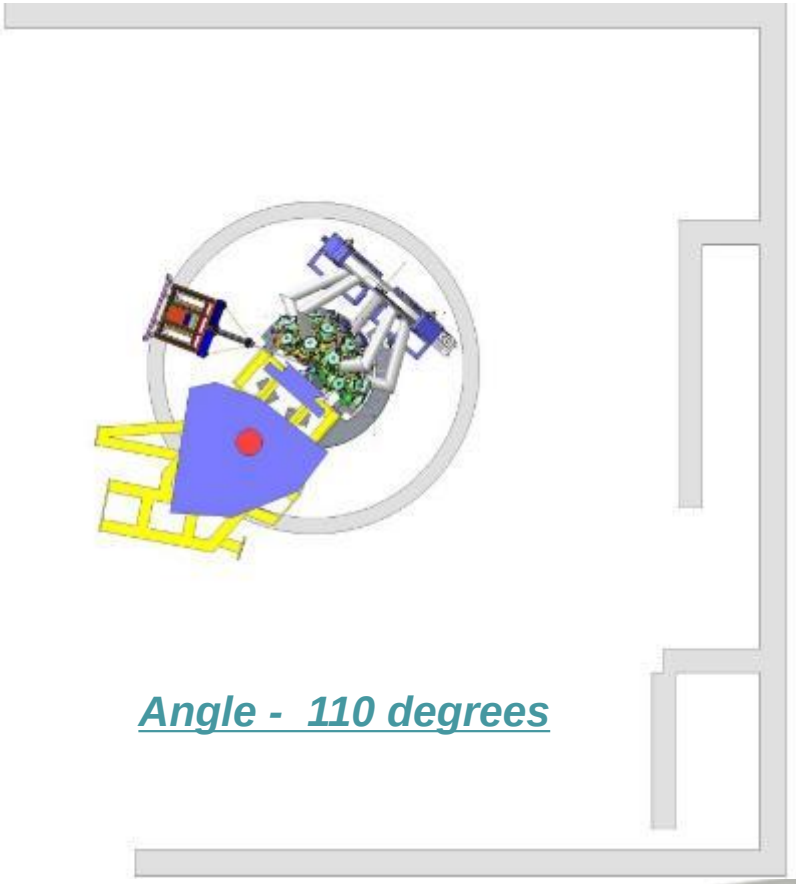
Option to Use With PRISMA

Angle - 60 degrees



Angle - 110 degrees

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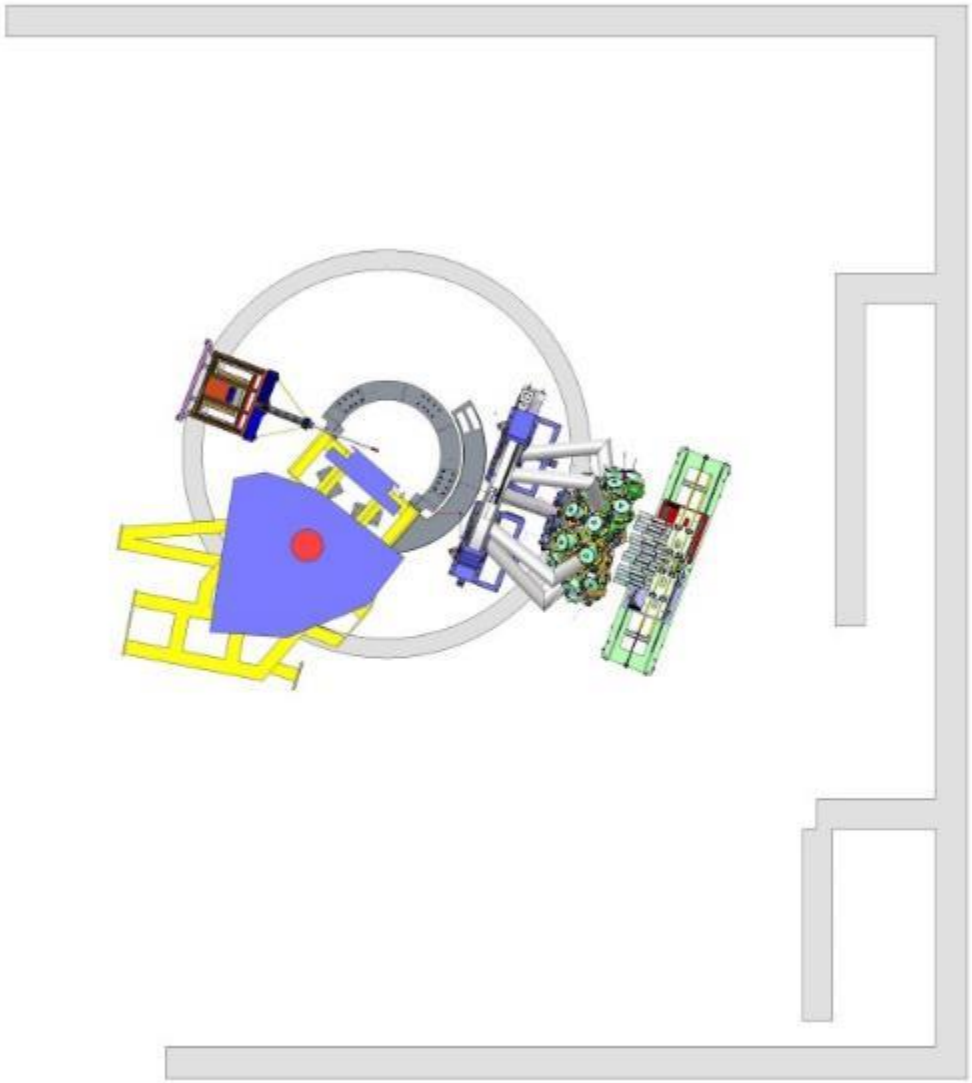
Option to Use Without PRISMA



Assumptions

- AGATA 2pi design….90 detectors.
- New design of AGATA support
  - Spider legs 5 off in the position of the pentagons
- AGATA positioned at nominal position in relation to the target ~ approx. 235mm
- Re-use GSI AGATA blue support frame if possible
- Blue support frame to be coupled to positioned between concentric rings of PRISMA, this allows more space for NEDA at the rear of Sala1.
- Target position shifted back from PRISMA target position.
- PRISMA rotated right out as far as possible
- AGATA manual repositioning and installation required between different campaigns with PRISMA.

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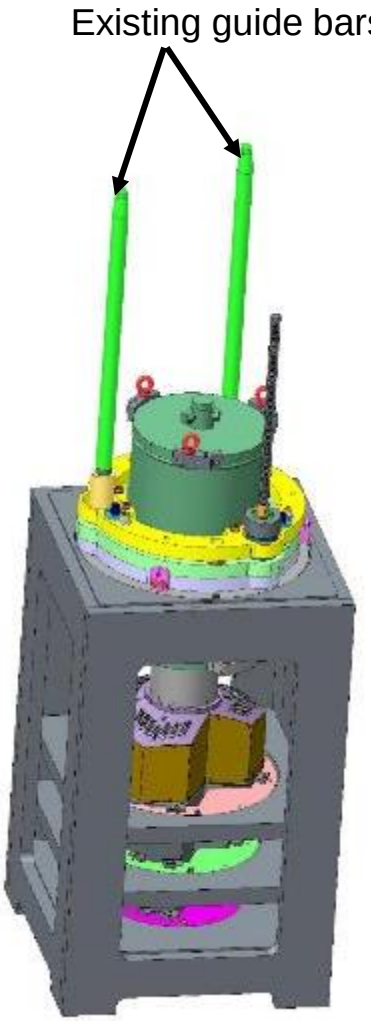
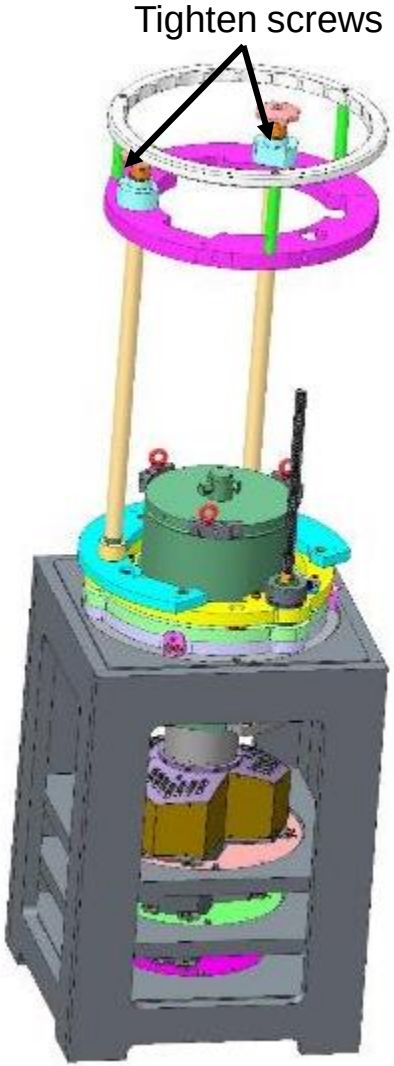
Scheme for Detector Mounting



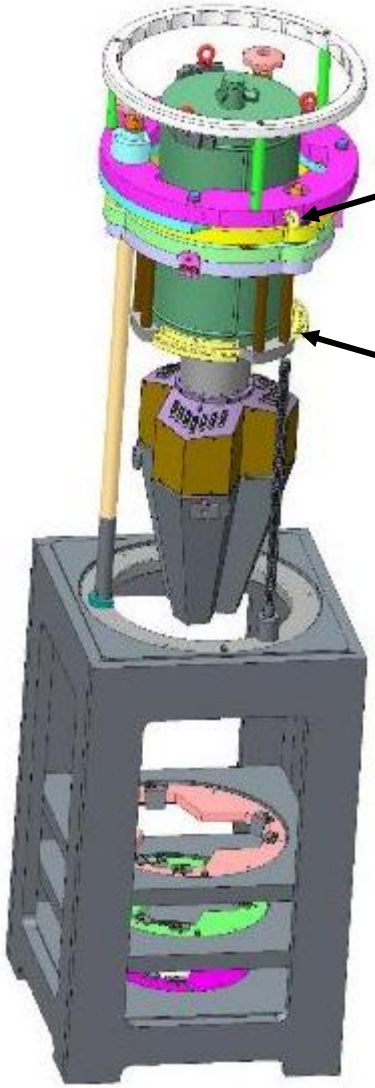
Step 1

Fit detector into frame and assemble rings



Step 2

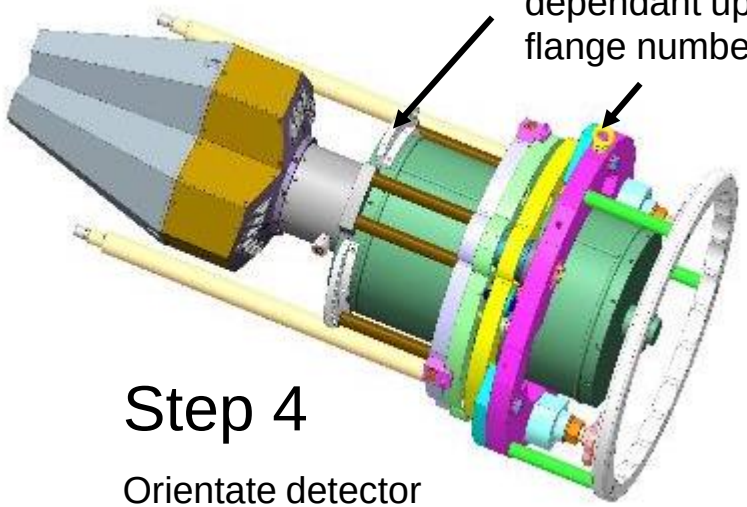
Remove existing guide bars and fit fixture



Step 3

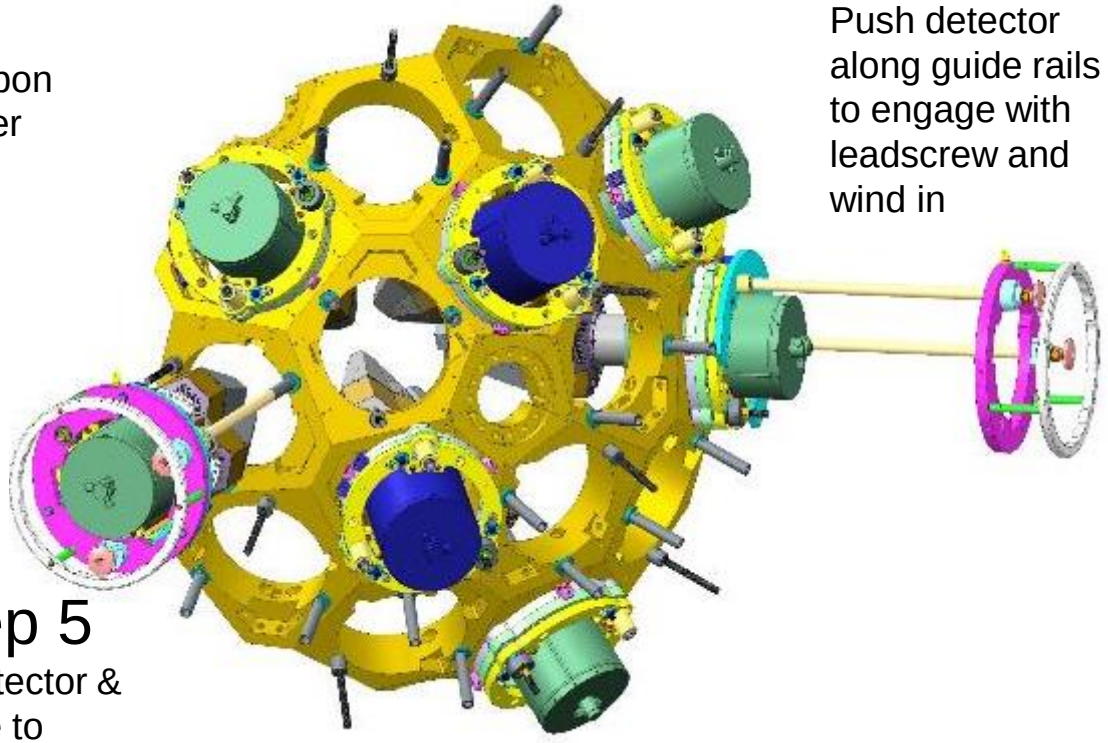
Lift detector & ring assembly and remove from fixture

Scheme for Detector Mounting



Step 4

Orientate detector horizontal ready for insertion

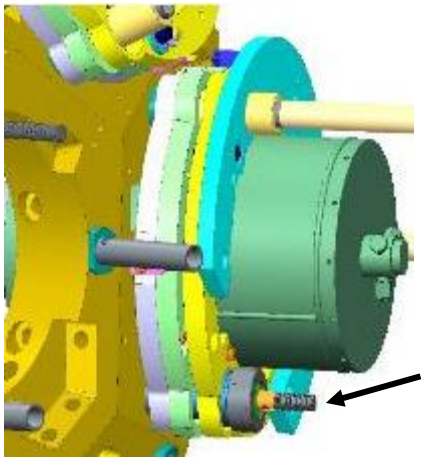


Step 5

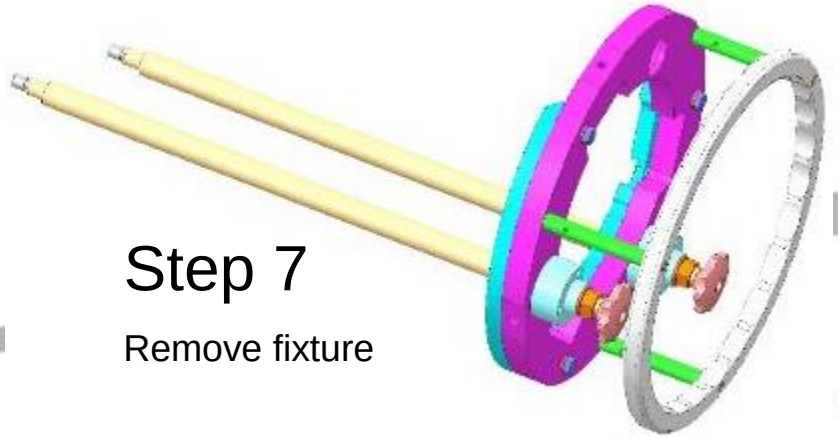
Fit detector & fixture to existing short guides and tighten guide bar screws

Step 6

Push detector along guide rails to engage with leadscrew and wind in



Shorten leadscrew to ~200mm



Step 7

Remove fixture

Thank you for your attention

Thank you for your attention

Questions?

Back Up Slides

1π plus option for GANIL

	Qty	Estimate £'s K	Total Cost	20% Contingency
AGATA Support Structure	2	14	28	33.6
AGATA cryostat adjuster ring assembly, leadscrew & bars etc	8	3.5	28	33.6
AGATA kinematic mount and top plate mods	2	2	4	4.8
			60	**72**

Scheme for Detector Mounting

Fixture lifted away when detector is secure

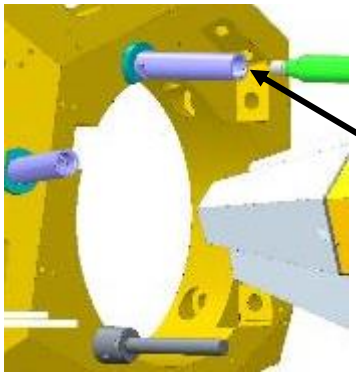
Lifting points to suit various angles

Detector pushed forward to engage on shortened leadscrew

Ring to assist with rotation and guiding

Long screws to fasten to existing guide bars

Shortened leadscrew



Taper on long guide bars engage in existing short guide bars