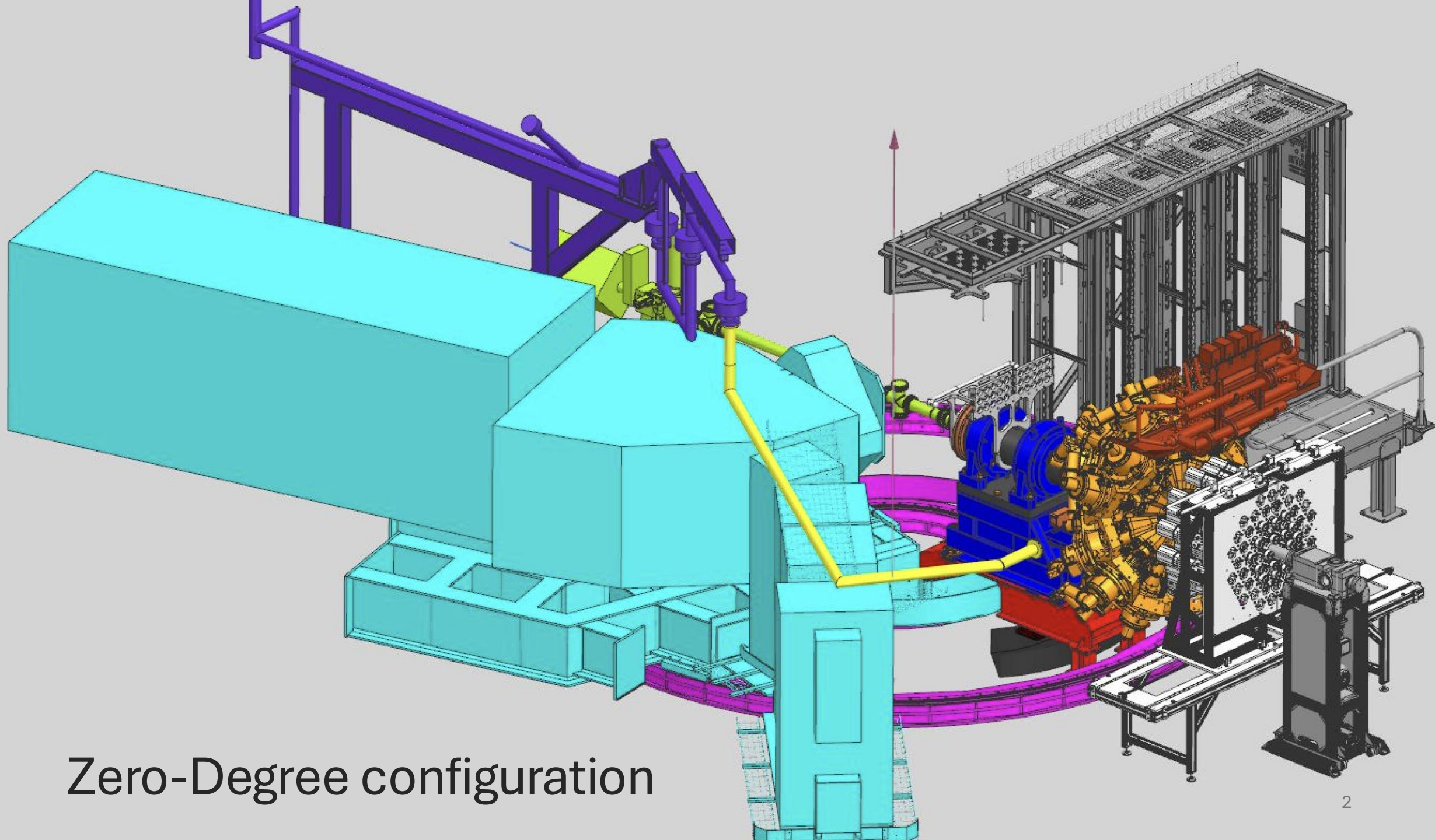




AGATA Zero-Deg Updates

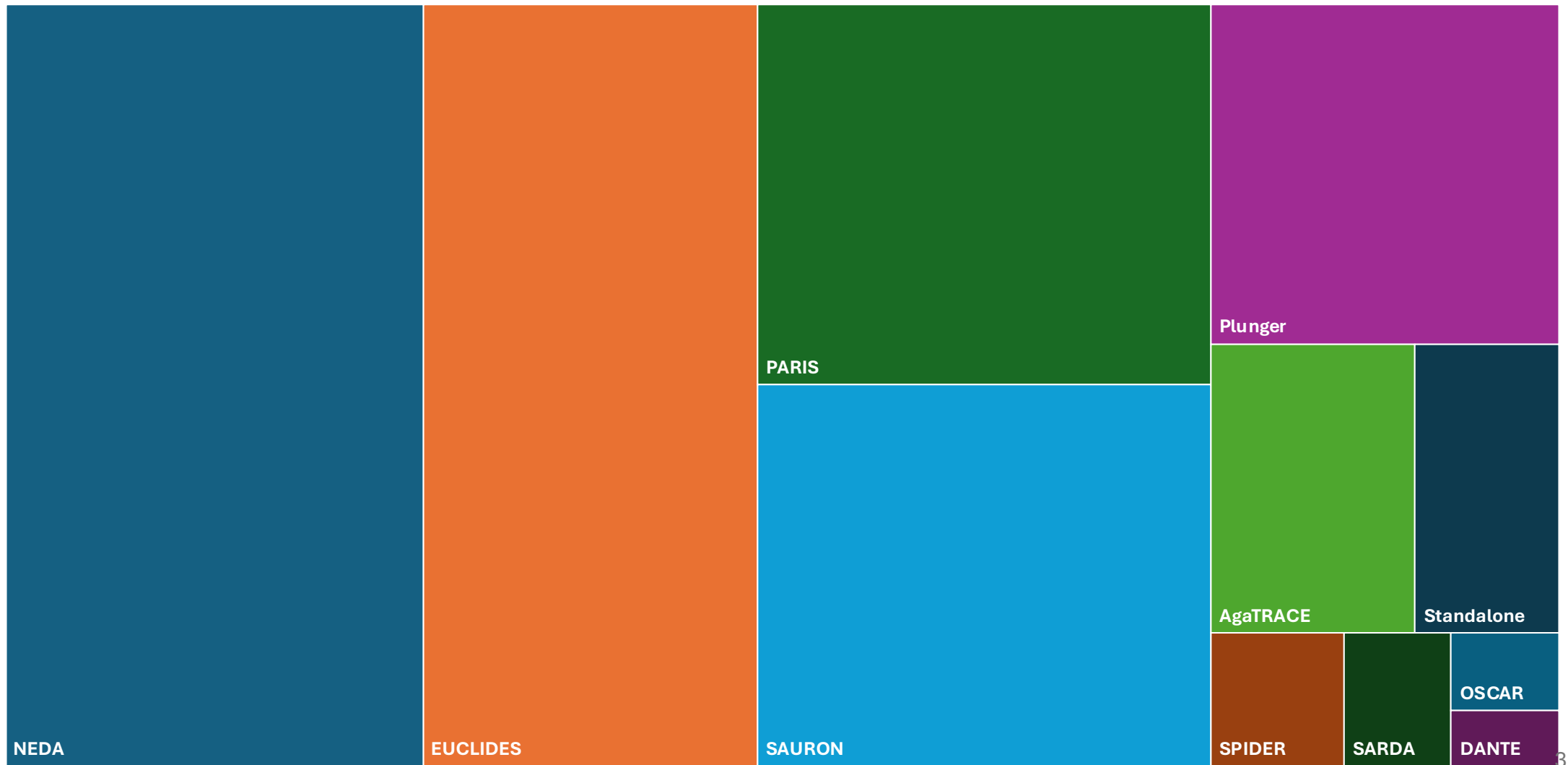
G.Benzoni, M.Benettoni, M.Bolognesi, F.Camera , M.Ciemala,
S.Coelli, T.Druillole, C.Le Gaillard, F. Galtarossa, A. Goasduff, A.Maj,
L.Manara, I.Matea, R.Menegazzo, L.Ramina, M.Rampazzo,
M.Scarcioffolo, D.Scarpa, R.Smith, B. Sowicki, F.Veronese,
J.J.Valiente-Dobon

INFN-Mi, INFN-Pd, INFN-LNL, STFC (UK), IJCLab (Fr), IFJ-Pan (Pl)



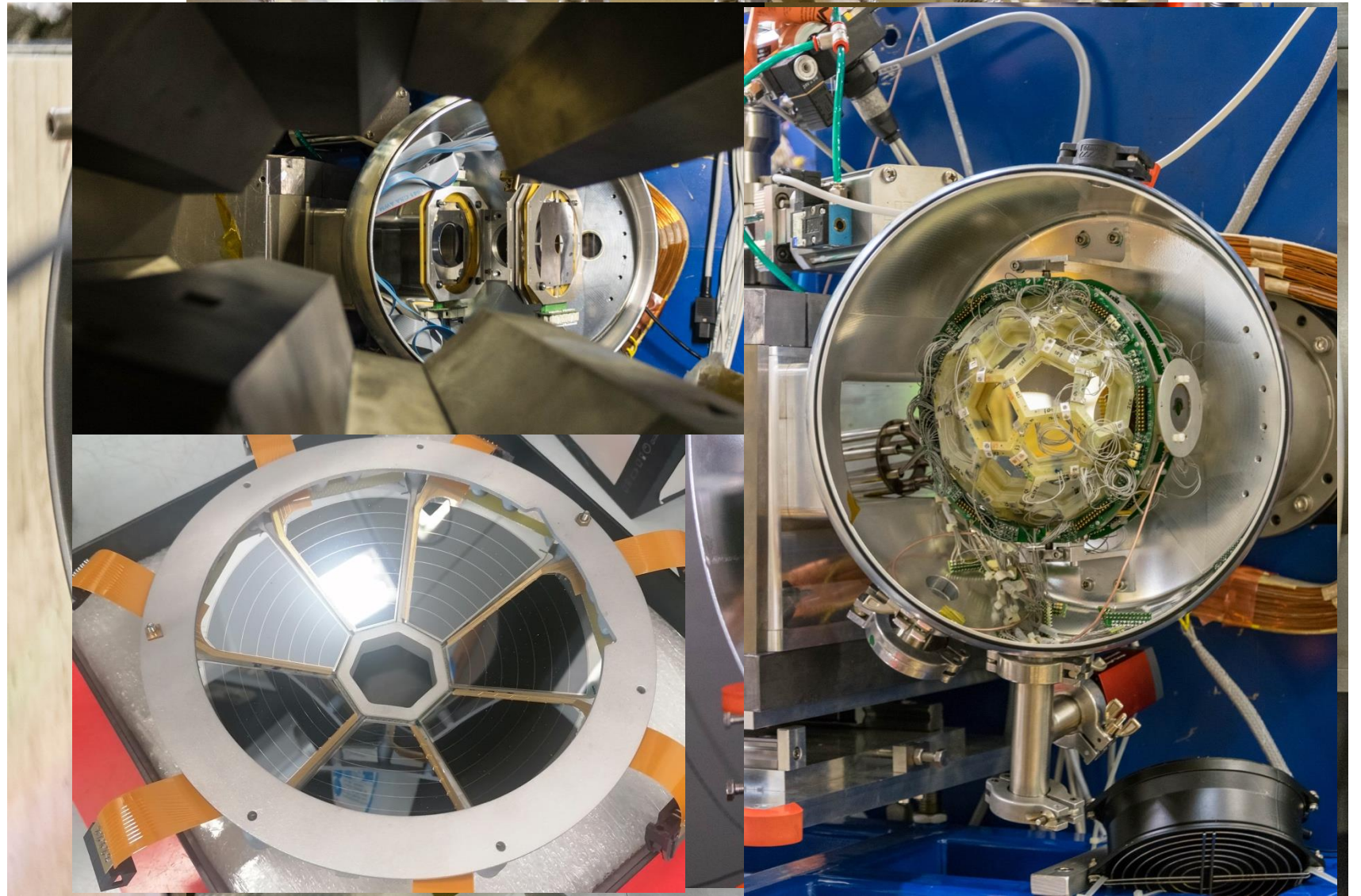
Zero-Degree configuration

Pre-PAC ancillary detector request

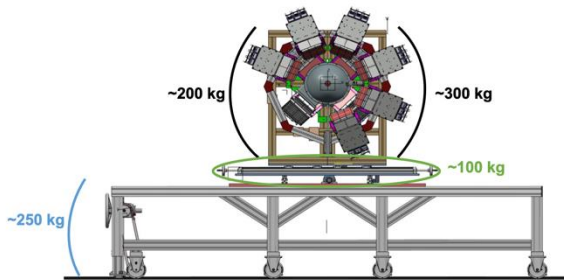
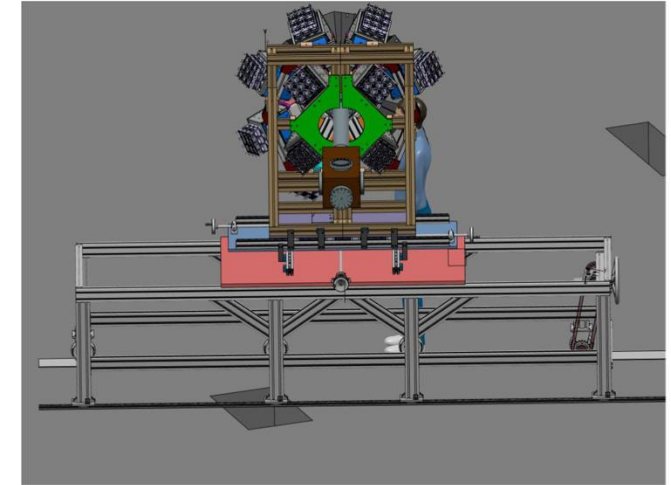
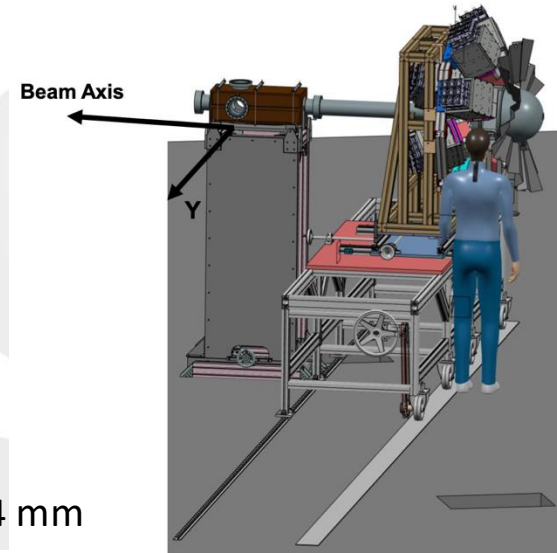


AGATA Zero-Deg Configuration: multi-purpose chamber: A wealth of Complementary detectors

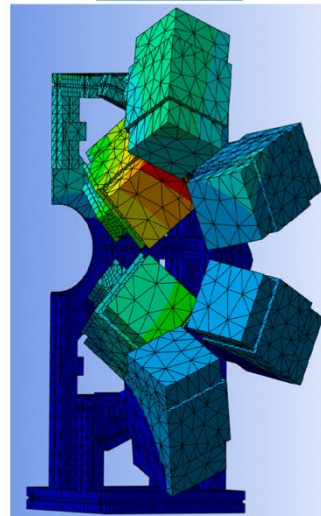
1. Heavy ions:
 - ~~PRISMA~~
 - SPIDER
 - DANTE
 - OSCAR
2. Light charged particles:
 - SPIDER
 - **EUCLIDES**
 - SAURON
 - AGATRACE
3. Lifetimes
 - Plungers
4. Scintillators
 - $\text{LaBr}_3(\text{Ce})$
 - **PARIS**
 - **NEDA**



- Holding 10 PARIS clusters (10x9 phoswich dets.)
- 2 rings at forward angles:
 - 6 clusters at 60 degrees
 - 4 clusters at 15 degrees
 - Average distance Ta-Phoswich 300 mm
- Very bulky equipment (total weight ~ 200 kg)
- Stress evaluation shows deformations below 0.4 mm

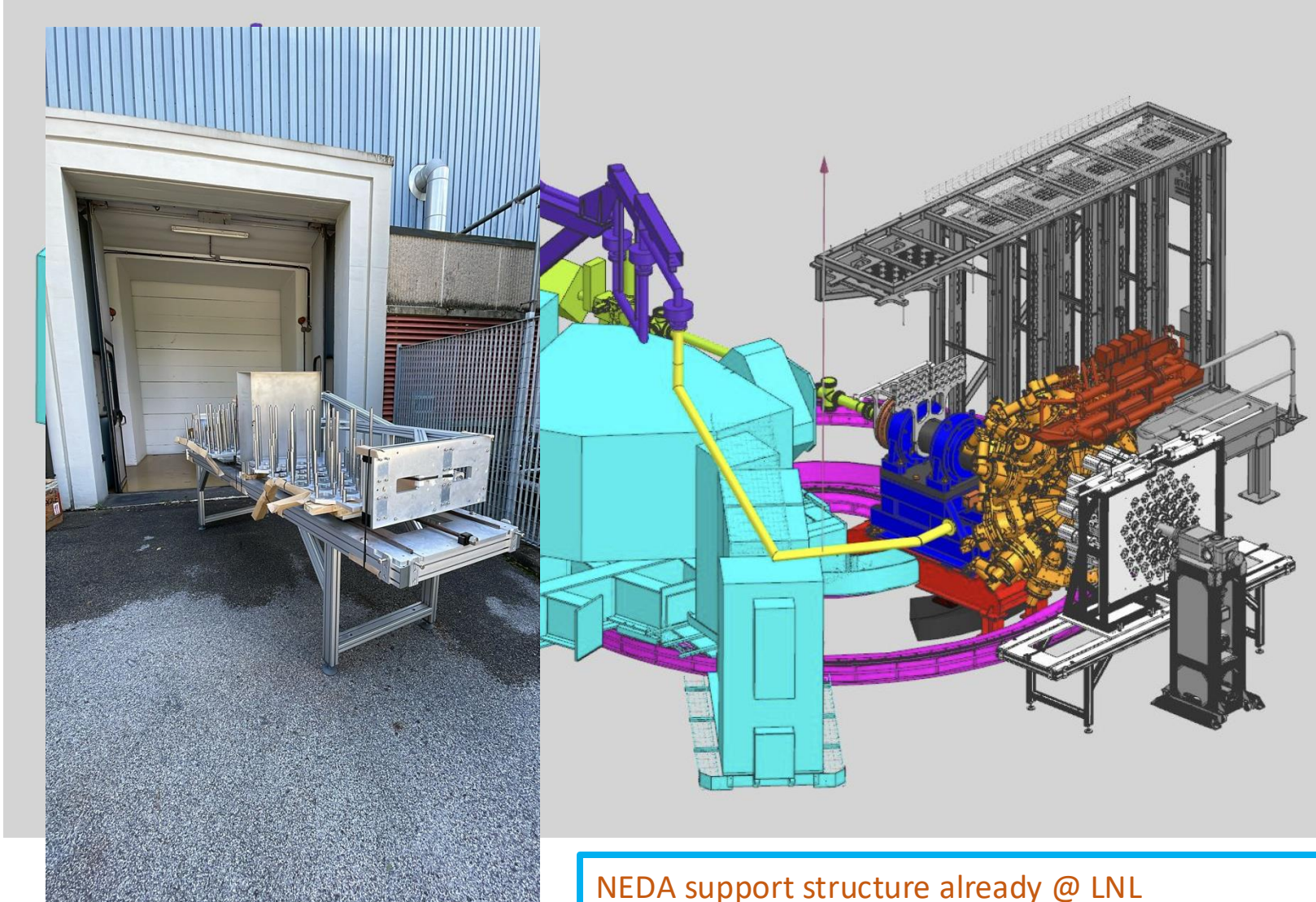


Deformation



- PARIS portal opens in the halves to provide access to scattering chamber
- Sharing support moving table with NEDA
- Interchange platform specific for each array (different heights)
- Table able to retract to a «parking» position to allow operations in the chamber and on AGATA detectors

Zero degree campaign “bulky” ancillaries: NEDA



NEDA Neutron Detector Array

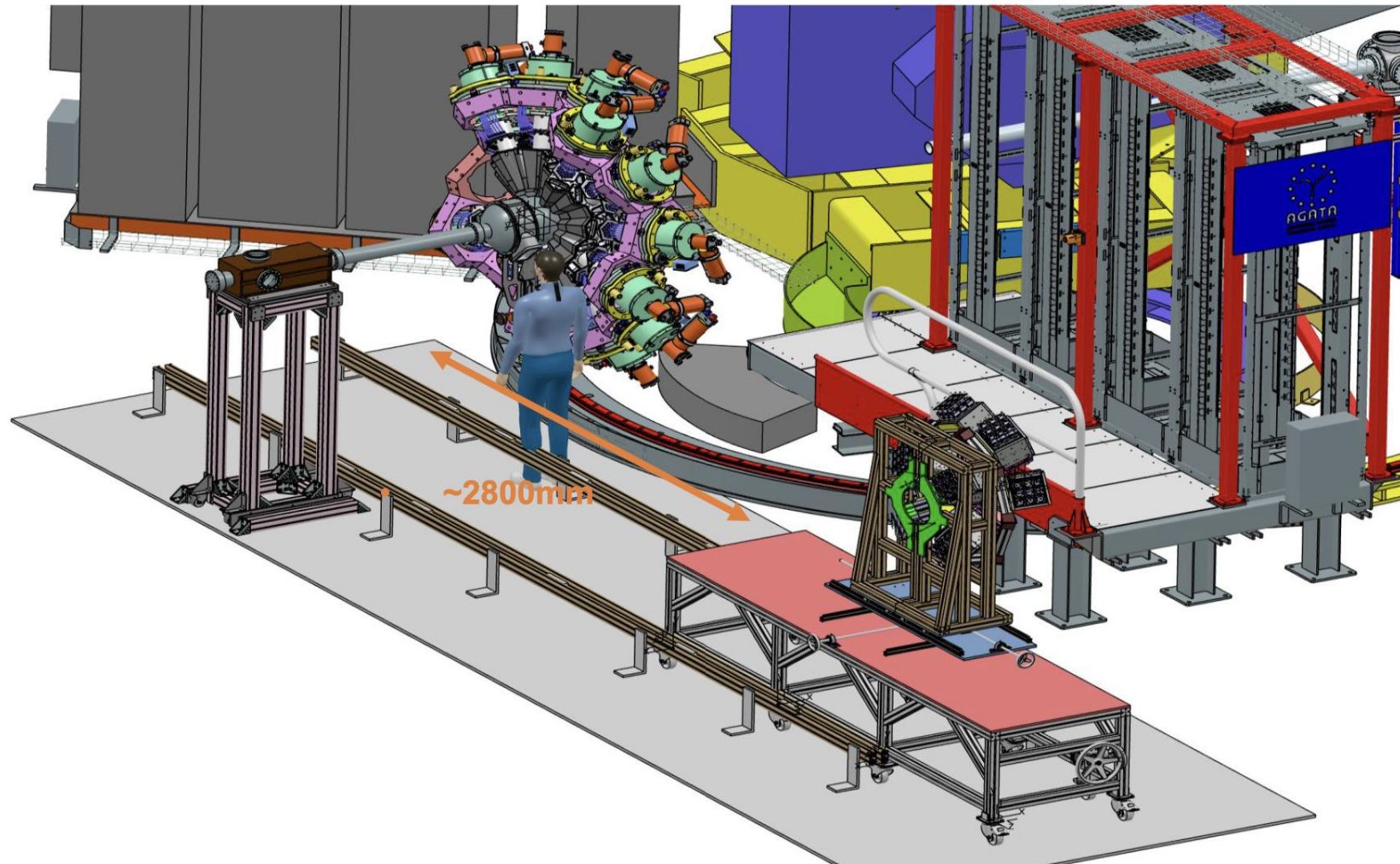
- 54 liquid scintillator cells
- 50 cm from the target
- Neutron discrimination:
 - PSA
 - Time of flight
- Digital electronics compatible with AGATA
- DAQ integration is on-going

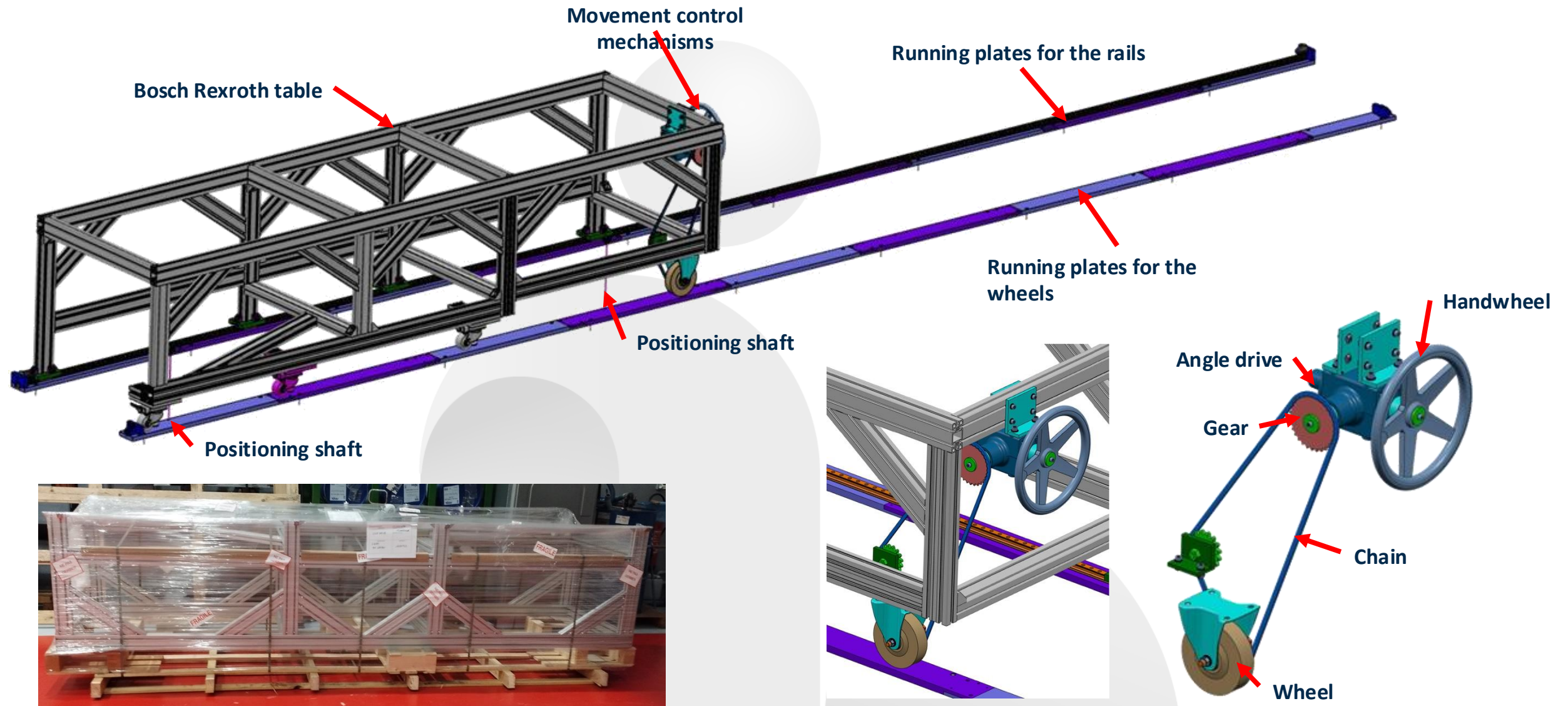
J.J. Valiente Dobón, Nucl. Inst. Meth. A **927** (2019) 81

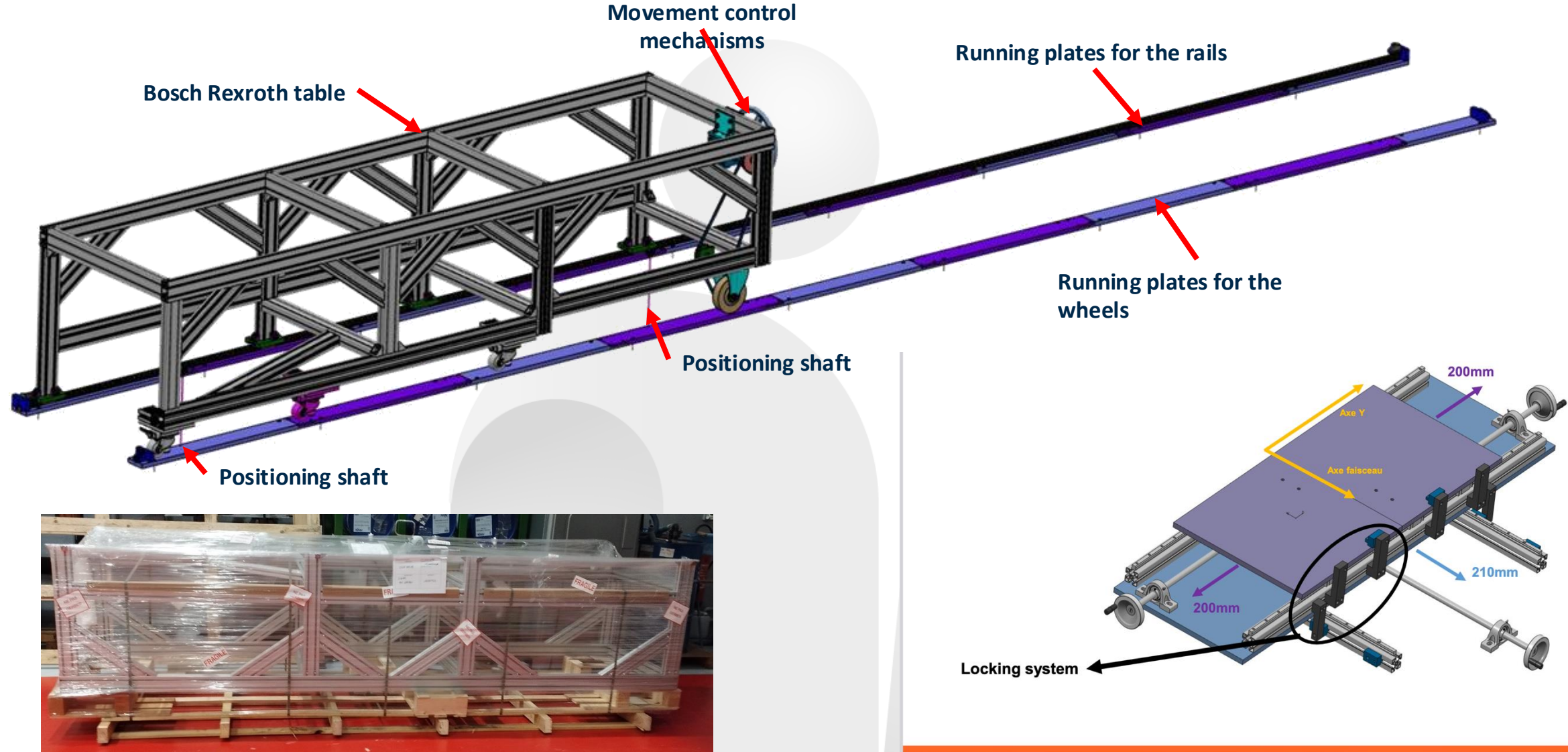
NEDA support structure already @ LNL
interchange platform to adapt to new table already produced



Global view with PARIS in garage position







30/06/2025

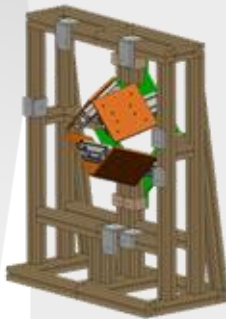
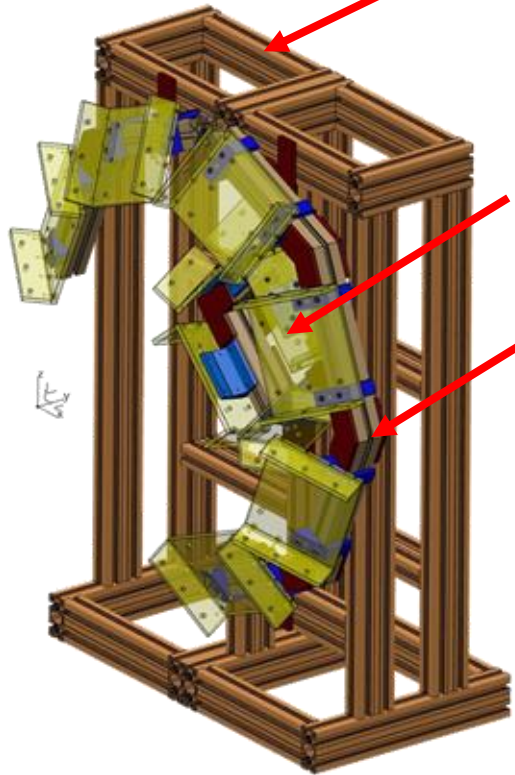
Thomas Druilleole

New support in aluminium profile

Upper support in aluminium profile
Bosch Rexroth aluminium profile 45x90

Manufactured parts (Krakow)

Cluster support in aluminium profile
Bosch Rexroth aluminium profile 60 x 60



Old support in aluminium profile 45x45

New support in aluminium profile

Upper support in aluminium profile
Bosch Rexroth aluminium profile 45x90

Manufactured parts (Krakow)

Cluster support in aluminium profile
Bosch Rexroth aluminium profile 60 x 60

Old support in aluminium profile 45x45

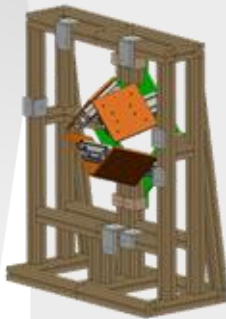
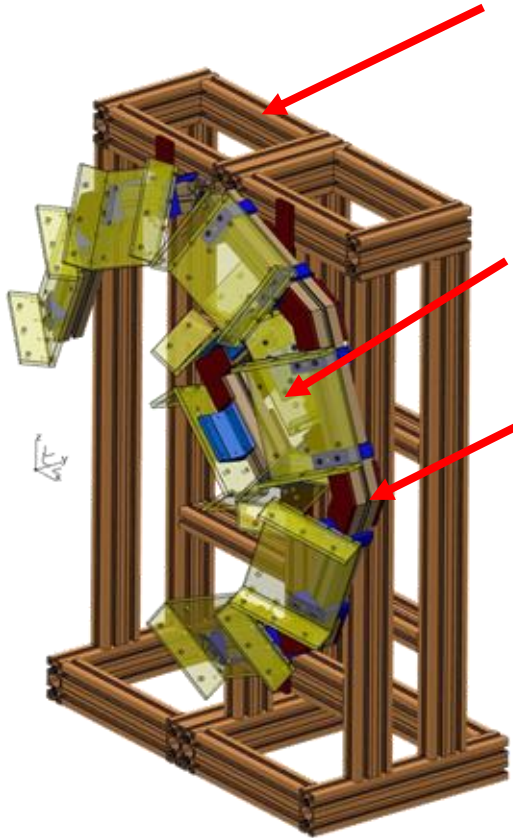
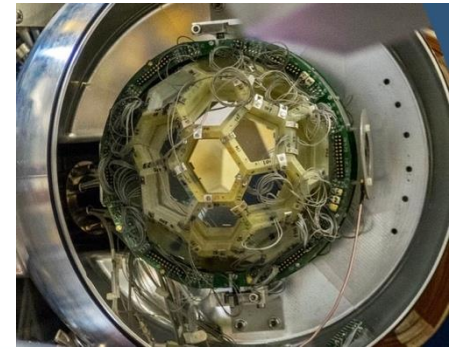


Table and rails to arrive to LNL latest
end of October

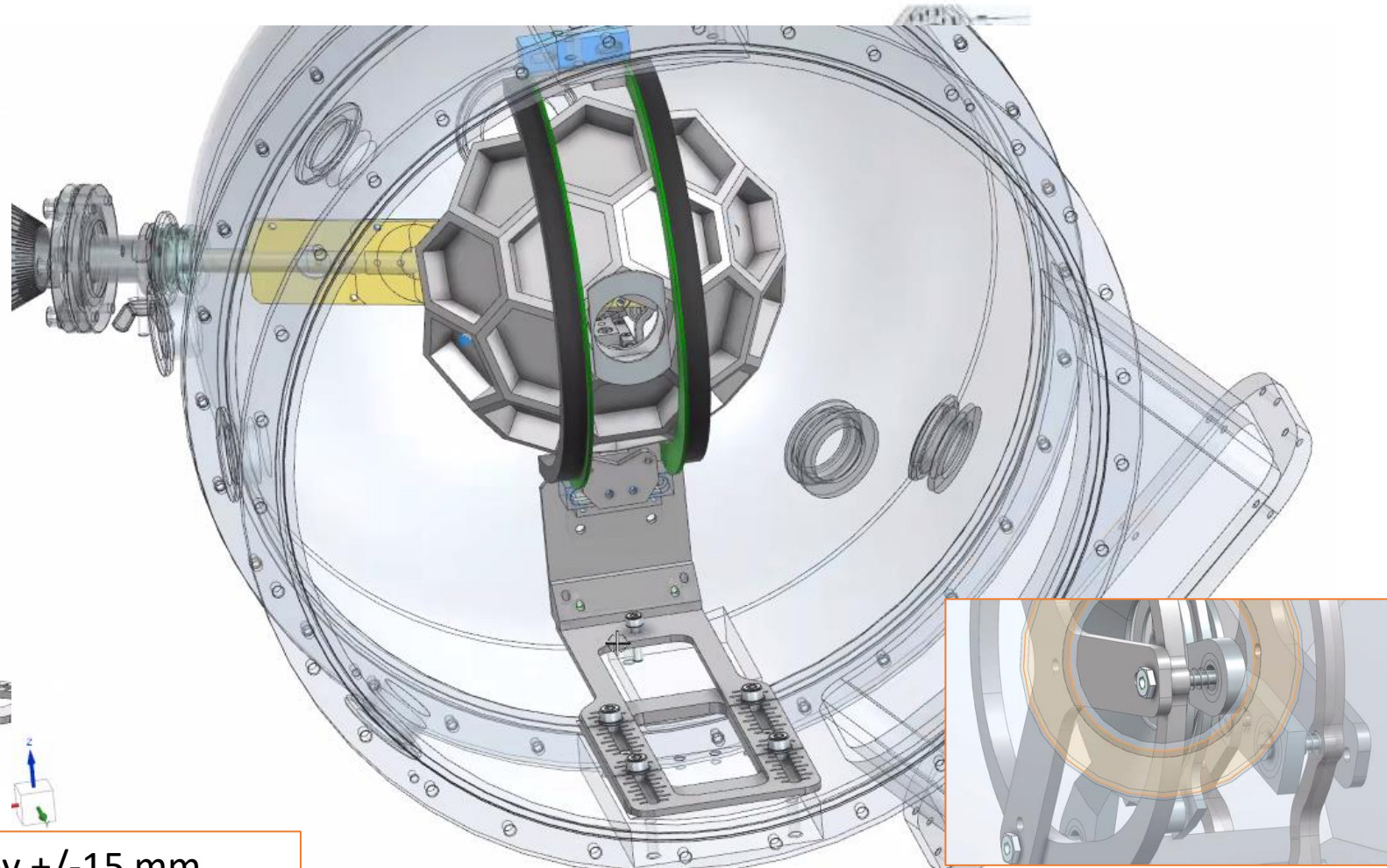
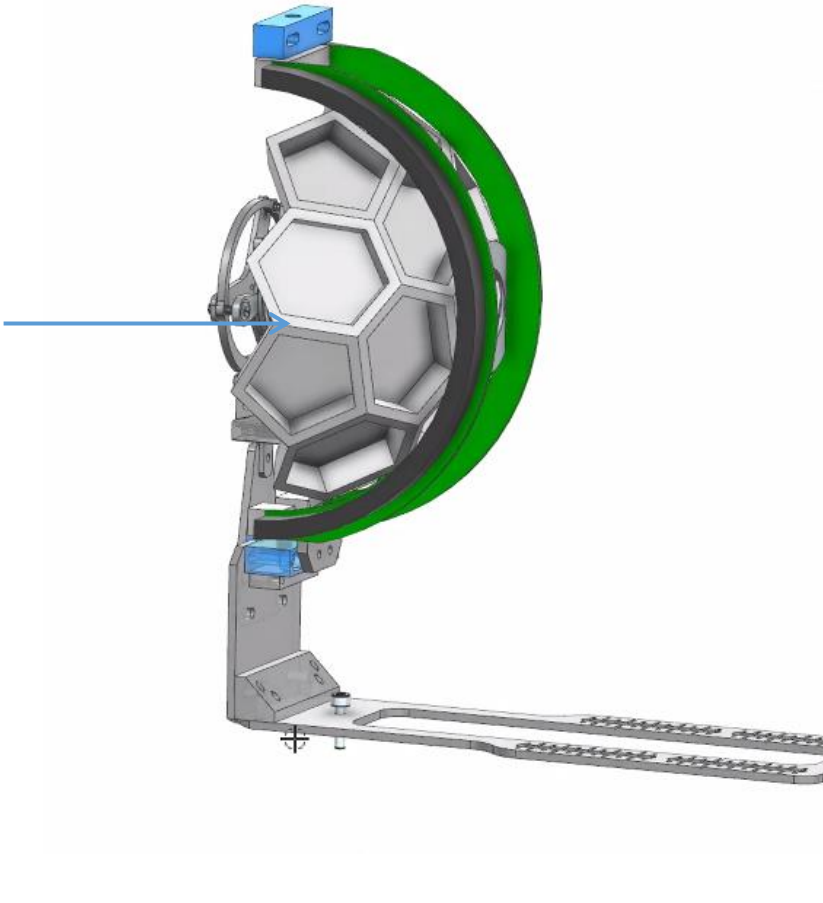
PARIS support structure to be delivered
second half of 2027

EUCLIDES integration in the new reaction chamber



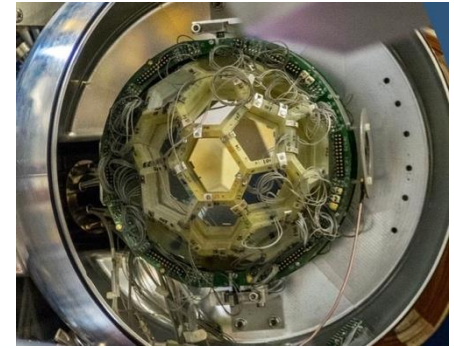
EUCLIDES standard configuration
 4π configuration

EUCLIDES with plunger
Forward rings only



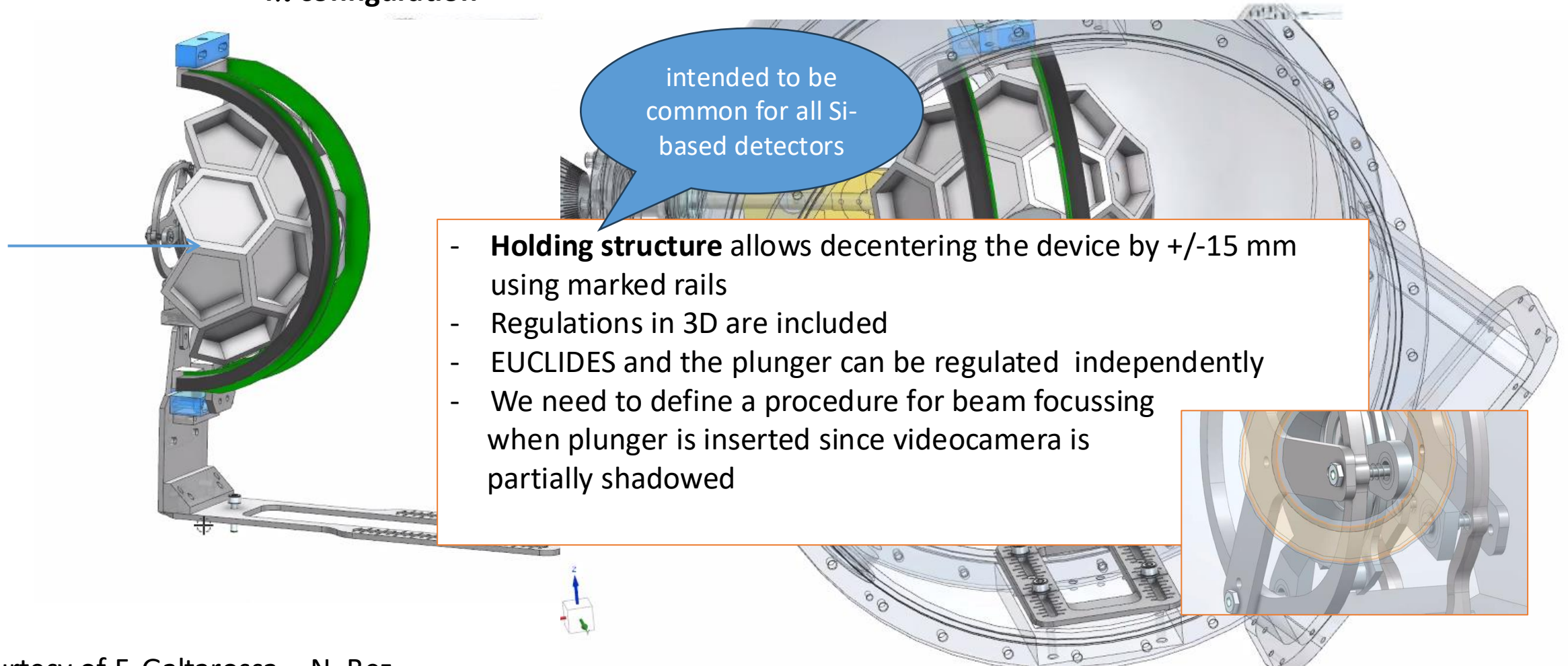
holding structure allows decentering the device by ± 15 mm
using marked rails

EUCLIDES integration in the new reaction chamber



EUCLIDES standard configuration
 4π configuration

EUCLIDES with plunger
Forward rings only



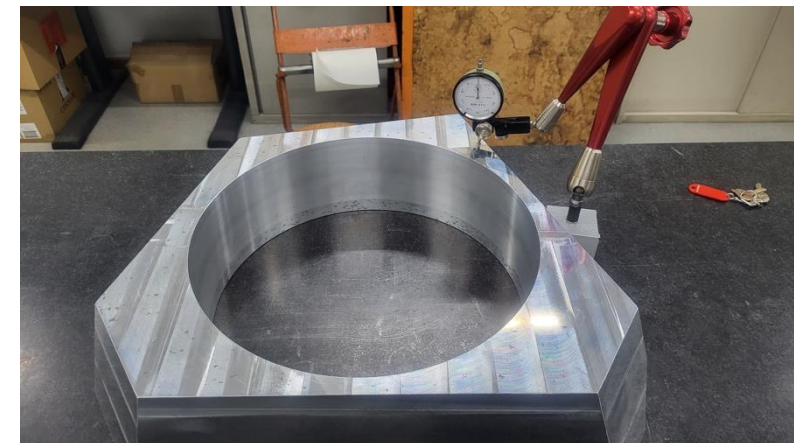
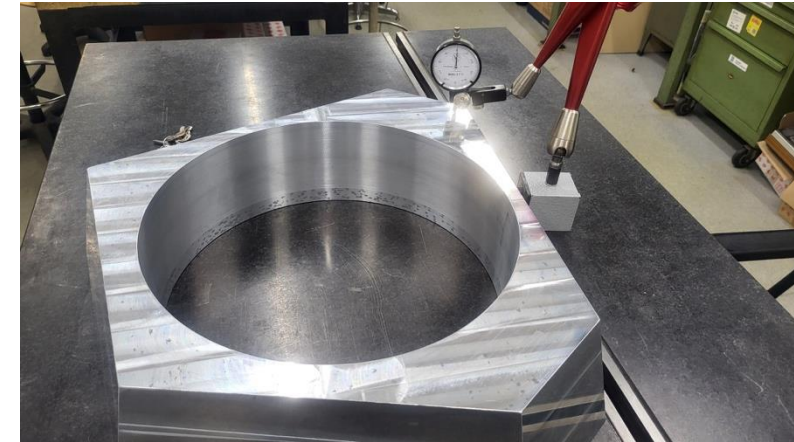
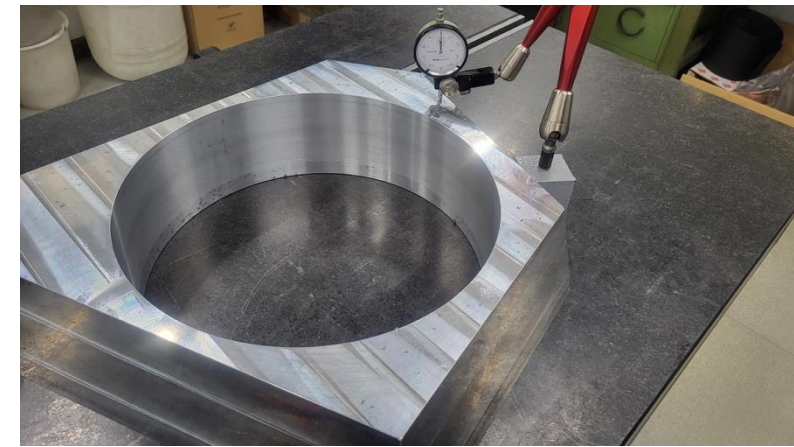
- **Holding structure** allows decentering the device by +/-15 mm using marked rails
- Regulations in 3D are included
- EUCLIDES and the plunger can be regulated independently
- We need to define a procedure for beam focussing when plunger is inserted since videocamera is partially shadowed

Production of new honeycomb

- The alloy previously used (ACP 6000) is now not easy to procure Alloy 7021 has been proposed as alternative

RS: One of the reasons why the previous material (ACP 6000) was selected was its minimal distortion after heavy machining. As we are removing a lot of material from the flange, we need to ensure that the flange maintains its shape post machining.

- Production of one prototype flange in new alloy in LNL and Pd workshops
- Good performances of the prototype;
 - Confirmed tolerances, planarity and parallelism of the reference surfaces
- **New material approved for the production of new flanges**



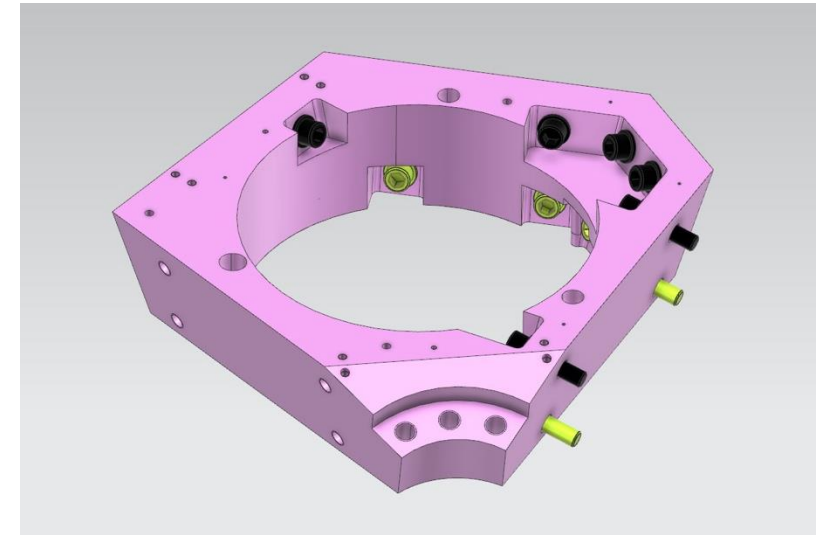
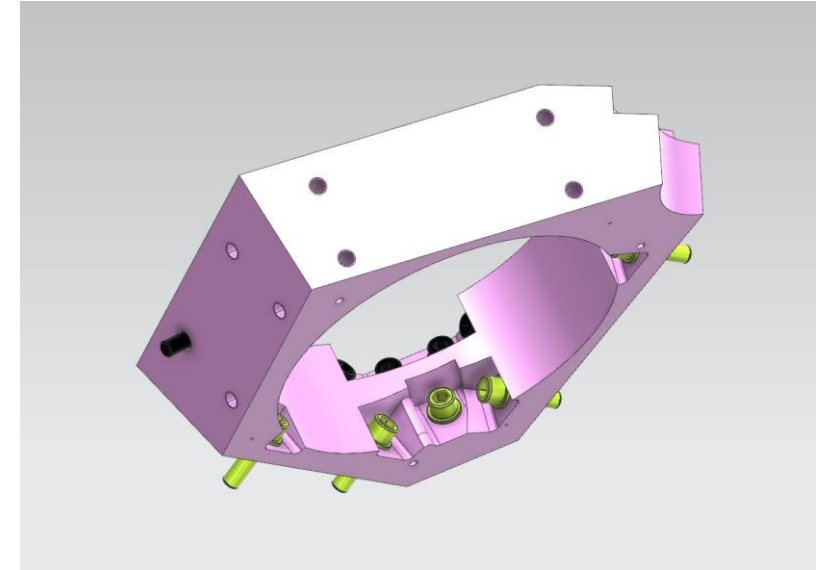
Production of new honeycomb

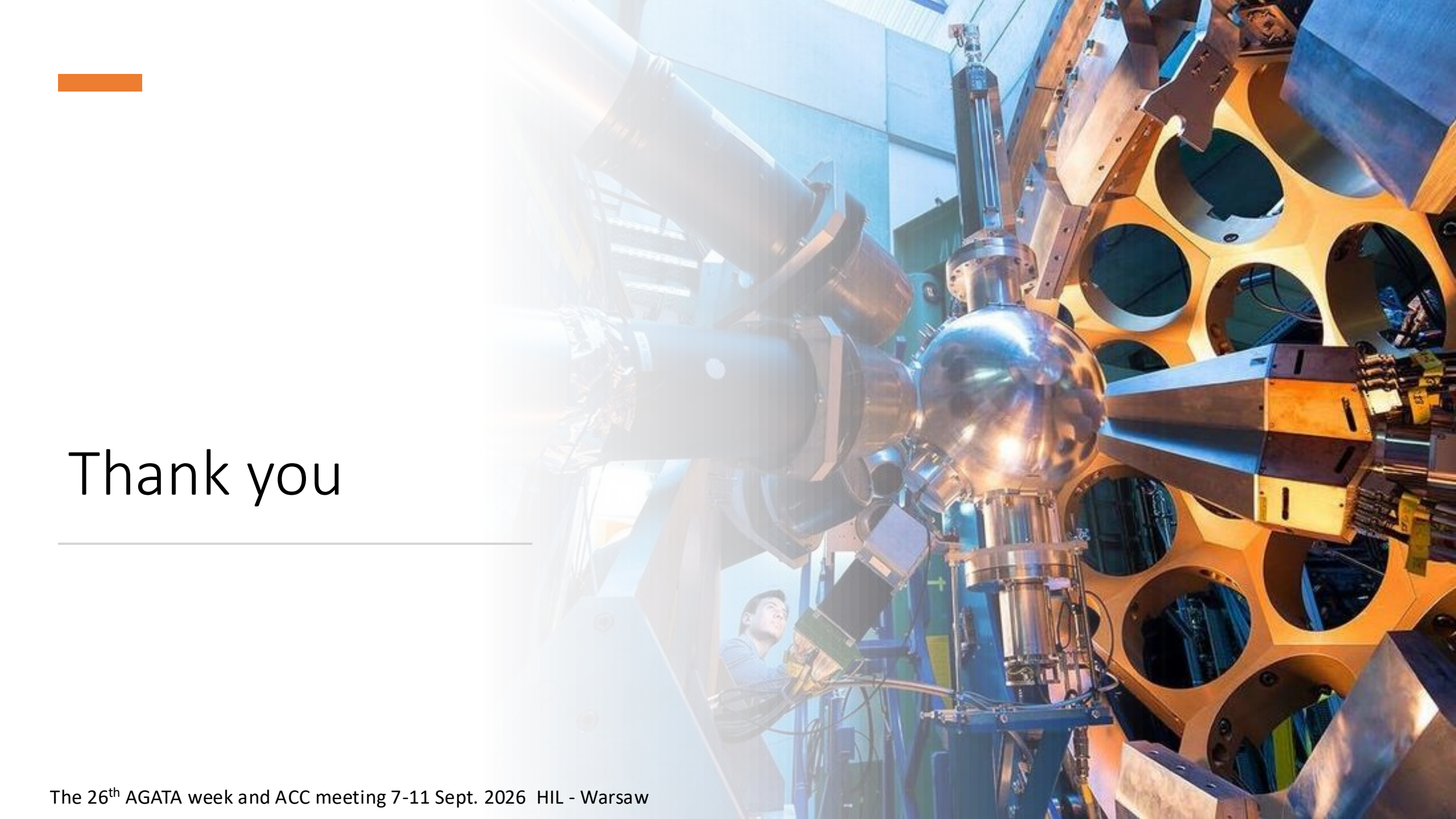
- The alloy previously used (ACP 6000) is now not easy to procure
Alloy 7021 has been proposed as alternative

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- Production of one prototype flange in new alloy in LNL and Pd workshops
- Good performances of the prototype;
 - Confirmed tolerances, planarity and parallelism of the reference surfaces
- **New material approved for the production of new flanges**
- During production a modification of the design has been proposed, with additional pockets that facilitate holding the piece while machining the central hole
- This modification does not alter the honeycomb stability

Machine time at LNL and Pd workshops has been booked for
the production of the new honeycomb in 2027
Awaiting feedback from collaboration



The background image shows a large, complex scientific instrument, likely a particle detector or accelerator component. It features a central, highly reflective, spherical metallic structure surrounded by various mechanical components, including large orange-colored hexagonal structures with circular openings. A person is visible in the lower left, working on the equipment. The overall scene is brightly lit, suggesting an indoor laboratory or industrial setting.

Thank you
