AGATA Status 12/06/2012

John Strachan

Science & Technology Facilities Council

Structure

- Highlights from the AGATA @ GSI build
- Current status
- Target Mechanism
- Agata at Ganil

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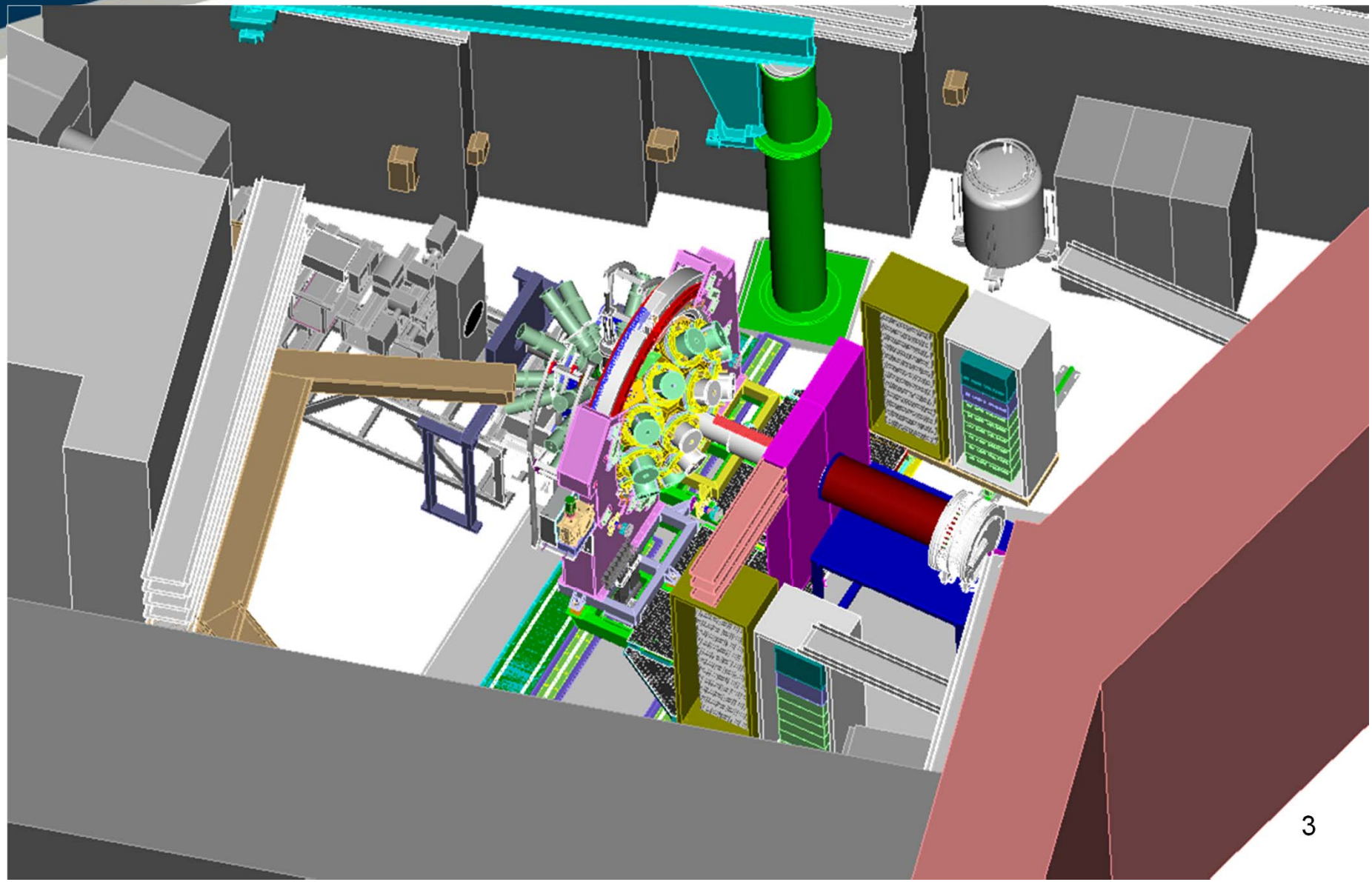
S4 Cave – the dream



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Initial Build at Daresbury

18th Jan 2012

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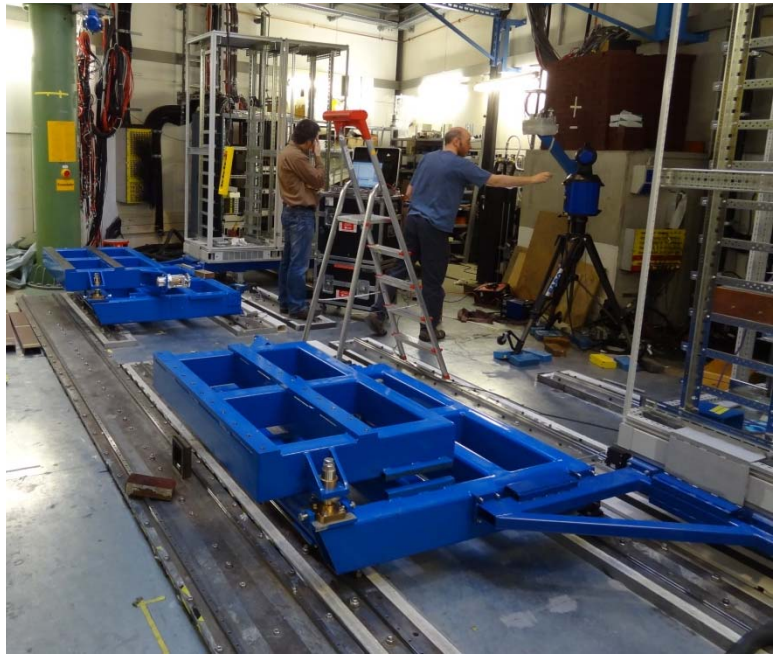
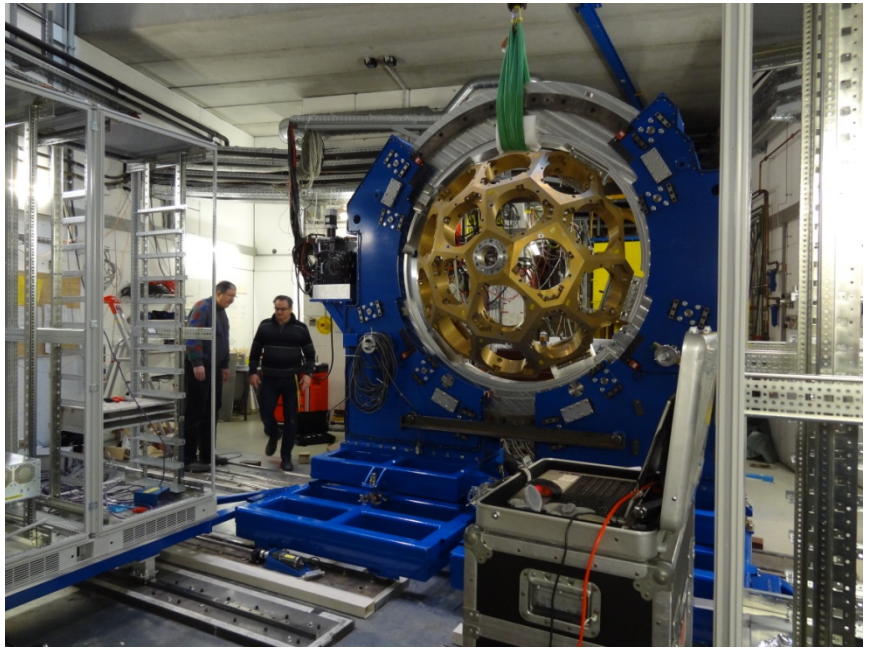
First Stage at GSI





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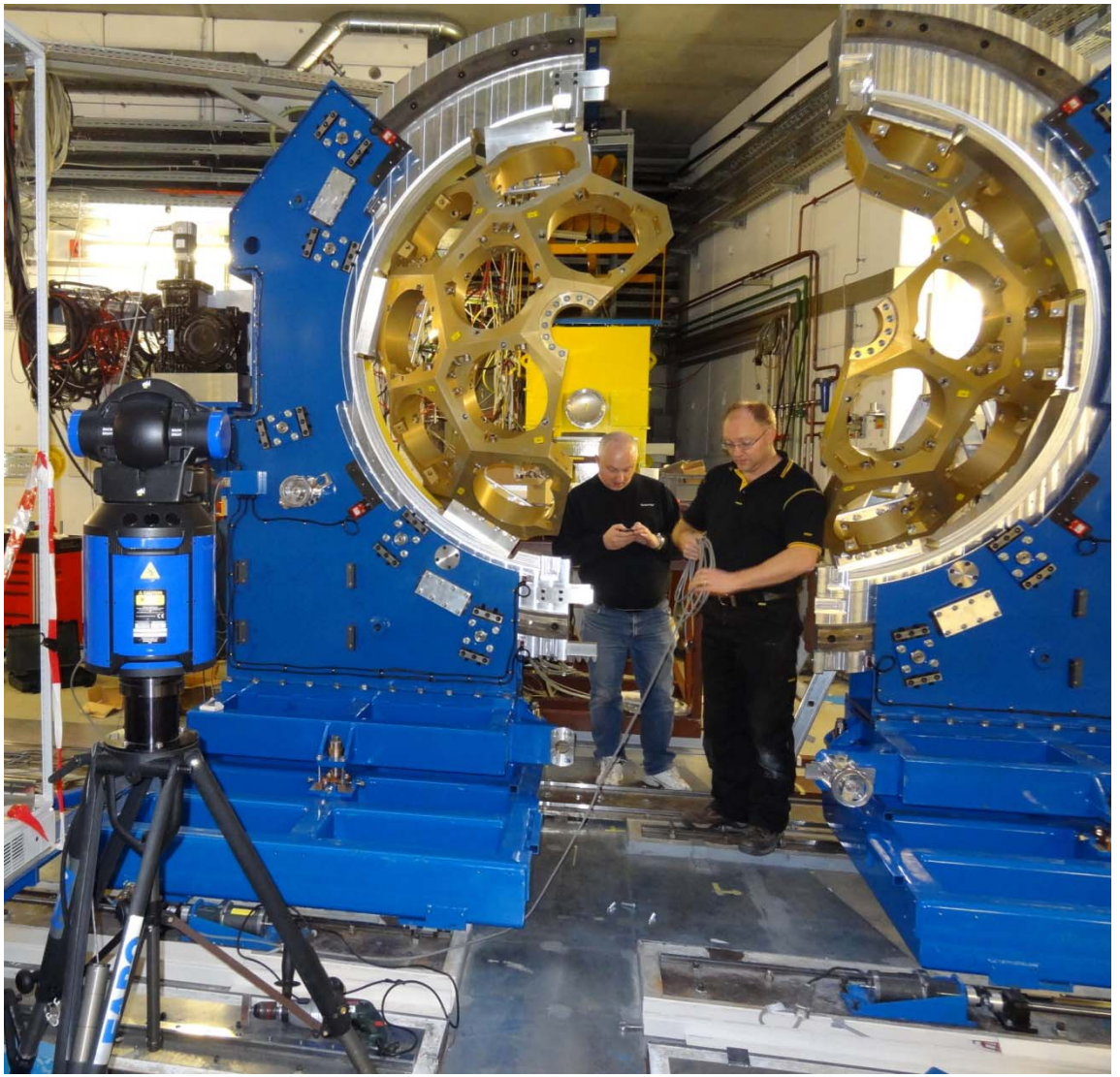
First Stage at GSI

3rd Feb 2012



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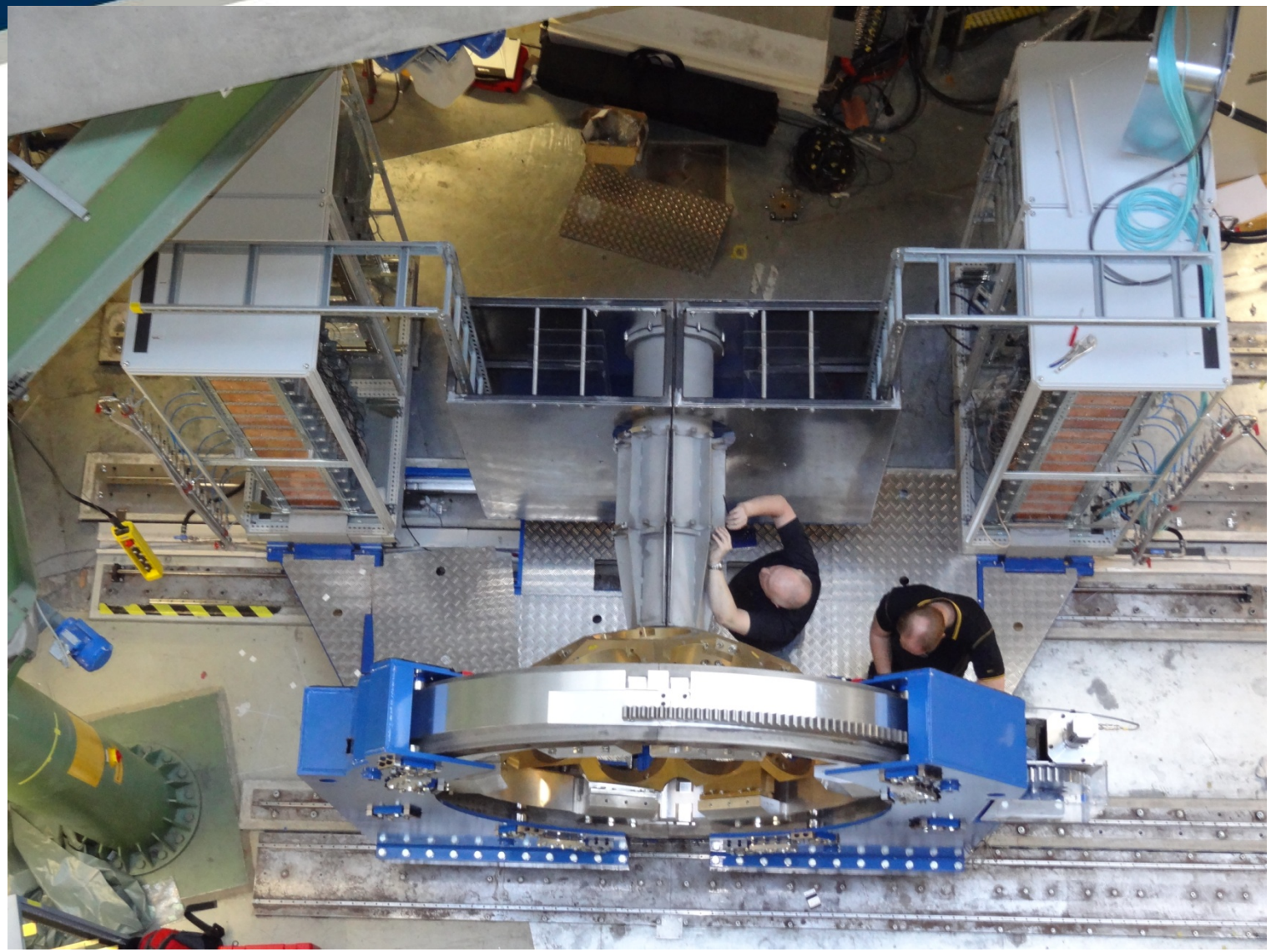
Second Stage at GSI



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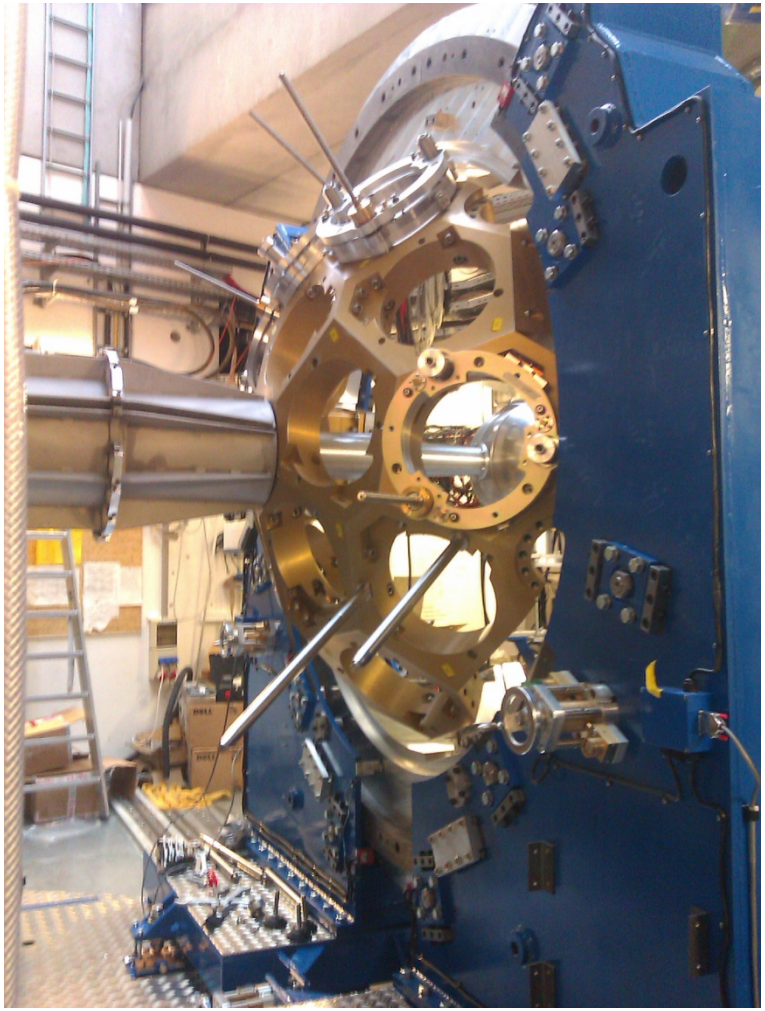
Third Stage at GSI



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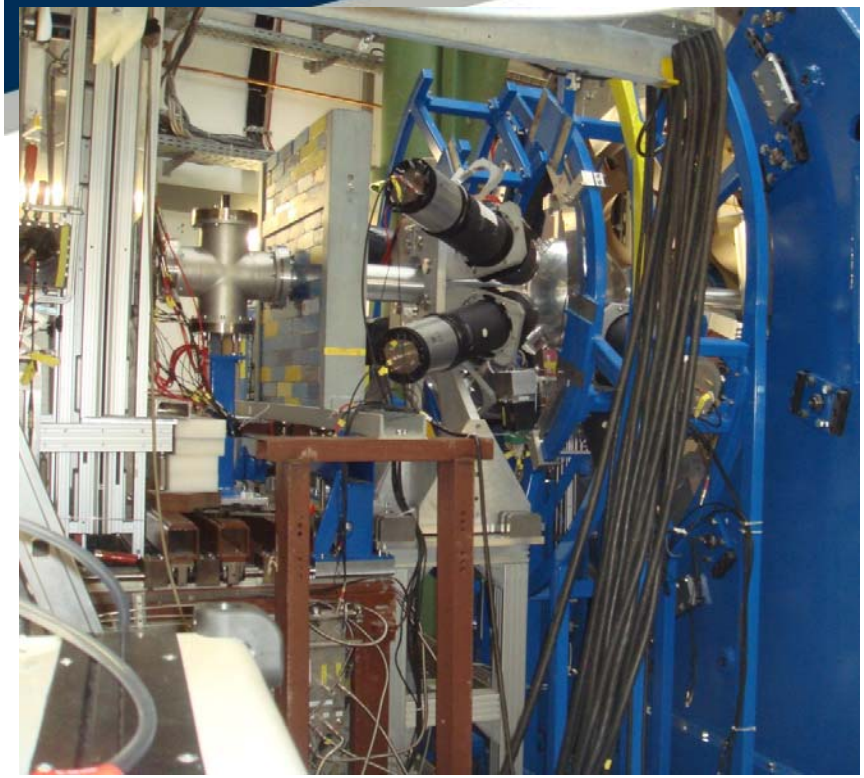
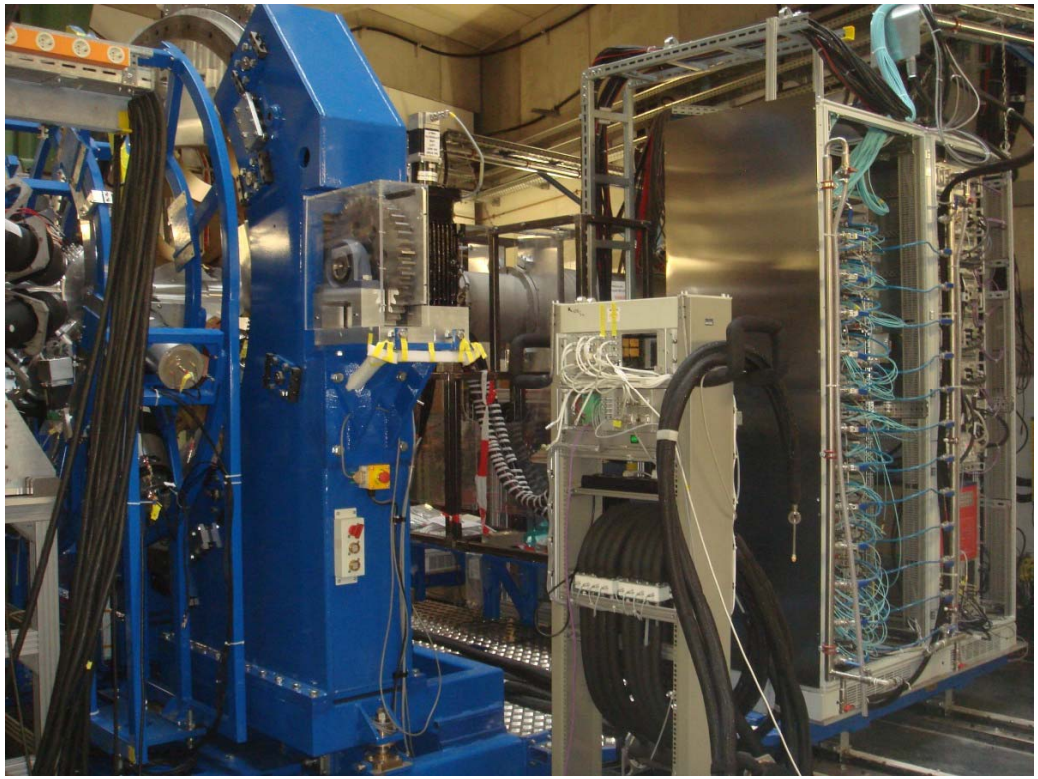
Current status at GSI





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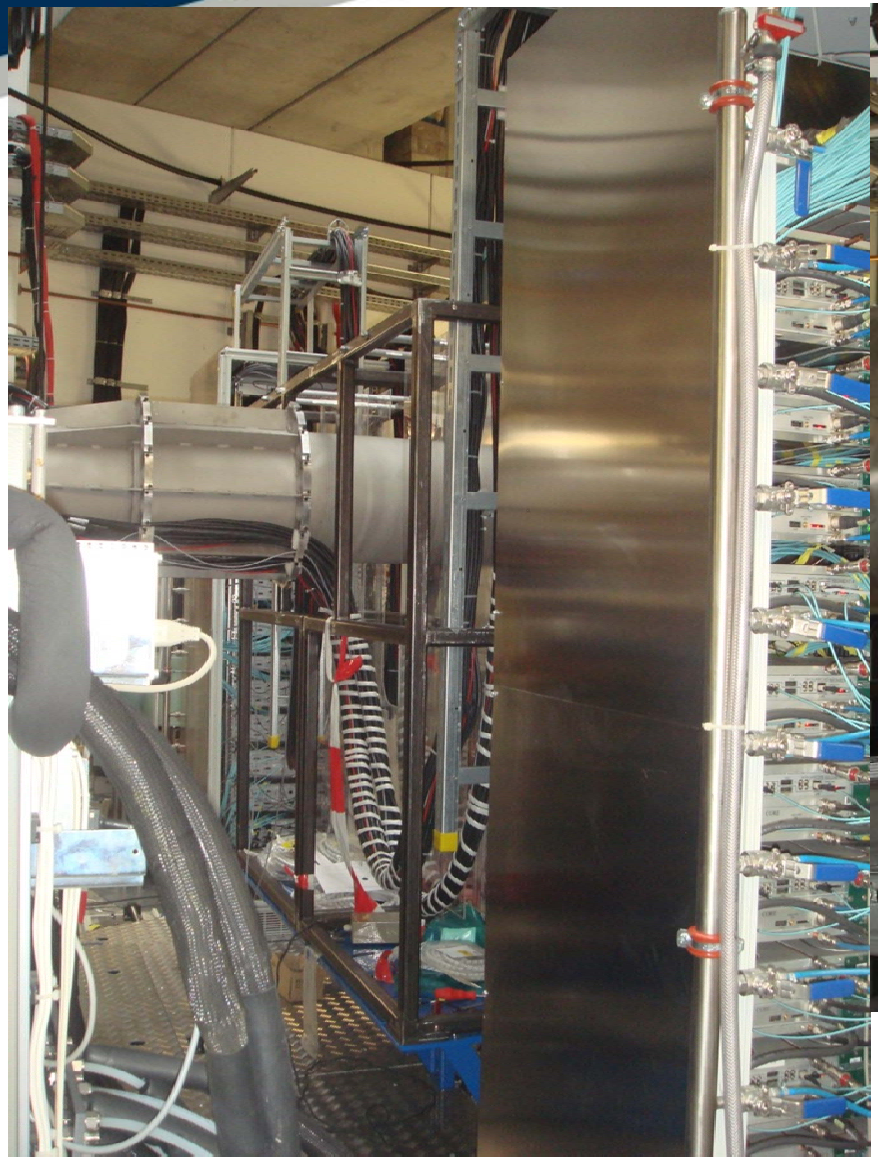

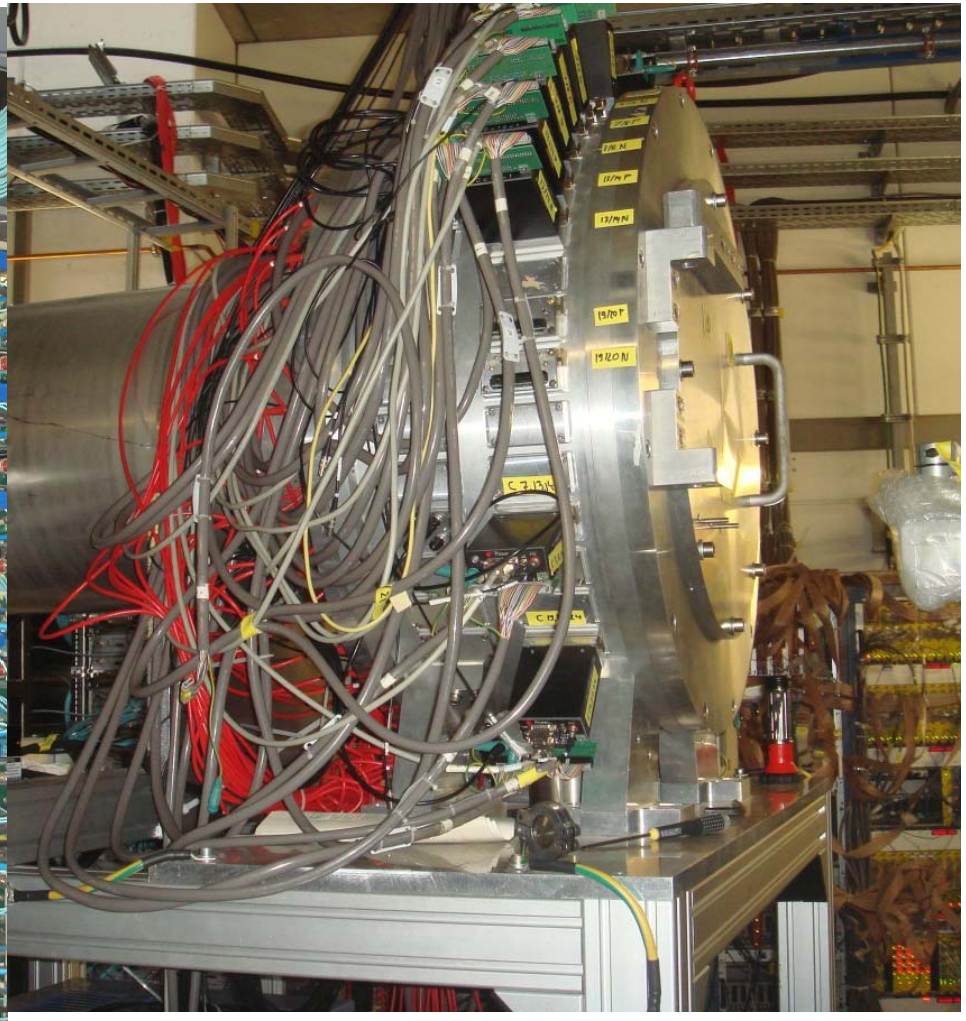

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Thanks

Robert Griffiths – Design
Ian Burrows – Design
Paul Morrall – Assembly

Bogdan Szczepanczyk – Assembly
GSI Machine Shop

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Target Changing Mechanism

AGATA @ GSI

June 2012

by **Andy Smith** presented by **John Strachen**

Discussion Areas

- Specification
- Design Solution
- Linear and Rotary motion feedthroughs
- Manufacture, Testing and installation

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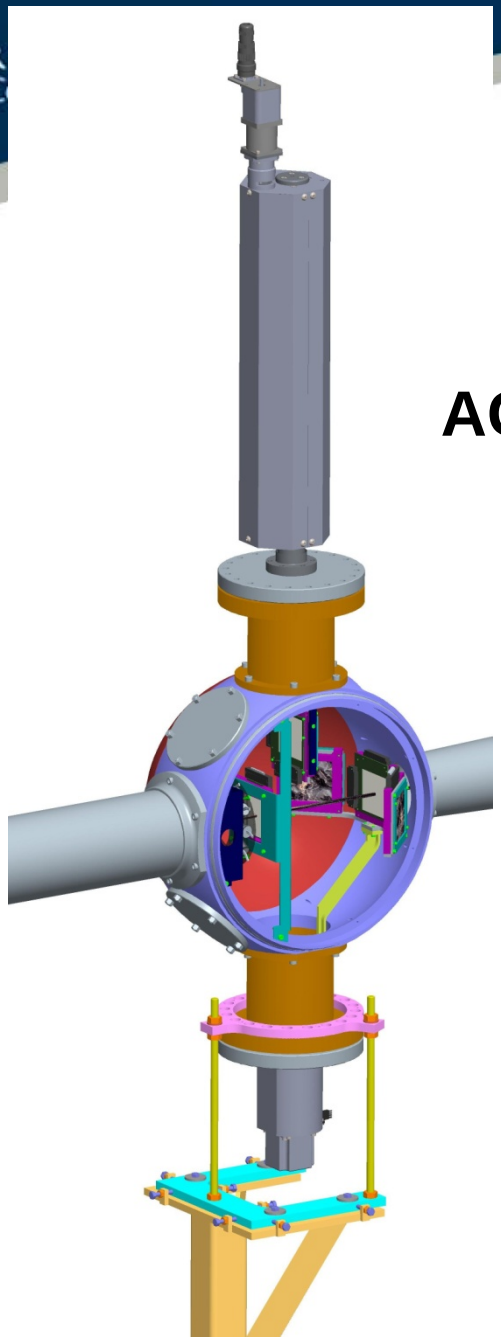
Specification

- Fixed existing Scintillator Assembly 110mm (approx) from centre
- Fixed DSSD Detector 60mm (approx) from centre
- Rotation Arm with
    a) DSSD and thin target foil
    b) DSSD with no cables
    c) Thick ‘stopper’ target
    d) ‘Nothing’
- Linear Arm with
    a) DSSD with no cables
    b) DSSD with thin target foil
    c) ‘Nothing’

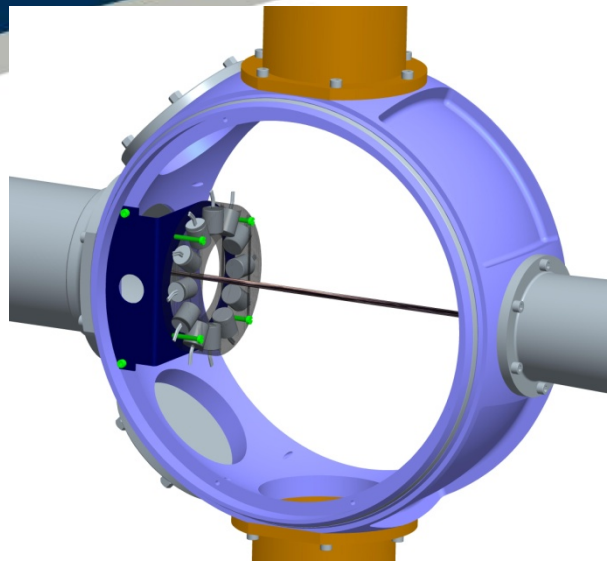
    OR

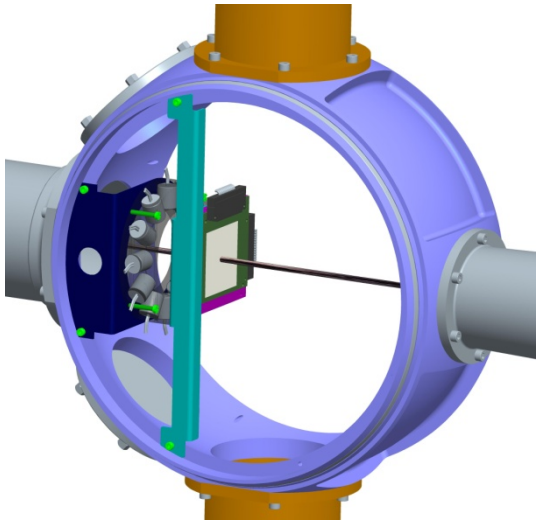
    a) 3 thin target foils
    b) ‘Nothing’



AGATA Target chamber Assembly

- Remote controlled vertical Power Probe on top flange.
- Remote controlled Rotary Magidrive on bottom flange.
- Flanges at 45° to be used for target feedthroughs.

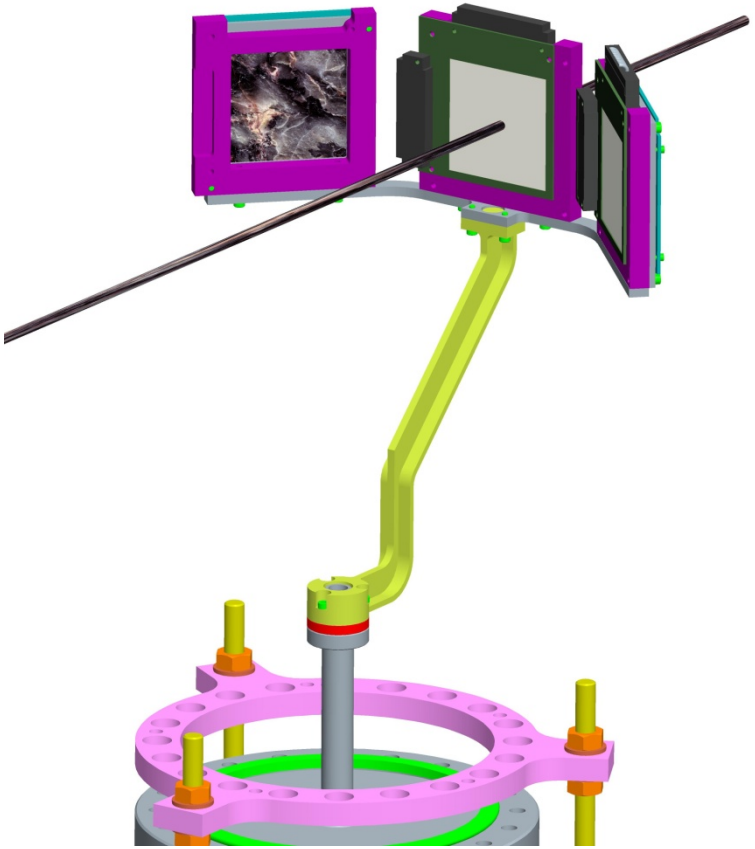




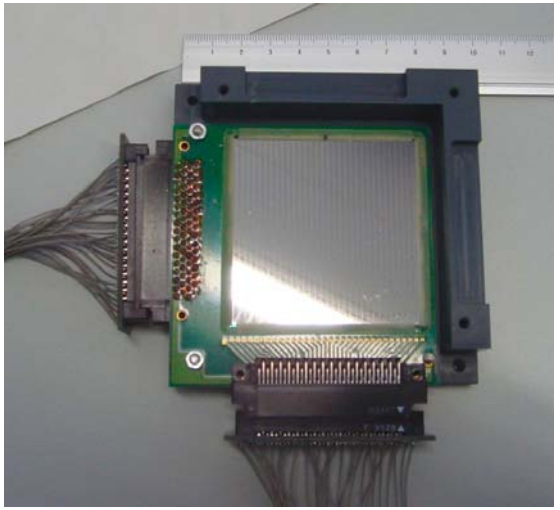
Fixed Scintillator and DSSD

- Fixed existing Scintillator Assembly 110mm (approx) from centre
- Fixed DSSD Detector 60mm (approx) from centre
- Brackets manufactured from aluminium

Rotating Arm Detectors and Targets



- Detector arrays fixed to a vertical mounted 304mm stroke UHV Design Power Probe
- Rotation Arm with (bent so the vertical target clear the arm
    a) DSSD and thin target foil
    b) DSSD with no cables
    c) Thick ‘stopper’ target
    d) ‘Nothing’



Vertical Travel Detectors and Targets

- Detector arrays fixed to a vertical mounted 304mm stroke UHV Design Power Probe

- 2 Options

  a) DSSD with no cables
  b) DSSD with thin target foil
  c) ‘Nothing’

  Note – The DSSD Detectors are off-set by 2-3mm to allow the detectors to travel inside the target chamber vertical ‘ports’

  OR

  a) 3 thin target foils
  b) ‘Nothing’

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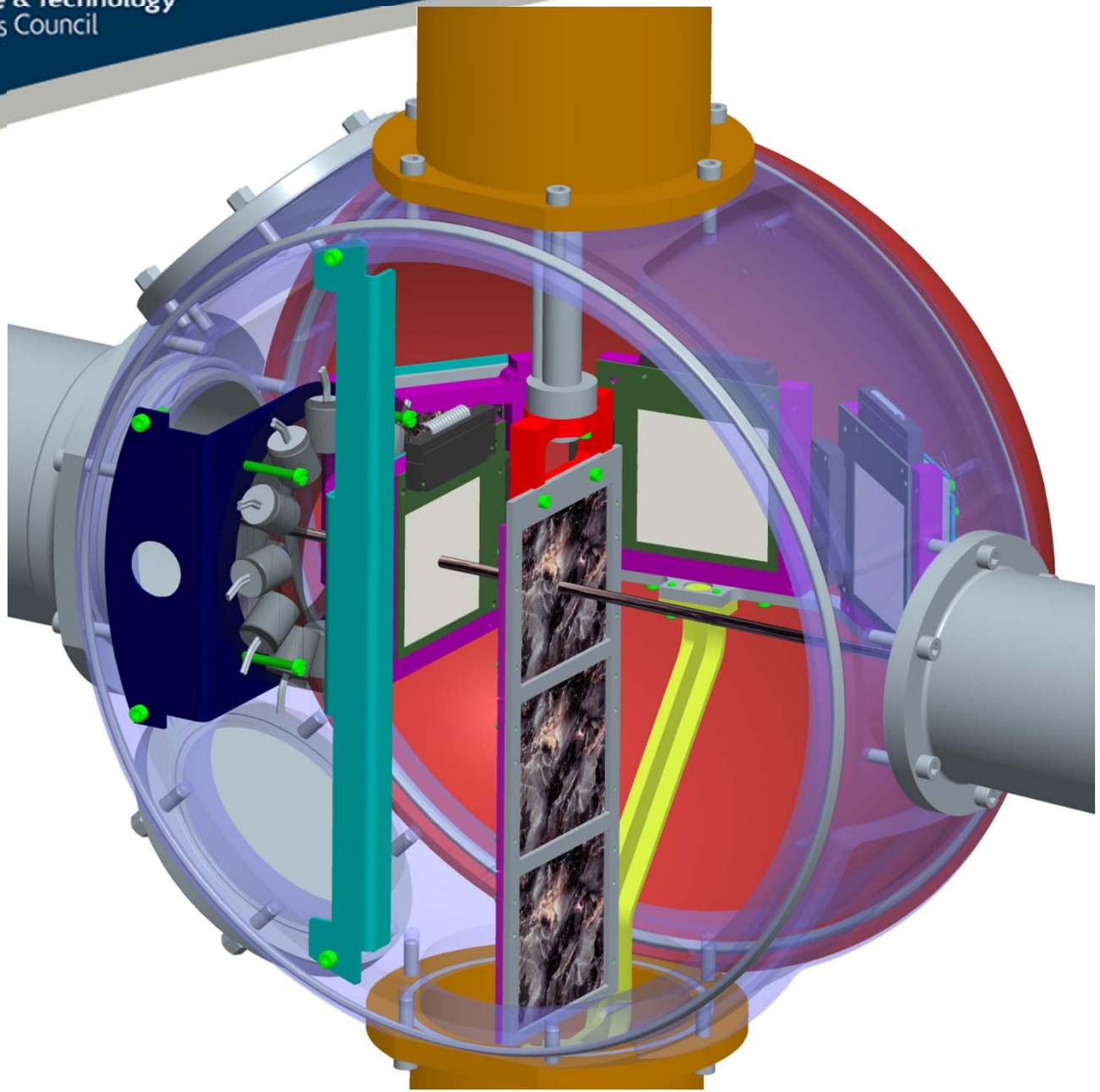
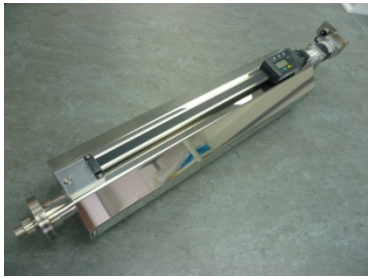
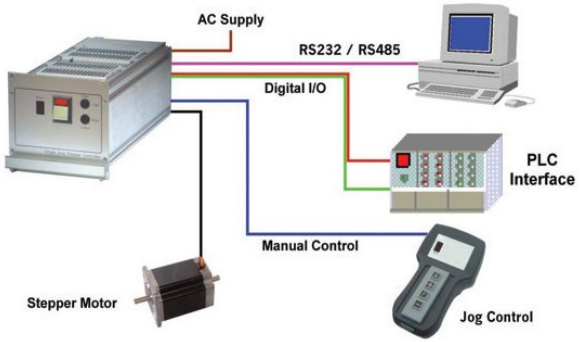


MagiDrive rotary and Power Probe feedthroughs - UHV Design Ltd





Concept
Using the latest magnetic materials technology, a large number of high flux magnetic fields interlock inner and outer rotating assemblies through a solid stainless steel enclosure.

This enclosure or ‘vacuum envelope’ is manufactured from one-piece ensuring vacuum integrity. The high density of interlocking fields ensures exceptionally high torsional rigidity. MagiDrives offer high precision rotation with zero angular backlash under low load and acceleration. All drives are fitted with magnetic shielding.

Motorised
MagiDrives and Power Probes can be driven with DC or stepper motors, and are available with a selection of motor and gearbox combinations to cover a wide range of load, speed and positioning requirements. Motors can be mounted either to the side or in-line with the drive, to suit the space available.

Motors are easily removed for bake out and have pre-set mounting brackets to ensure the correct re-alignment and belt tension is maintained when the motor is replaced.

UHV Design offer a full range of motor controllers

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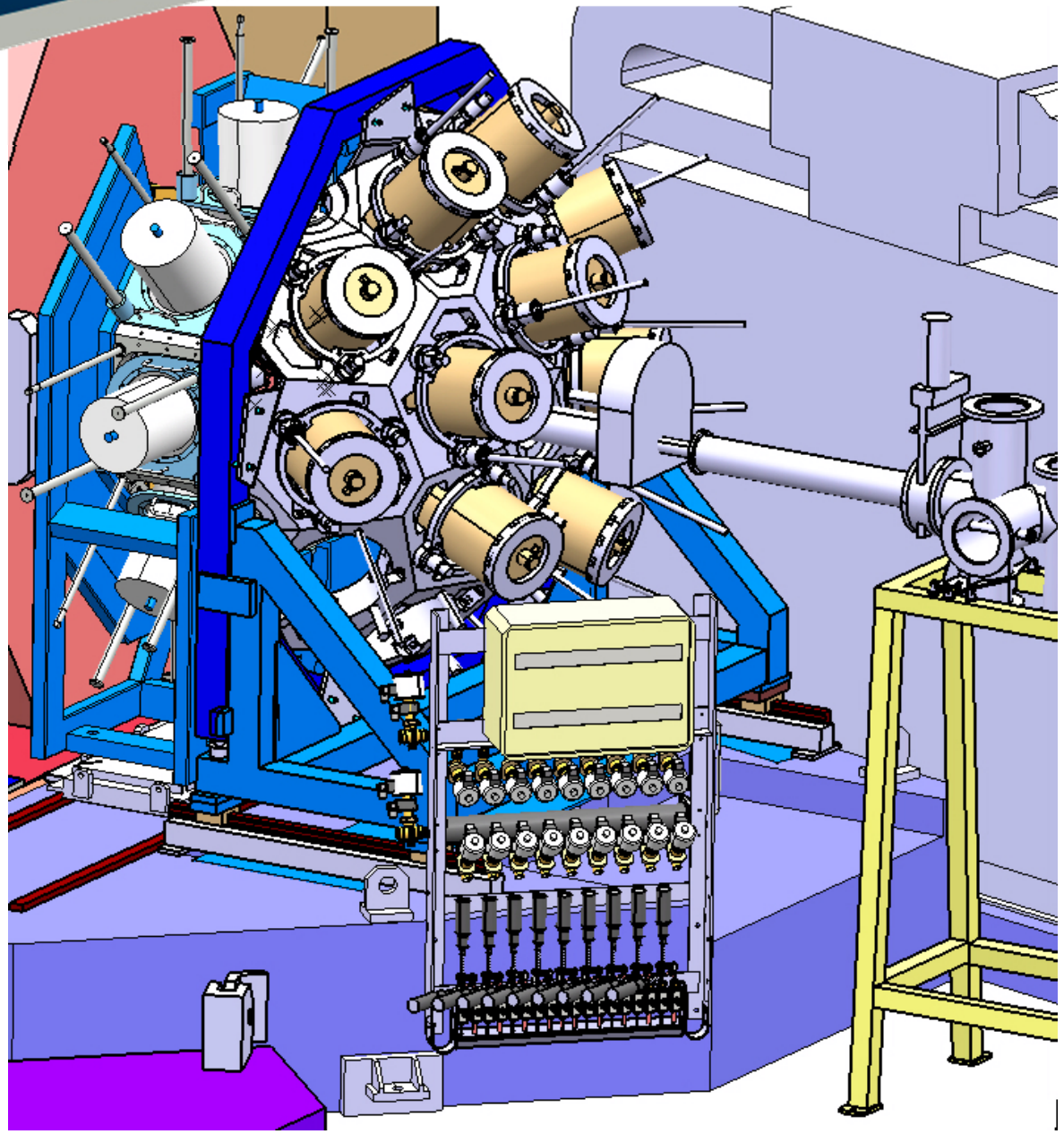
Manufacture, Testing and Installation

- Static components already delivered to GSI
- UHV rotary and linear feedthroughs plus motor controllers have been delivered to Daresbury.
- Testing of the stepper motor controllers (including limit switches) should take 4 weeks
- Delivery of UHV items and remaining components to GSI is expected some time in August.

AGATA at GANIL



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