

Optical Payload Systems (OPSys) facility

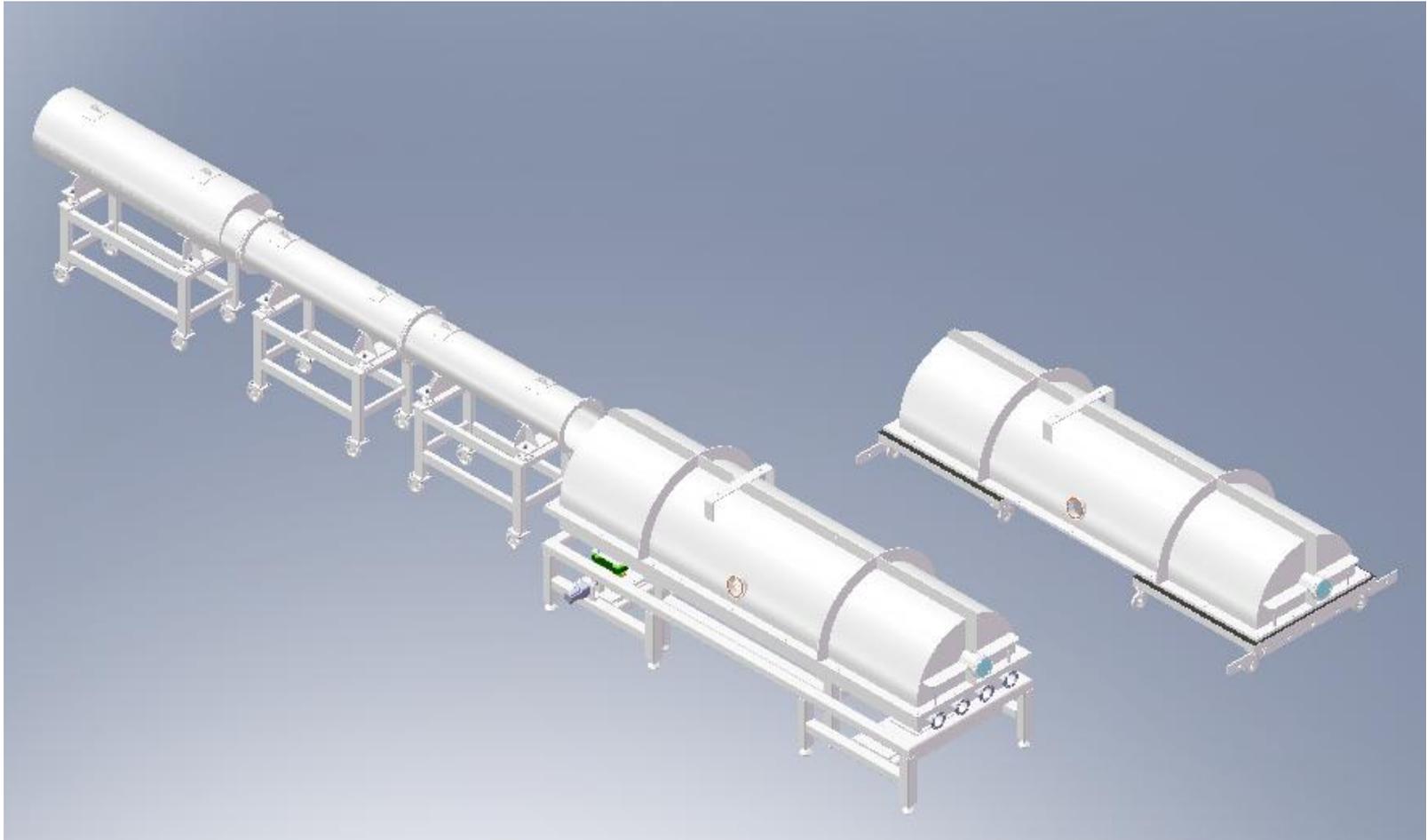
METIS 2° Sci. And Tech. Meeting,
Torino, 13-12-2012

Giuseppe Massone
INAF-OATo

Optical Payload Systems (OPSys) facility

- **Project founded by Regione Piemonte, 2005, with contribution from ALTEC, OATo-INAF and ASI**
- **Collocation in ALTEC in a ISO 5-6 clean room**
- **Test and calibration of space and ground instrumentation in V, UV, EUV and (possibly) IR spectral bands**
- **operational from end 2011**

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Main facility is:

SPOCC: Space Optics Calibration Chamber

Built by ALCA Technology Srl di Schio

Test chamber dimensions: 1080 x 4000 x 880 mm

Pipe line plus pump section total length: 6500 mm,
with diameter 400 mm for 4500mm,

Whereas the source section of 2000 mm has a diameter of 600 mm

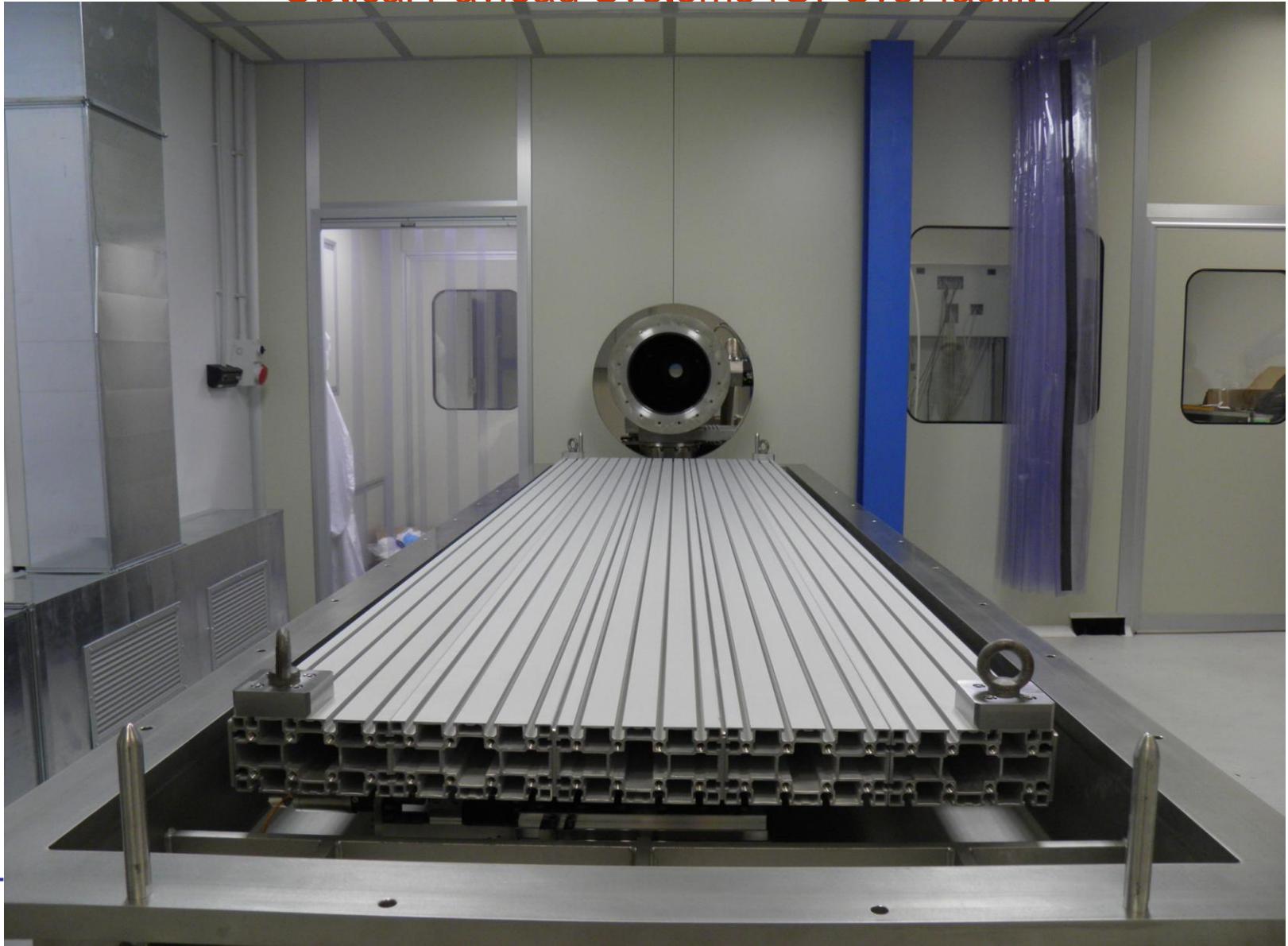
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- SPOCC can be operated in air (clean to the ISO 5-6 level) as well as in vacuum for the UV and EUV.
- The pumping system (two roughing Scroll and two high vacuum turbo) can go down at 5×10^{-5} mbar in one hour; the 1×10^{-5} mbar level is reached after 6-7 hours
- The chamber total volume is about 4.4 cubic meters
- Servo gate valves pneumatically controlled can separate the pumping section to the chamber

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The useful volume that can be accommodated on test section optical bench is:

$$900 \times 3500 \times 550 \text{ mm}^3$$

The optical bench is suspended on three actuators permitting a large range of movement to co-align the instrument to the source in vacuum:

The movement ranges are:

For the two front actuators:

+/- 20 mm in vertical

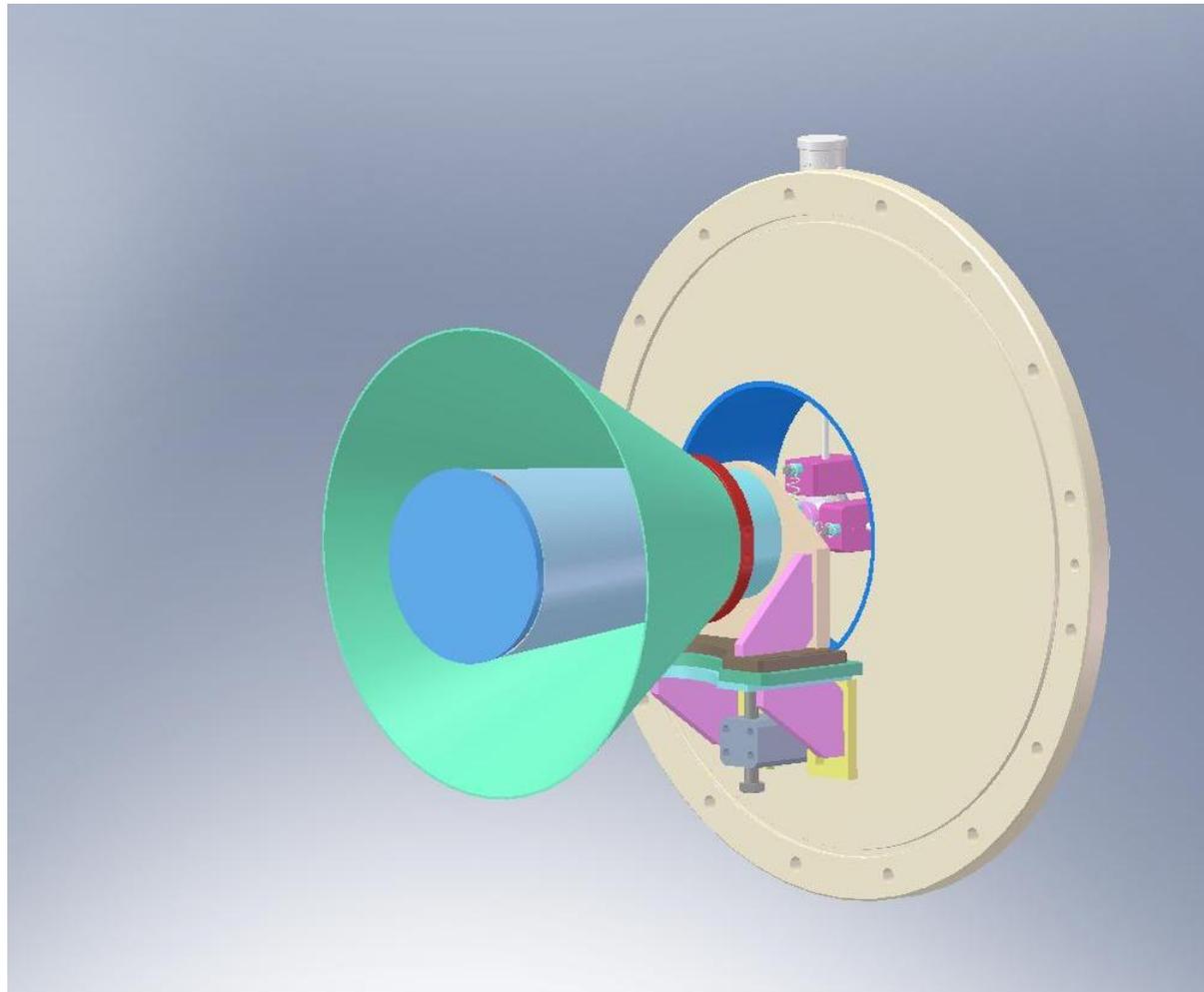
+/- 20 mm in horizontal

For the back actuator:

+/- 30 mm in vertical

+/- 30 mm in horizontal

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Possible configuration for the METIS test campaign:

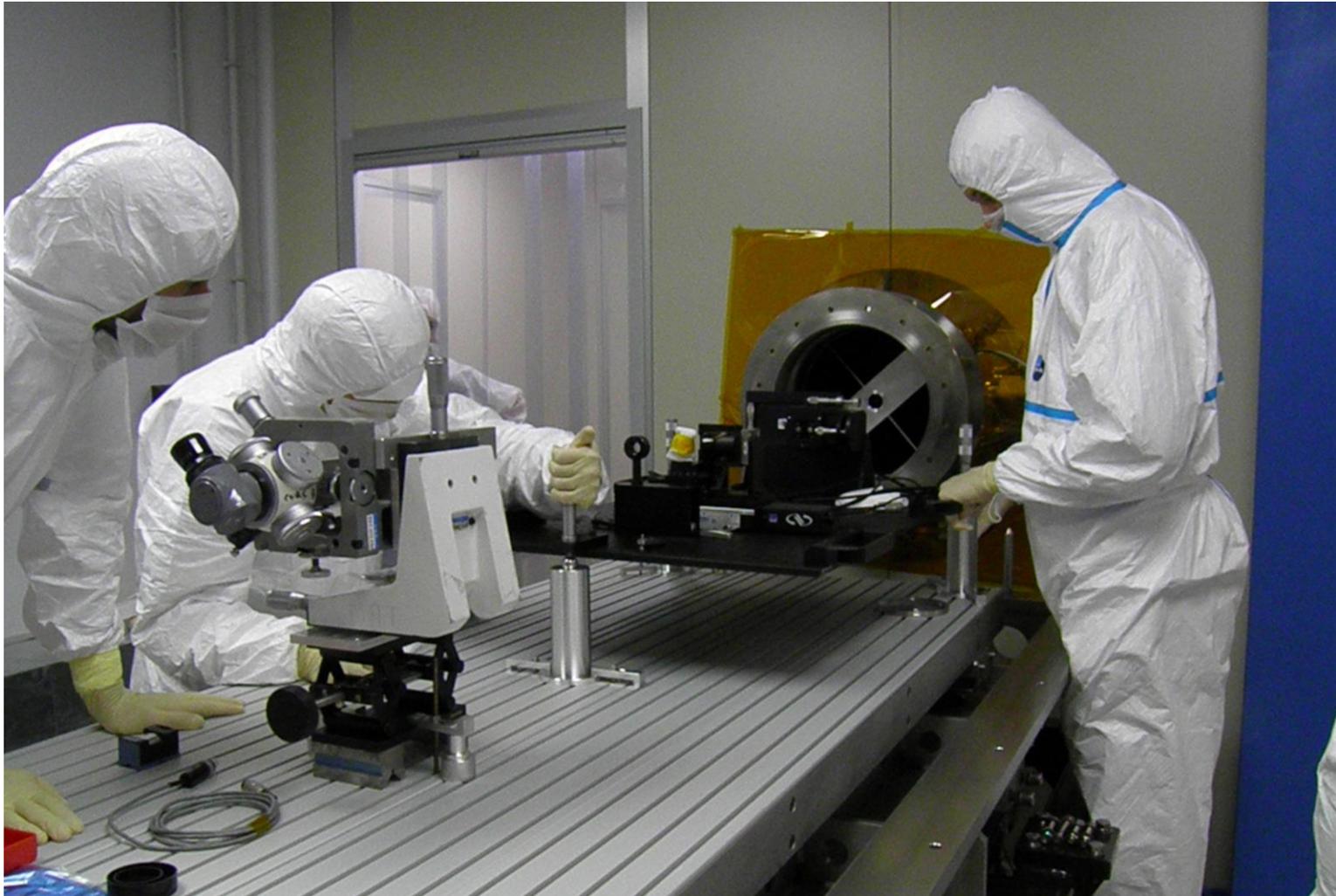
- Sun at infinite conjugate with collimated beam on entrance pupil
- Sun at finite conjugate, with (annular) Sun image focused on entrance pupil
- A pipe line section of 2000 mm can be removed to accommodate the relative conjugates
- available at present a refractive collimator for visible light operated in air

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A first stray light test campaign has been conducted in past June by people from Laboratoire d'Astrophysique de Marseille, (LAM) University of Florence and INAF-OATo with the RSD (Rosetta Stone Device) built at LAM.

Results are very promising, showing that the OPSys facility has quite comparable performances with the similar facility (operated in air only) collocate at LAM.

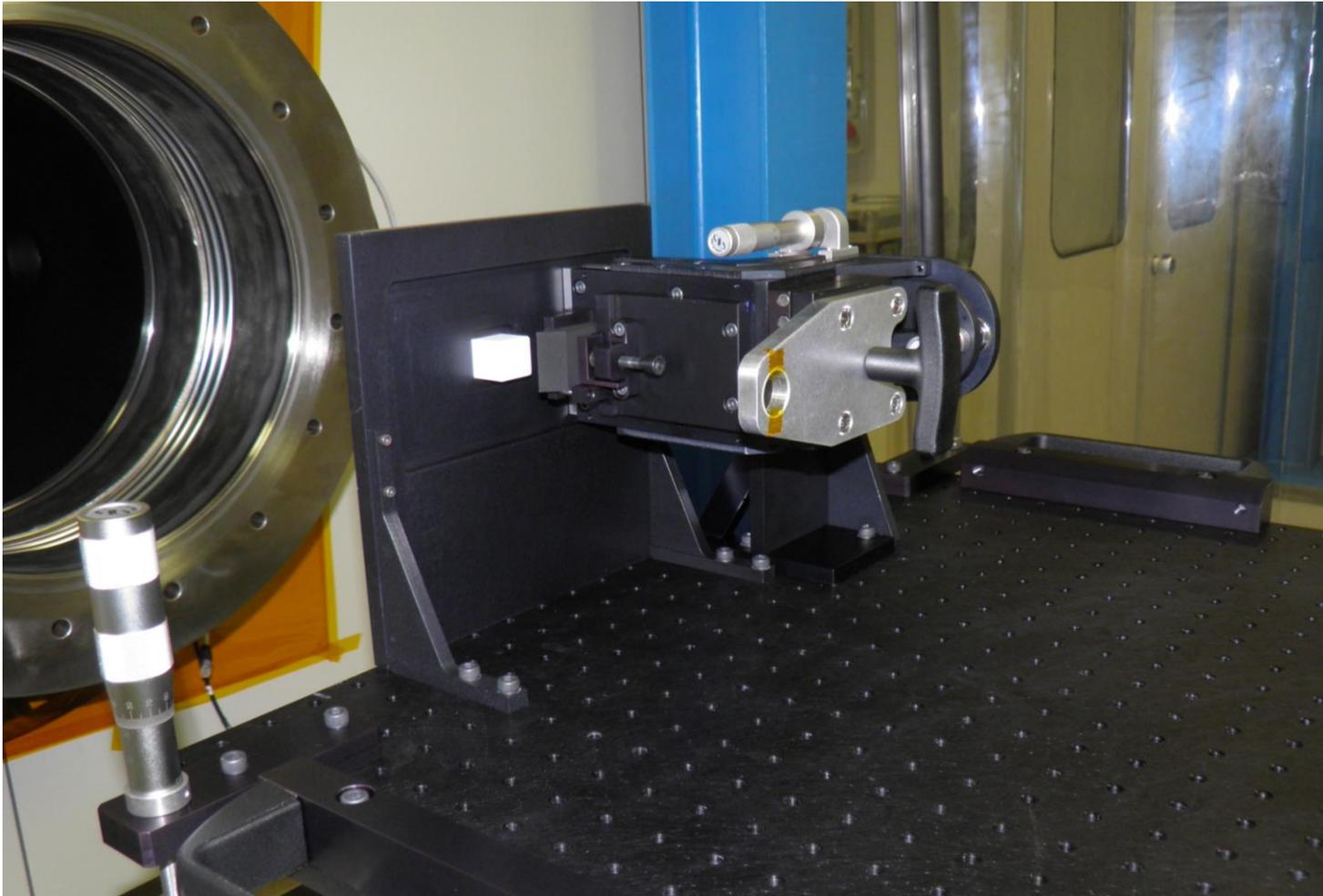
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