

TK update on PETER



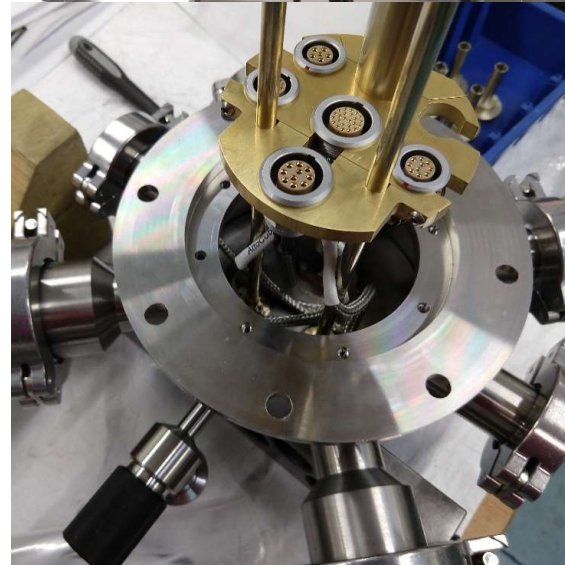
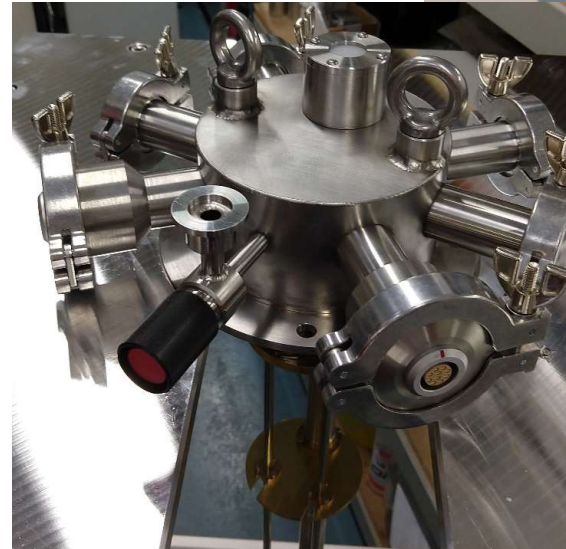
Alisa Leavesley
01/10/2019



1st gen. probe has been shipped
to BUT for SPM head install

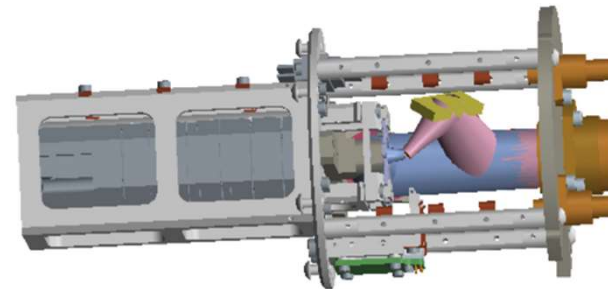


- Wiring as specified by BUT for SPM
- Wiring for up to 4x temperature sensors
- Wiring for modulation coil
- 1x spare electrical connector



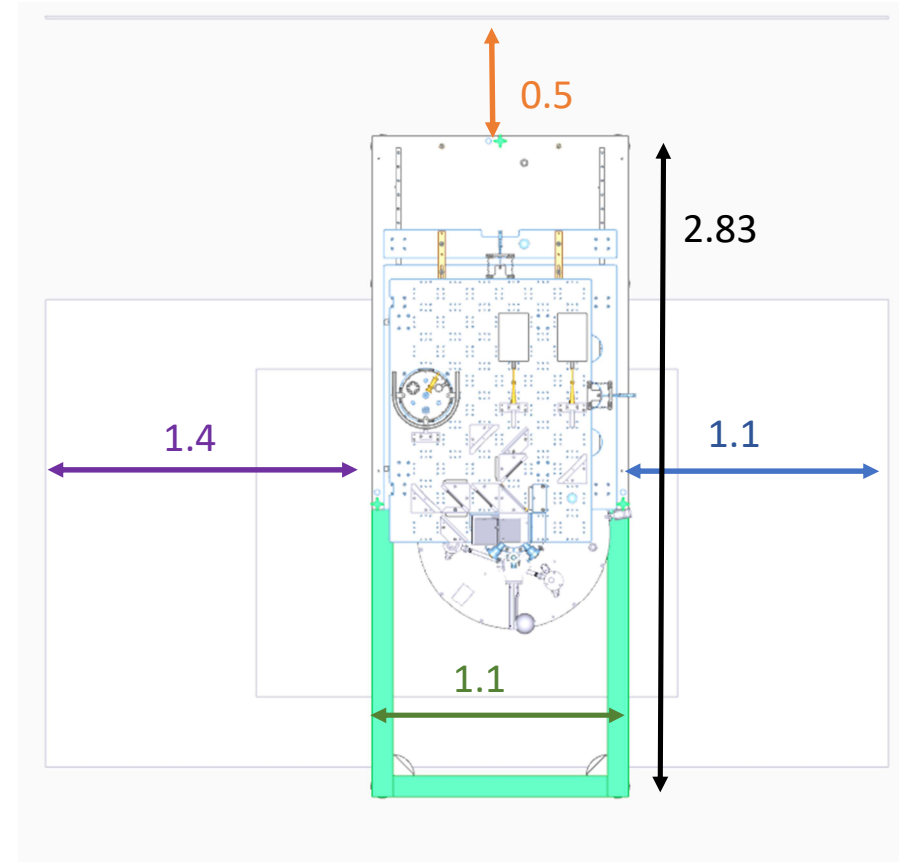
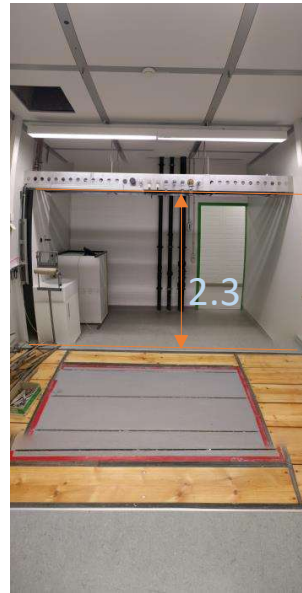
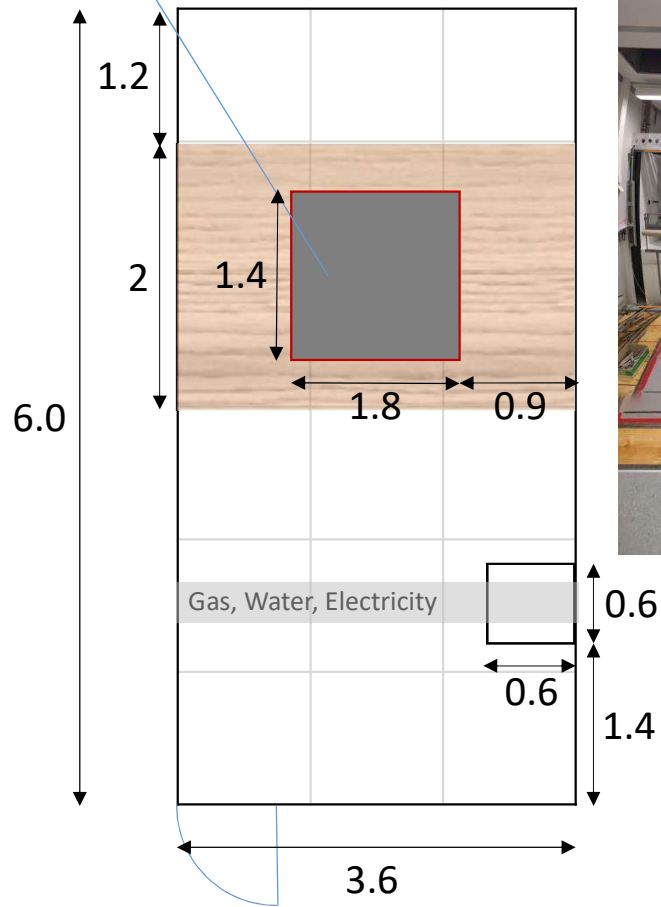
TK to do list for probe

- Modulation coil
 - Support for coil – issue with material (G10) delaminating during machining – supplier is remaking material (this is a batch issue)
 - Wind coil and attach to probe
- Probe/Sample temperature control/monitor
 - Mount and wire sensors (ordered 3x) – should arrive 02/10/19 (Cernox)
 - Temperature controller (arrived) – load sensor calibration files (Mercury iTC)
- First optical approach – attach mirrors to probe (must be done after SPM head is installed)
- Second optical approach
 - Finalize mirror placement/size
 - Manufacture mirrors and plate



Space for system in USTUTT

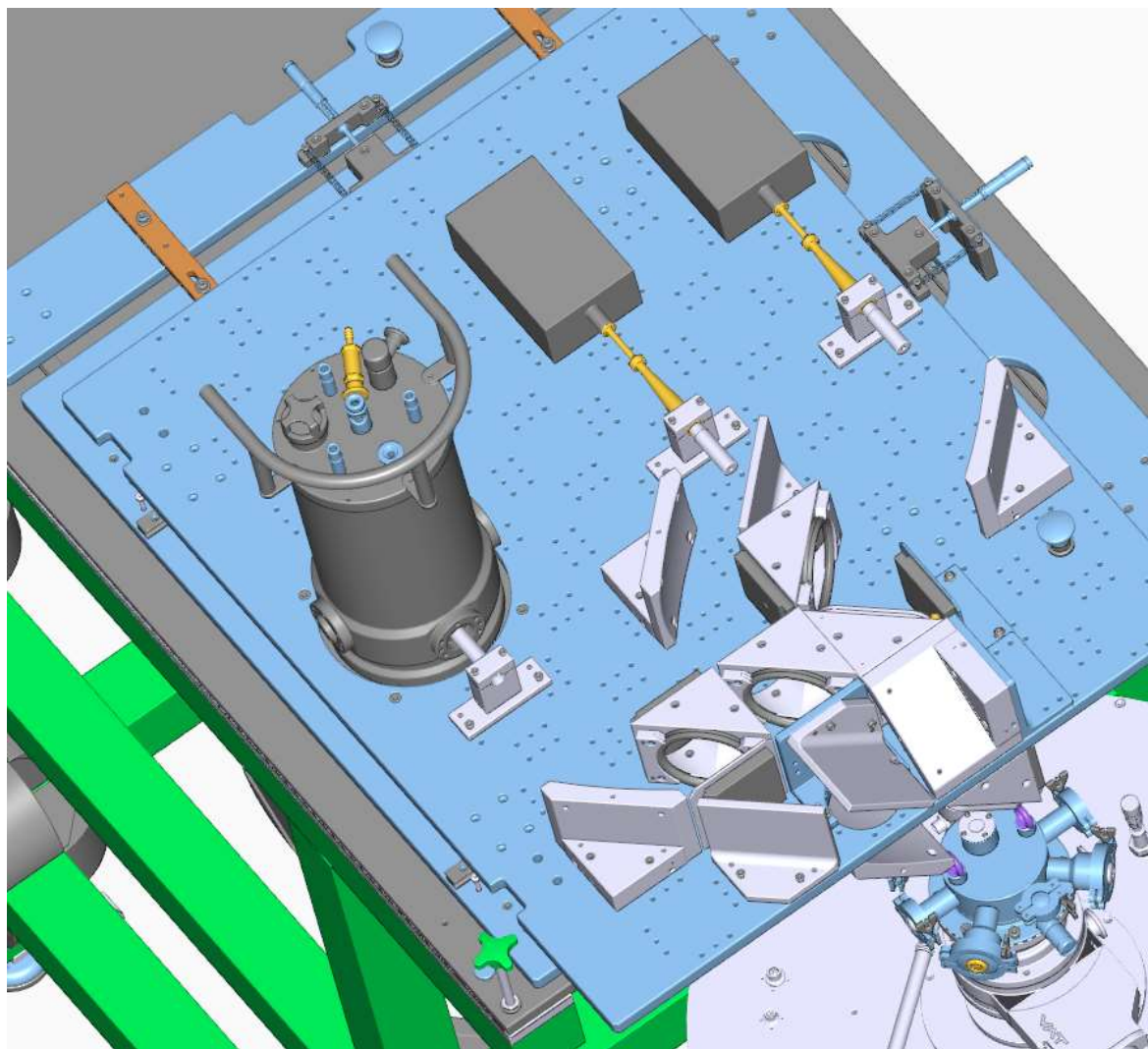
vibration-damped
block



All dimensions in Meter

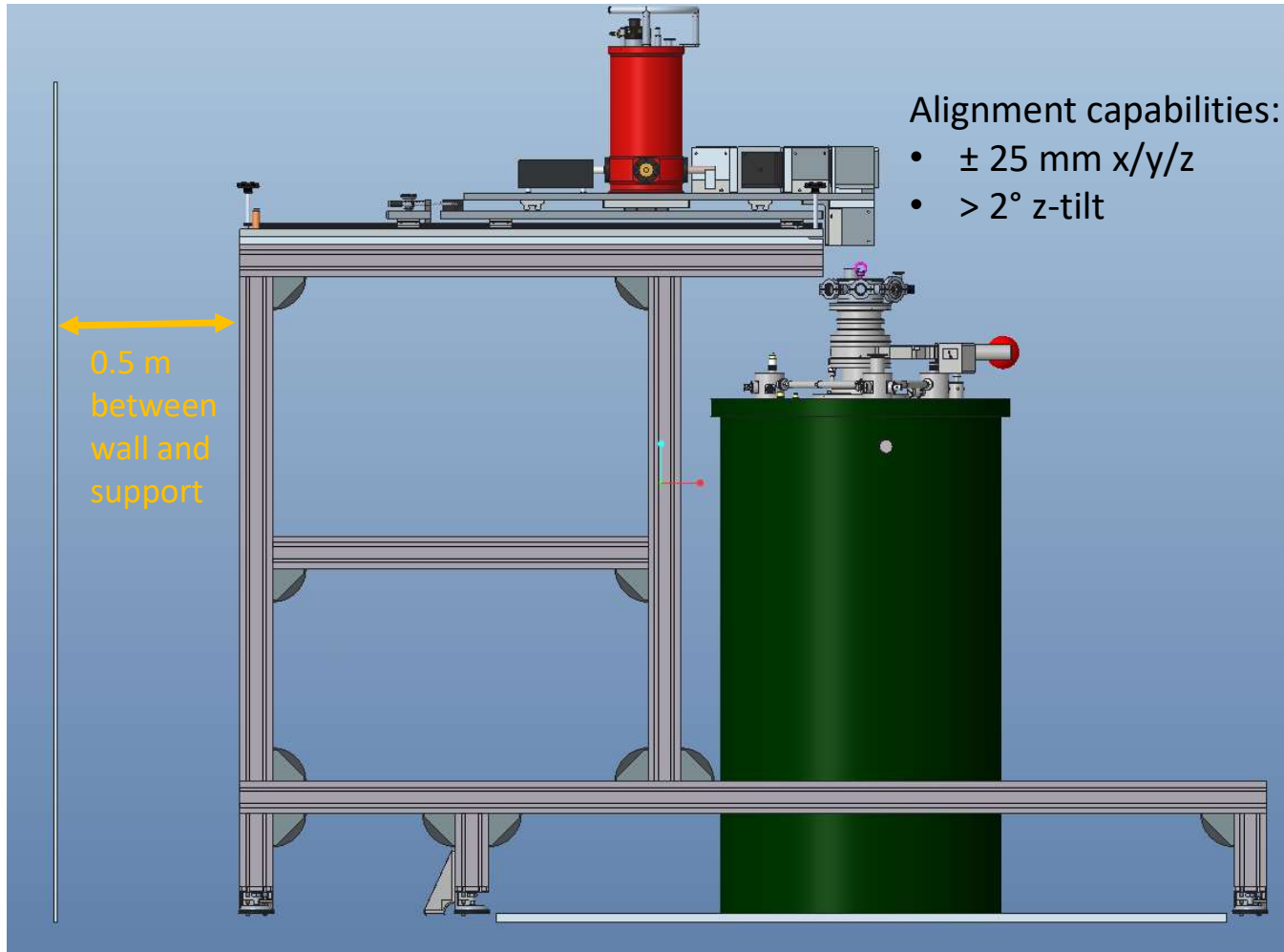
Ceiling height 3.0 m plus 1 m space above dropped ceiling

Quasi optical bridge design (shown previously)

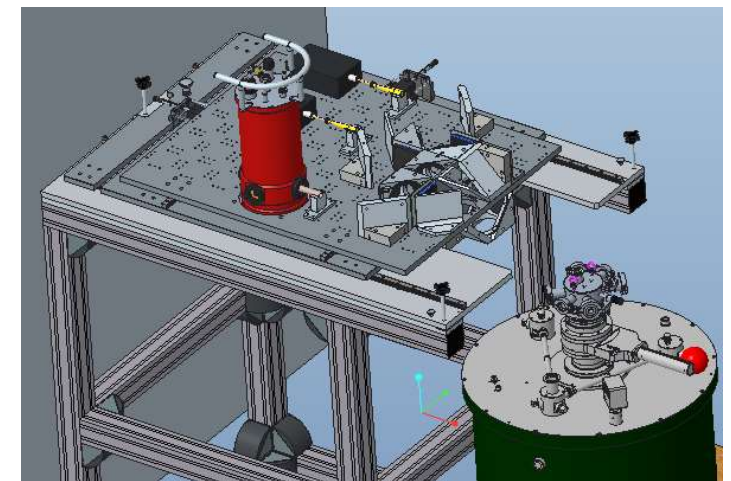
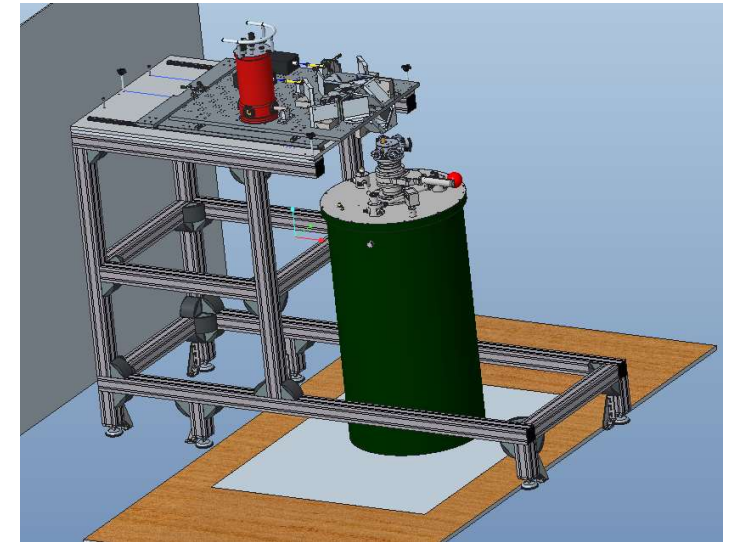


Optics inverted from previous design to allow easier access for cryogenics from door of room

QO bridge and support structure has been designed



Total weight: ~ 420 kg Structure: ~ 140 kg



Status of QO bridge and support structure

Completed

- Design
- Ordered all raw materials and components
- Manufactured all optical components except for horns

In-Progress

- Manufacture of support structure
- Optical bridge baseplates – 6 week lead time (ETA 4/11/19)

To do

- Manufacture horns (at least 4 months) – use USTUTT horns temporarily
- Test assemble system at TK
- Ship to USTUTT
- Assemble system on site (hopefully early-mid November)

To discuss

- Installation – heavy lifting equipment available

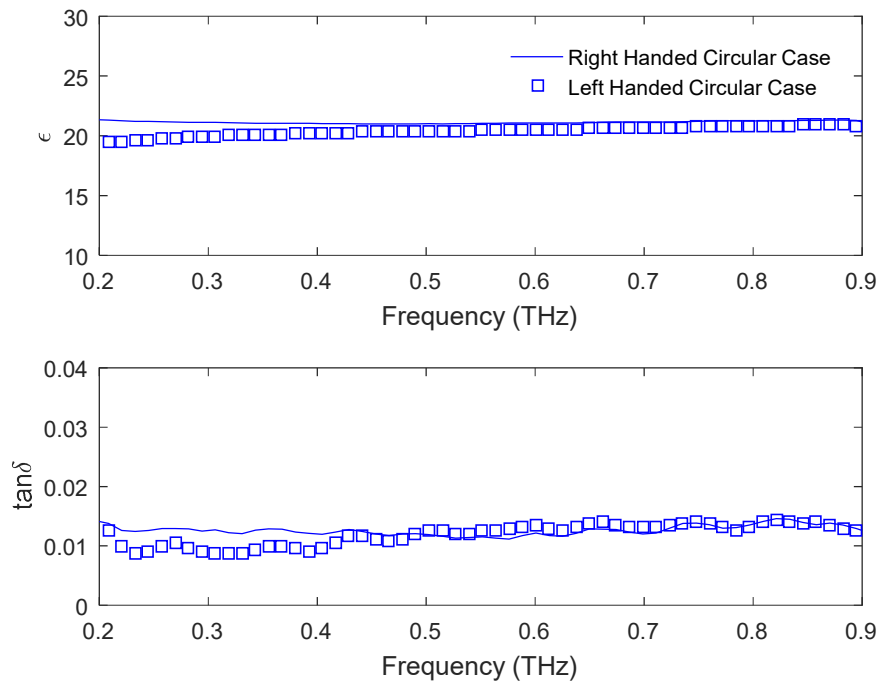
AWG/PC/Software status & development



- AWG arrival and upgrades
- Hired personnel to work on software integration – Bartosz Czaban
- Data upload to AWG from LV is slower than anticipated
 - Work to resolve issue is underway with Tektronix and Bartosz
- Remote access to computers/AWG – TeamViewer
- PC to run system ?

Ferrite material for Faraday rotators (FR)

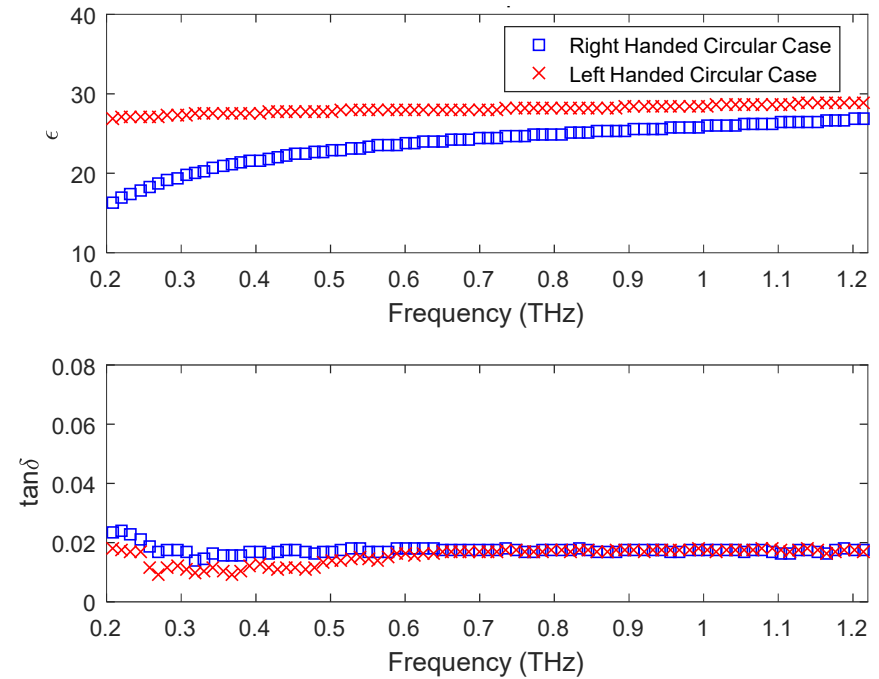
Current TK material for FR



100 x 100 x 2 mm tile

$$\epsilon = \eta^2$$

Material in development



12 mm \varnothing x 1.3 mm tile

Industry meeting M32

- Combine with pre-existing EPR conference (TK customer base) – special session in conference
- Invite additional industrial partners to attend
- Possible options:
 - RSC EPR – 53rd 2020 (29 March – 2 April) Manchester, UK
 - EUROMR - 16th 2020 (5 - 9 July) Bilbao, Spain
 - RMC – 61st 2020 (20-24 July) Copper Mountain, CO, USA
 - EPR Biodose (1-5 November) Okayama, Japan

