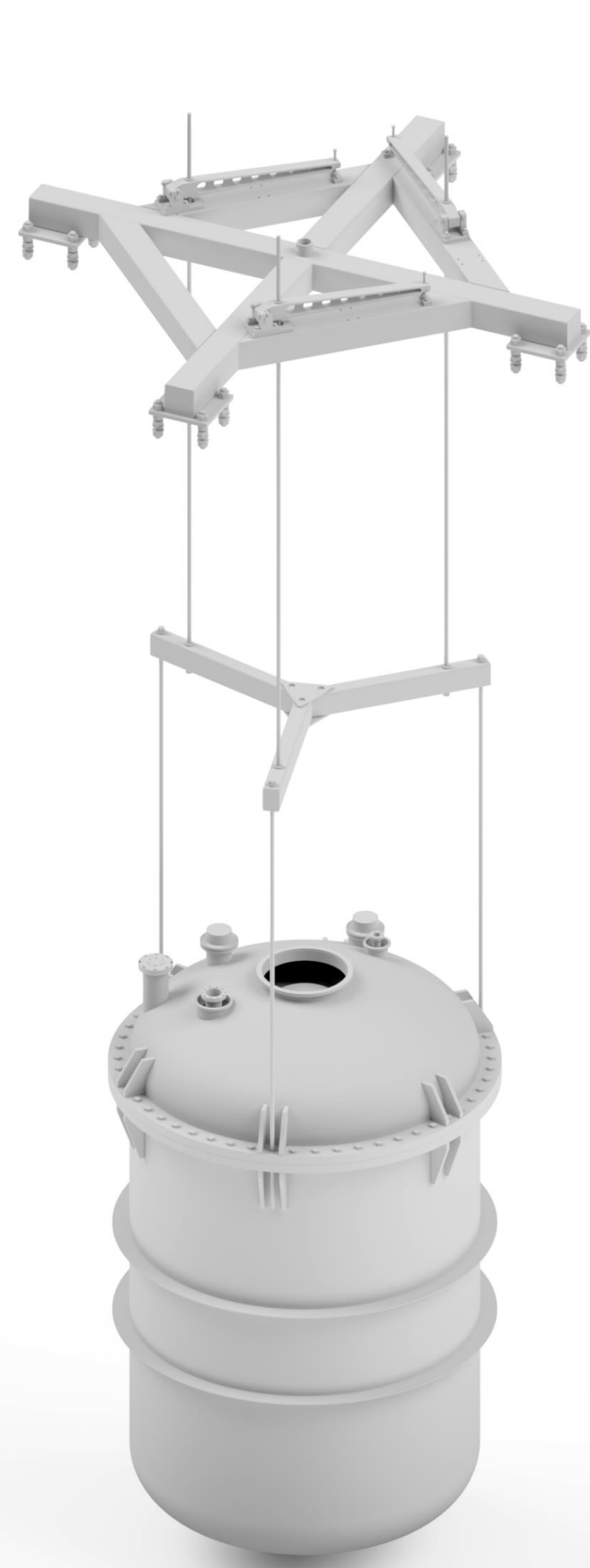


Provisional Design of the XLZD Cryostat Suspension and Levelling Systems for Boulby Underground Laboratory

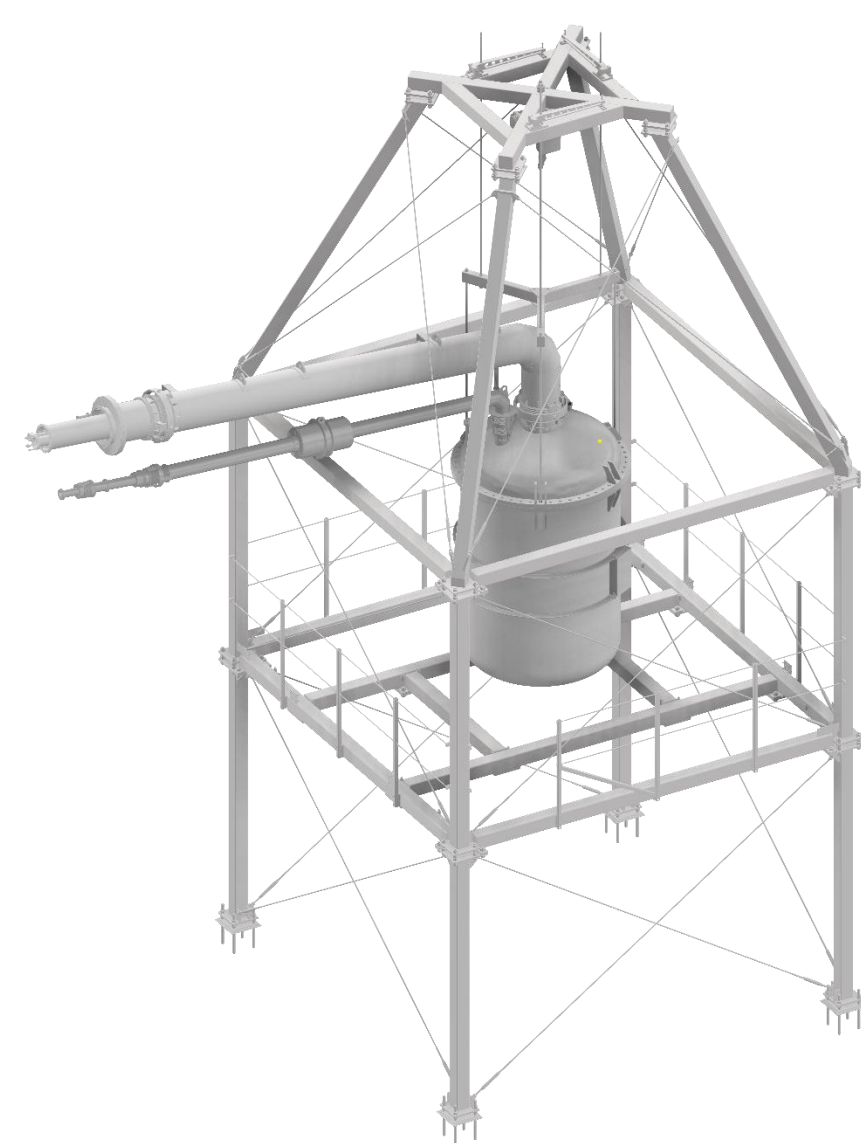
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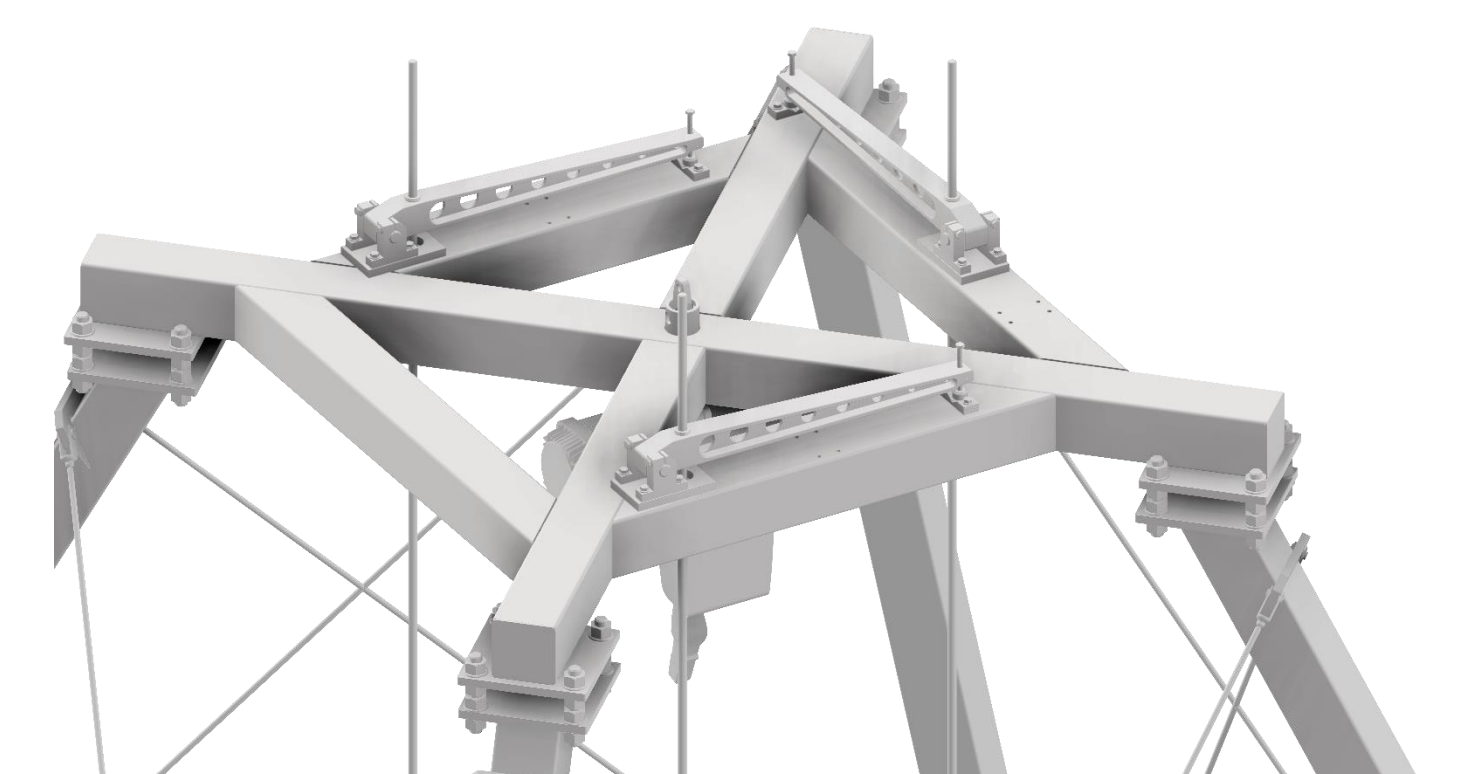
XENONnT suspension
10t of Xenon



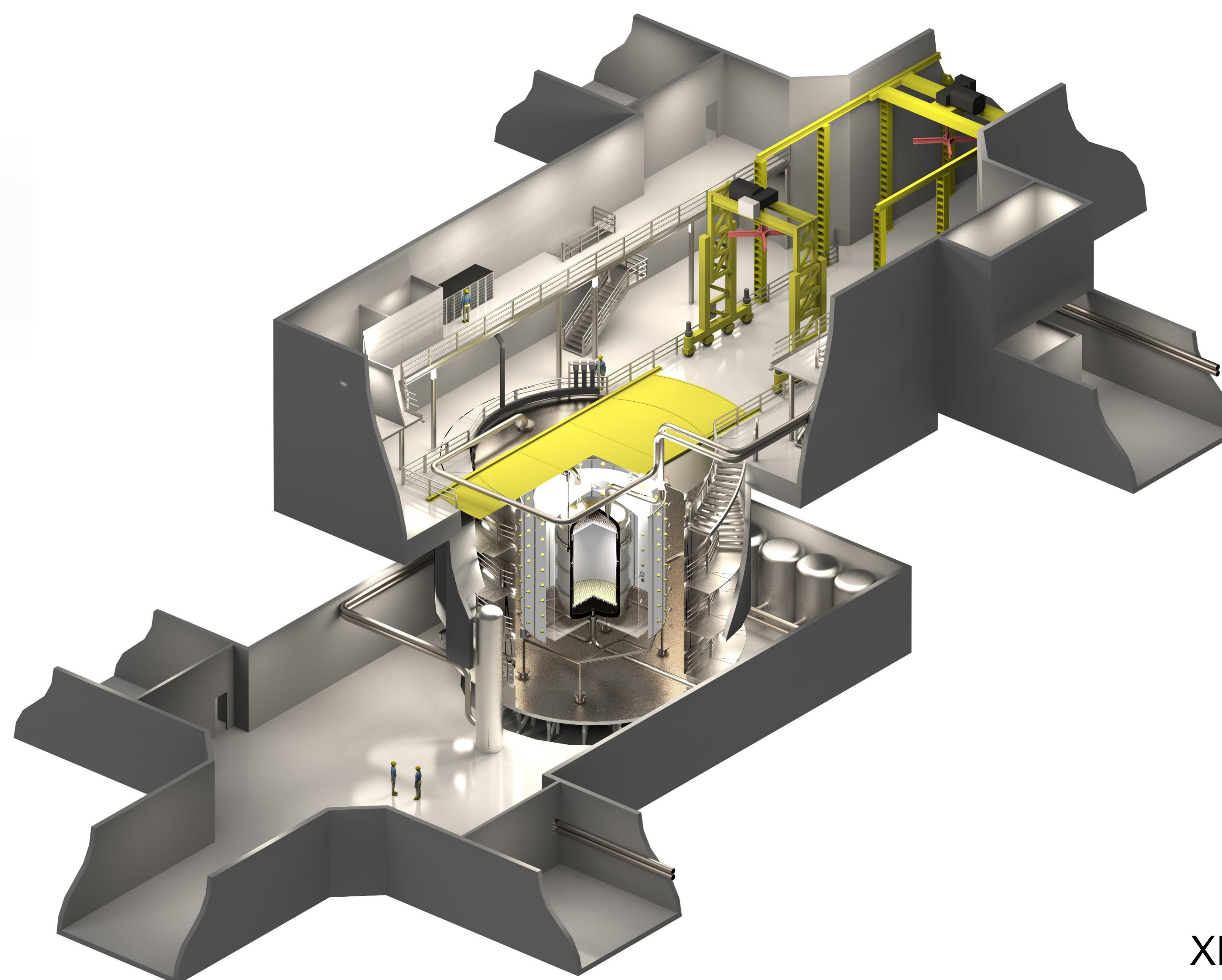
XENONnT cryostat with suspension and
levelling systems at LNGS

XENONnT

- Cryostat support from the top
- Levelling system to adjust the cryostat in the water tank
- Reuse of proven technology from XENONnT and LZ for XLZD to minimize risk and to reduce development cost



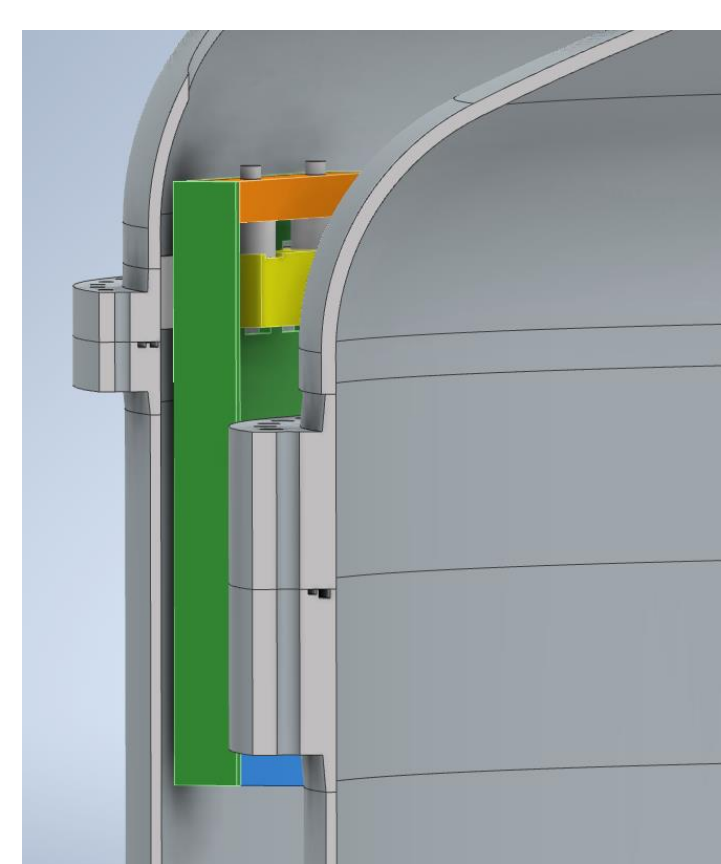
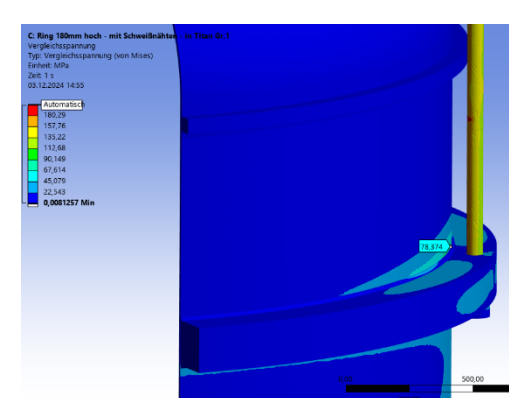
XENONnT levelling system



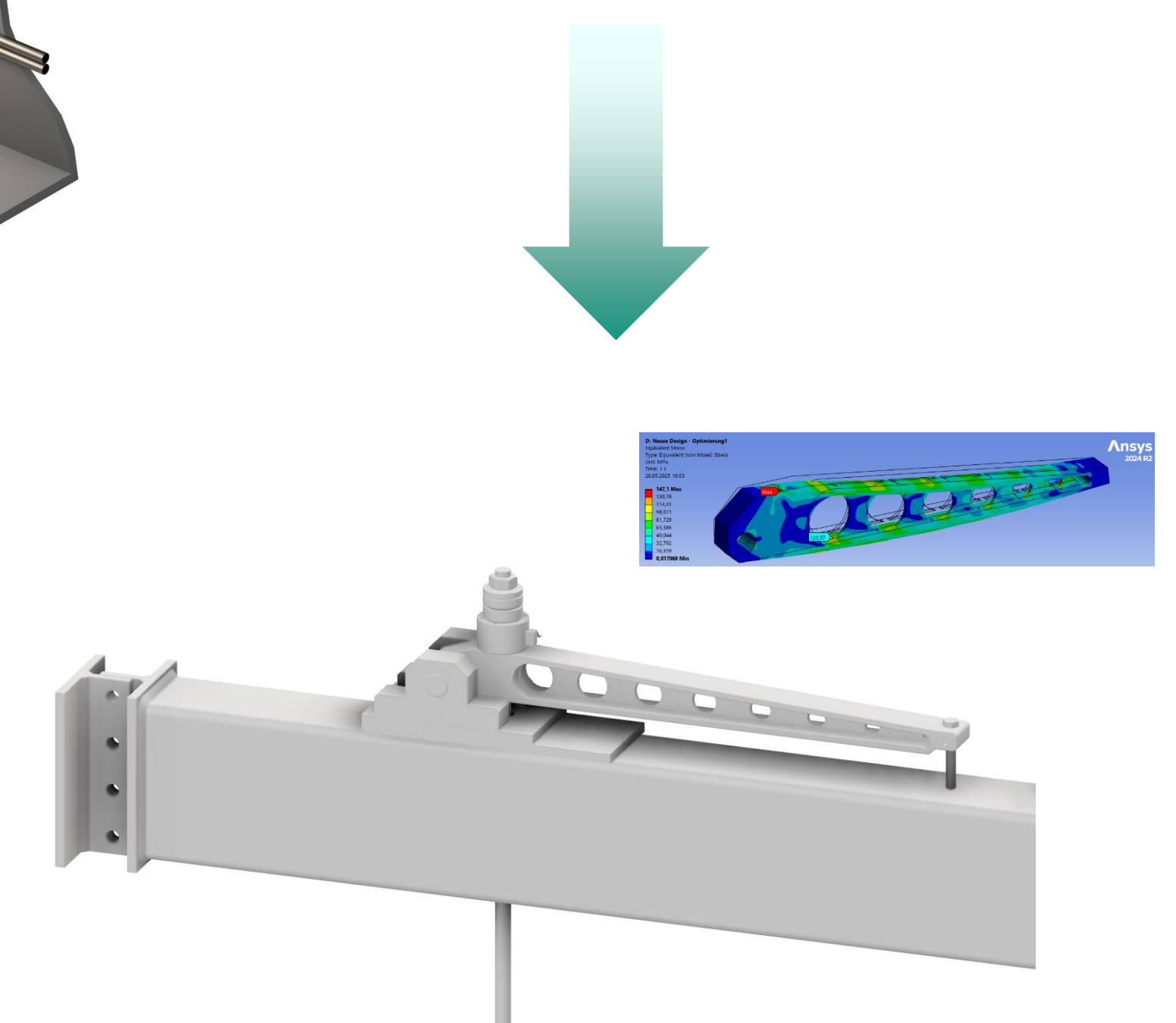
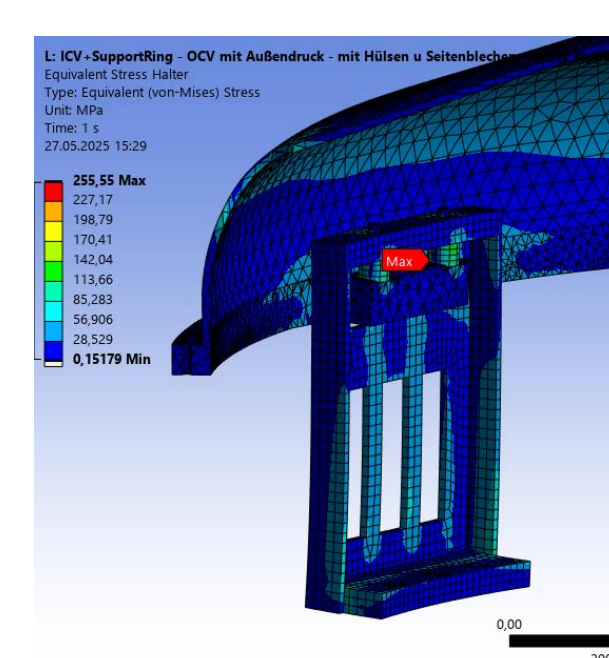
Possible layout of the XLZD experiment in
stage 2 lab at
Boulby Underground Laboratory



XLZD conceptual suspension
with FEA stress analysis
up to 100t of Xenon



XLZD conceptual connection between the
inner and the outer cryostat vessel with
FEA stress analysis



XLZD conceptual levelling system
with FEA stress analysis

XLZD

- The layout of the stage 2 lab with two levels suits a cryostat suspension from above
- XENONnT inspired designs for the three-point suspension and the levelling systems
- Integration of three force sensors in the suspension and levelling system to ensure uniform loading