

The evolution of the SAXS/WAXS vacuum chamber at 12IDB

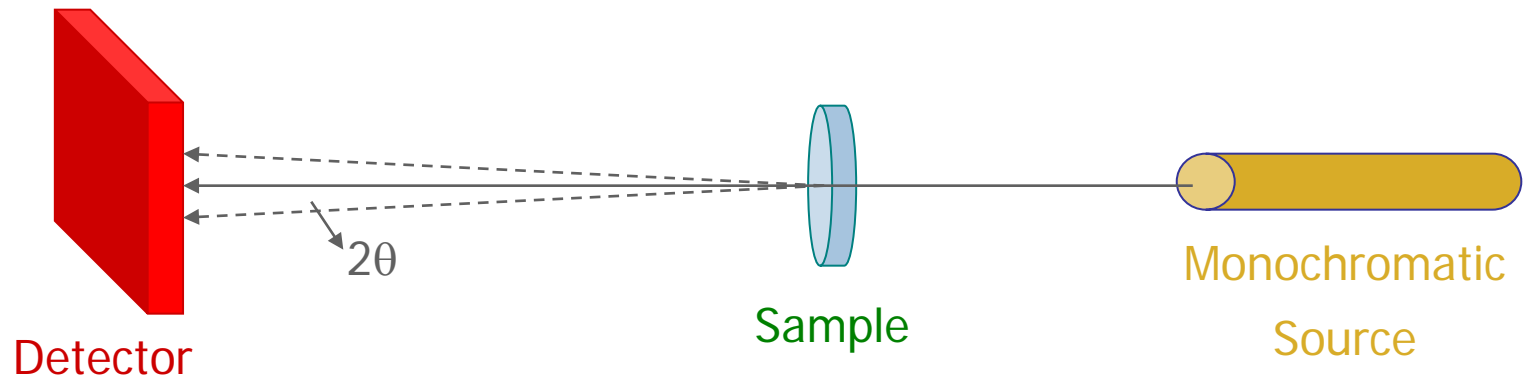
Byeongdu Lee
Sector 12

Outline

- SAXS beamline world-wide.
- Brief history about 12ID-B setups.
- New vac chamber for SAXS/WAXS



Schematic setup for SAXS/WAXS

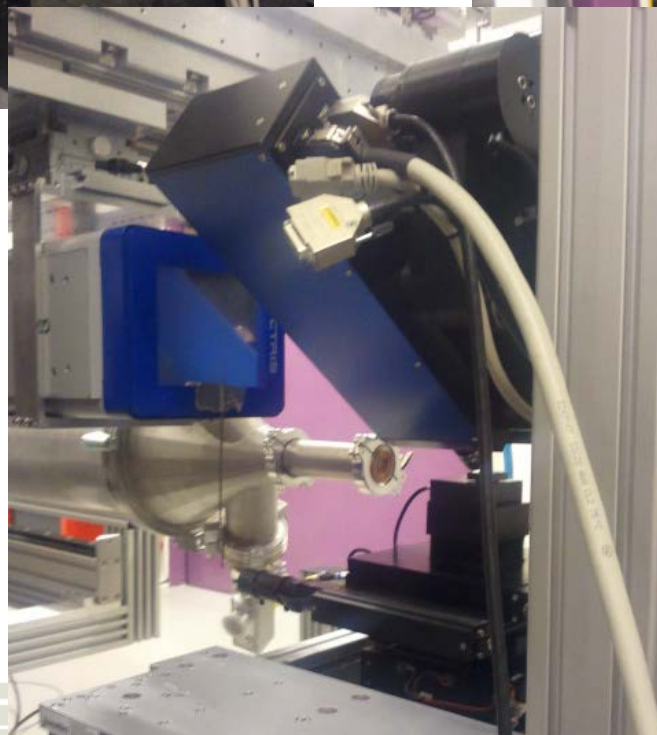
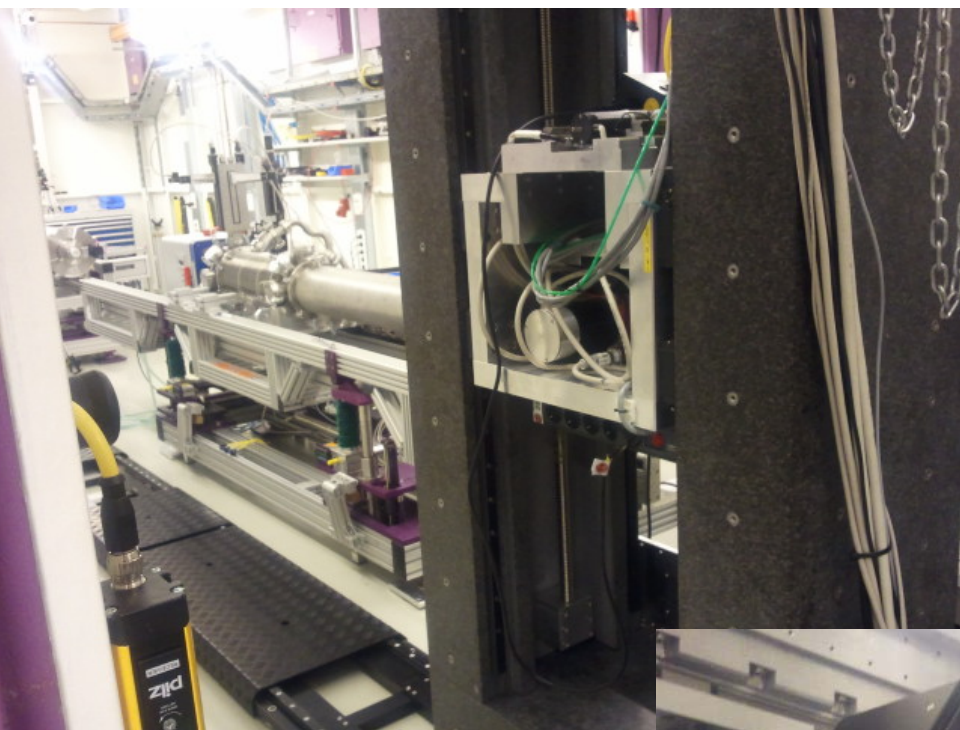


$$D = 2\pi/q = \lambda/2\sin\theta$$



DESY





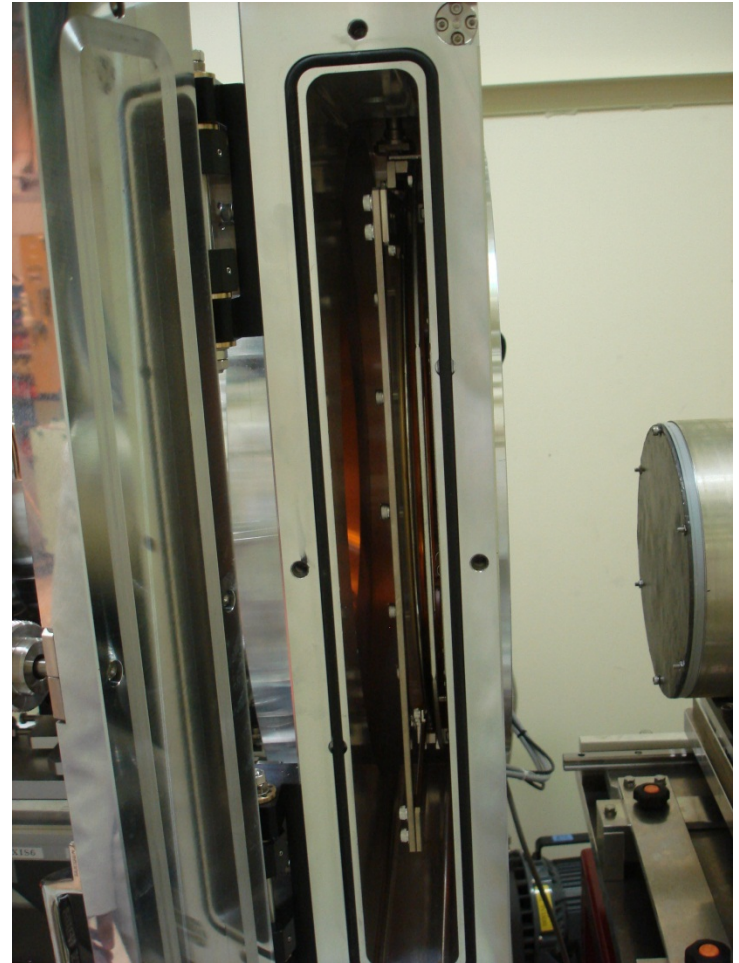
PETRA-III



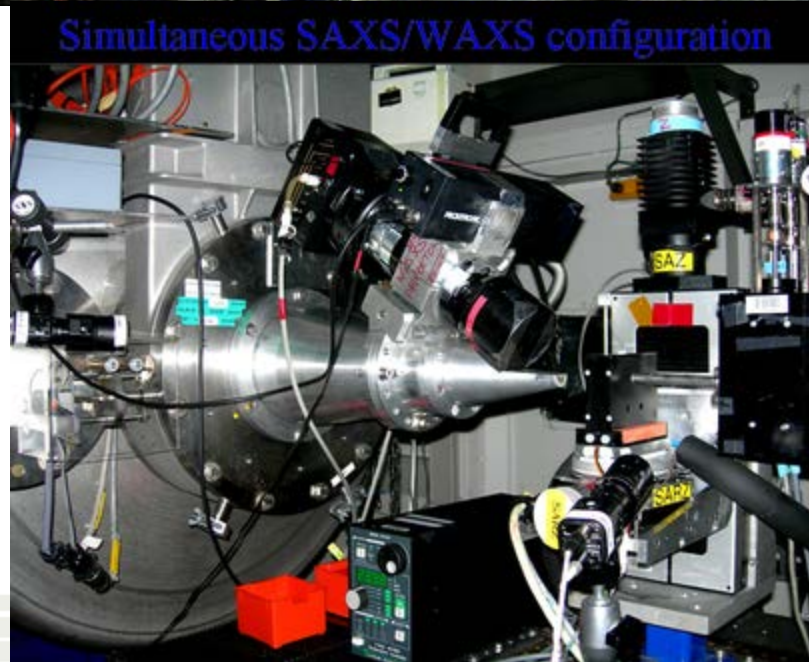
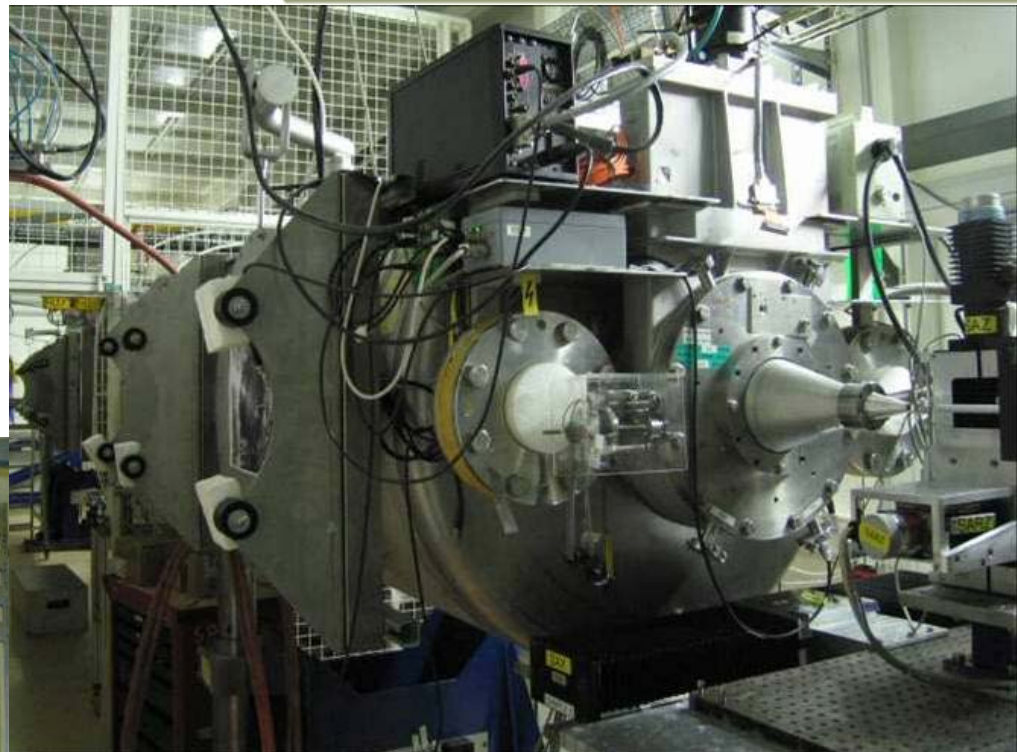
Spring-8



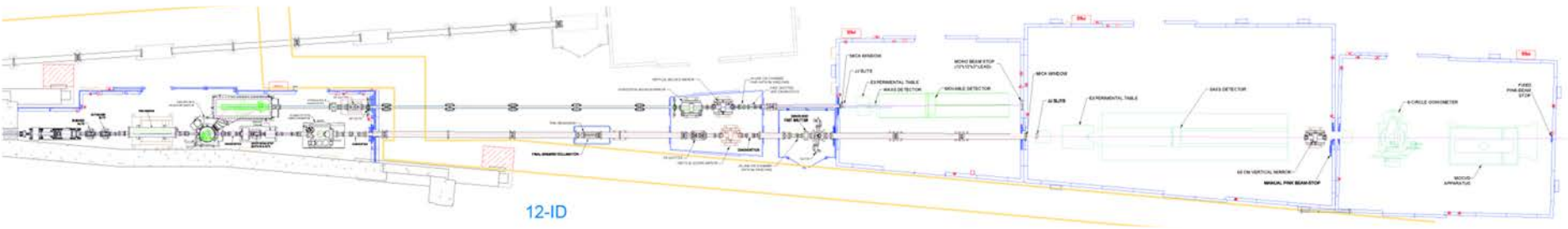
Spring-8, Beam stopper box



ESRF ID2



12ID layout



12-ID

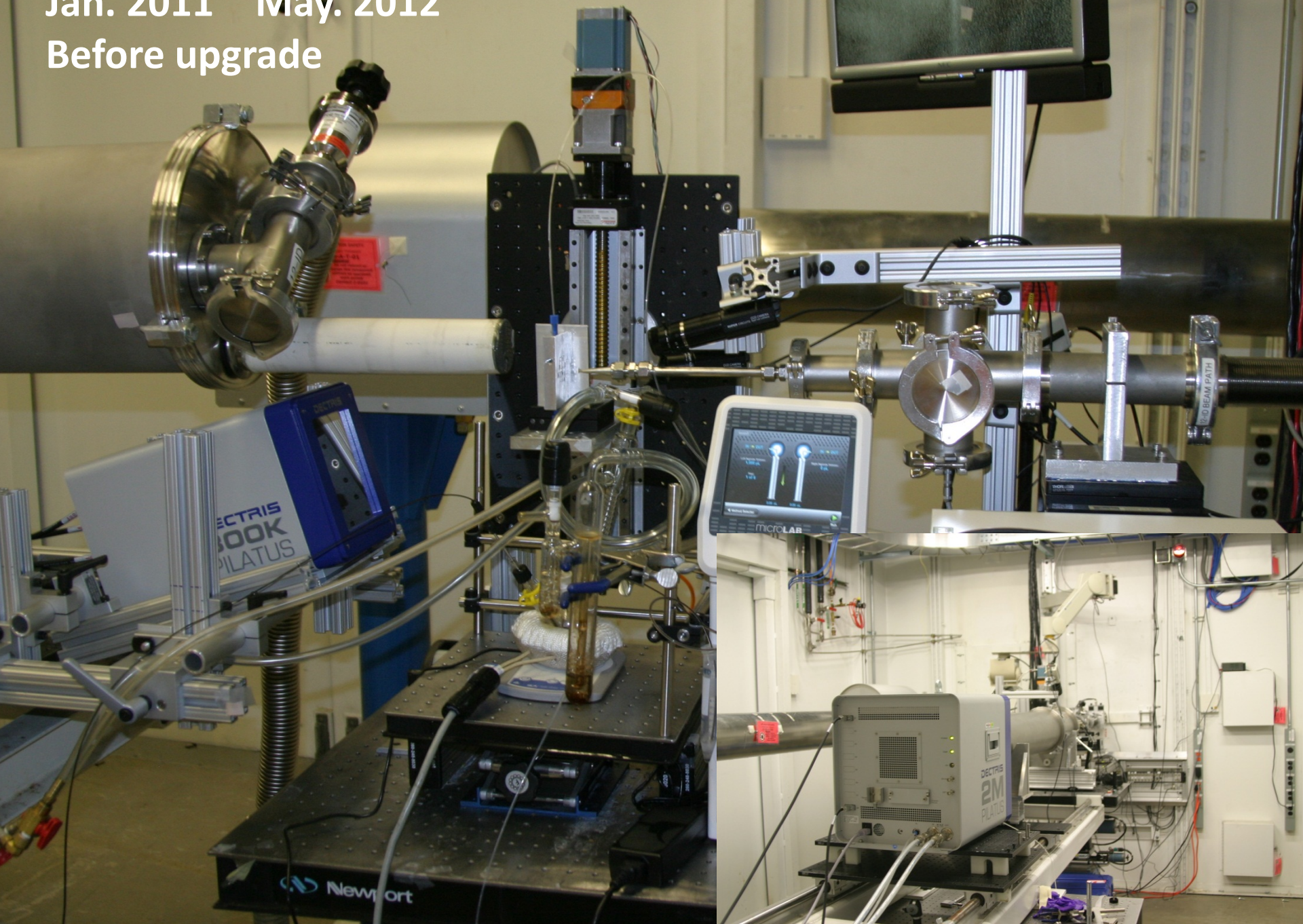


Brief history about 12ID-B

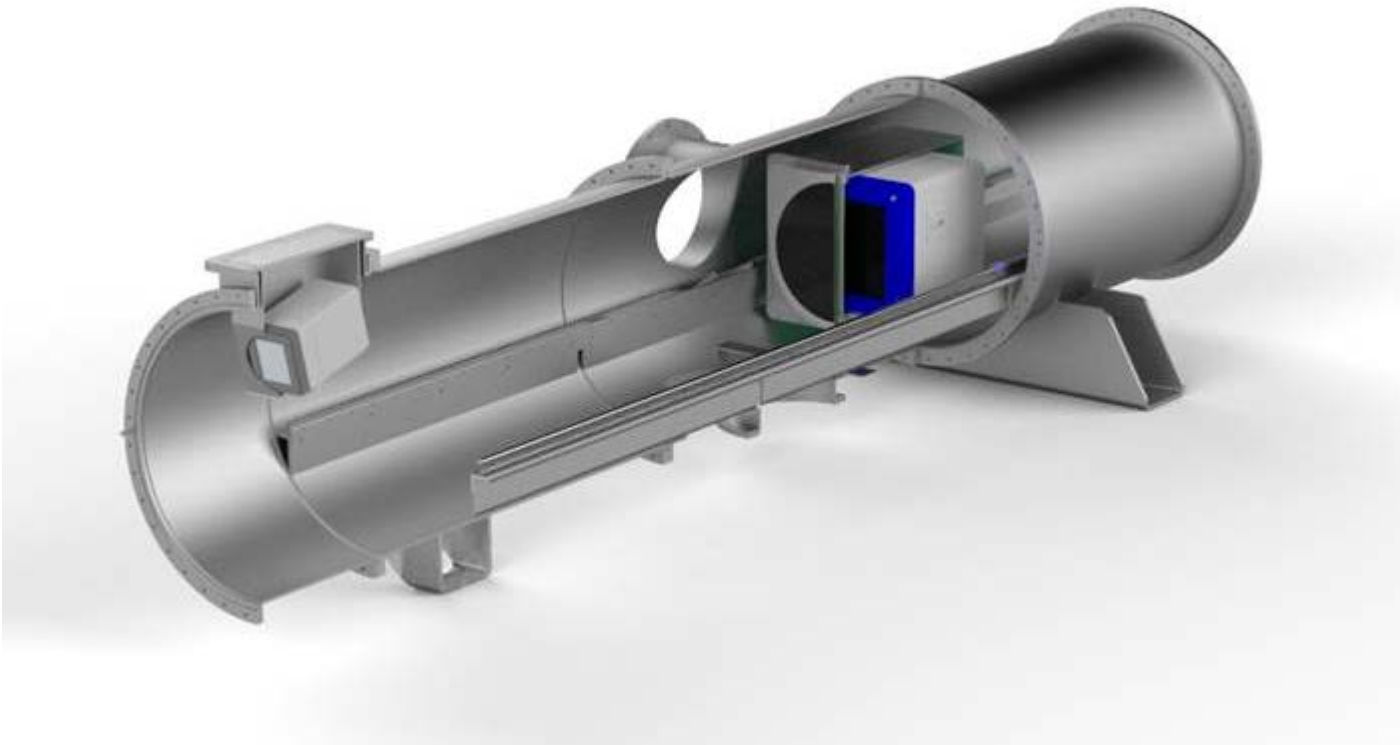
- 2007 – Design meeting launched.
- Sep. 2008 – SAXS/WAXS and Vacuum Chamber became a major topic for discussion.
- Sep. 2010 – Beam delivered to B-station and commissioning started.
- Nov. 2010 – First SAXS experiment with Pilatus 2M and vacuum tube from C-station.
- Jan. 2011 – Temporary He chamber used.
- Jan. 2011 – Temporary vacuum setup built for simultaneous SAXS/WAXS.
- Jun. 2012 – New chamber started user operation.



Jan. 2011 ~ May. 2012
Before upgrade



First design draft



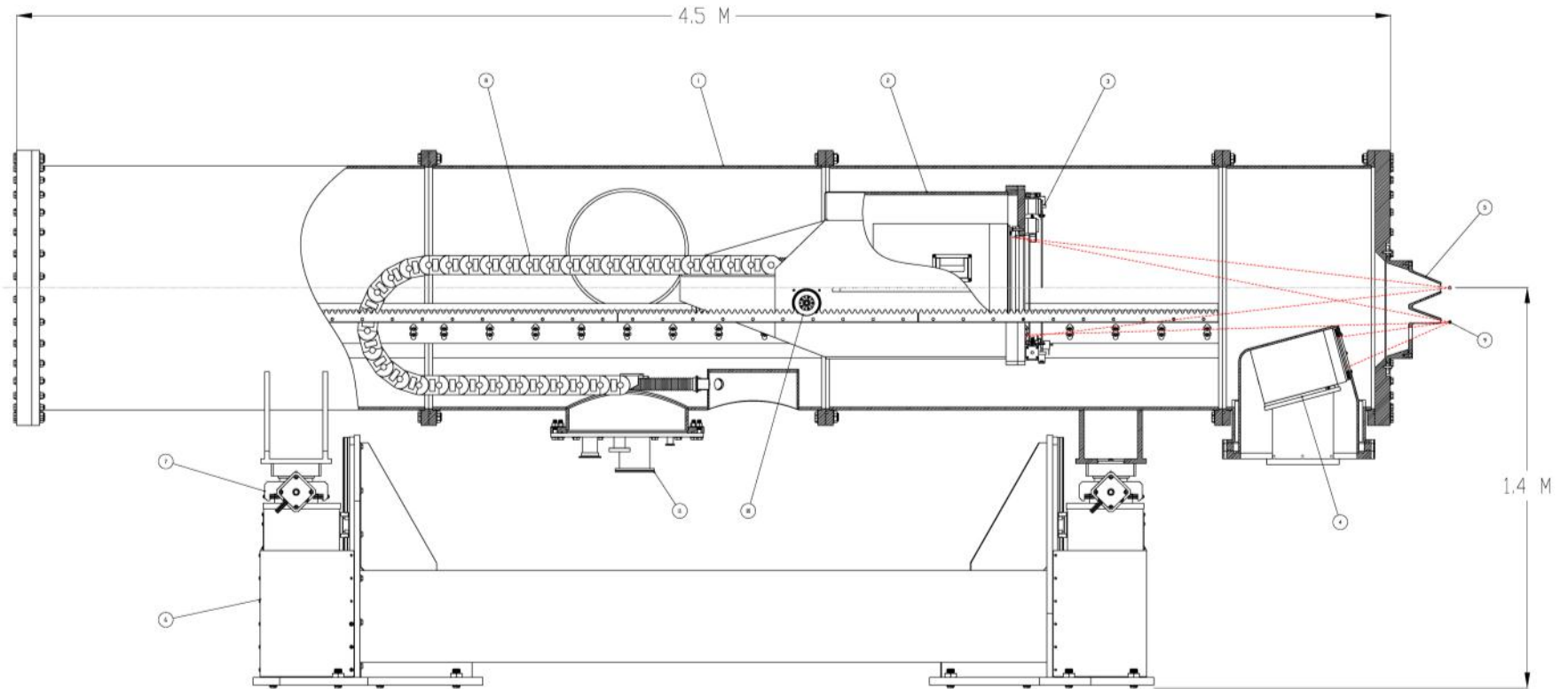
Final Design

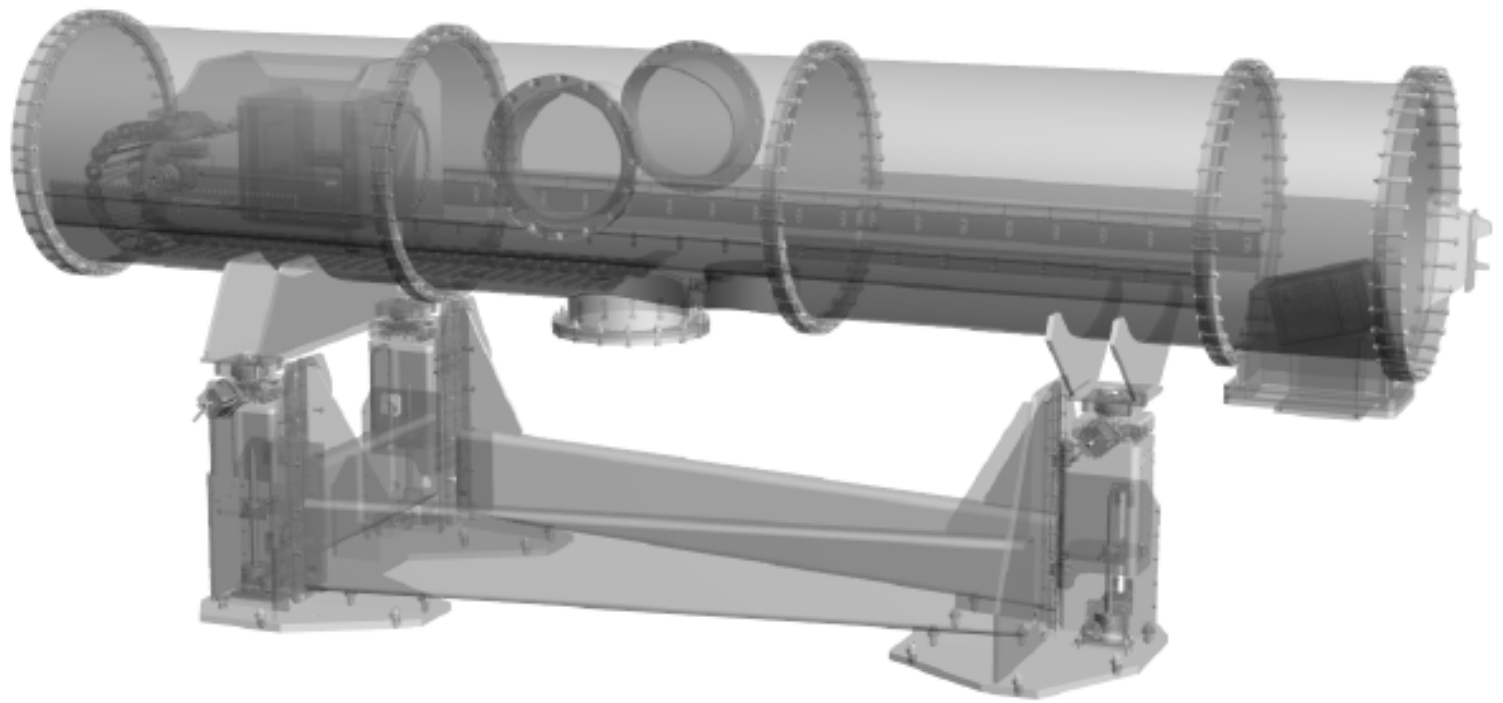


Oliver Schmidt



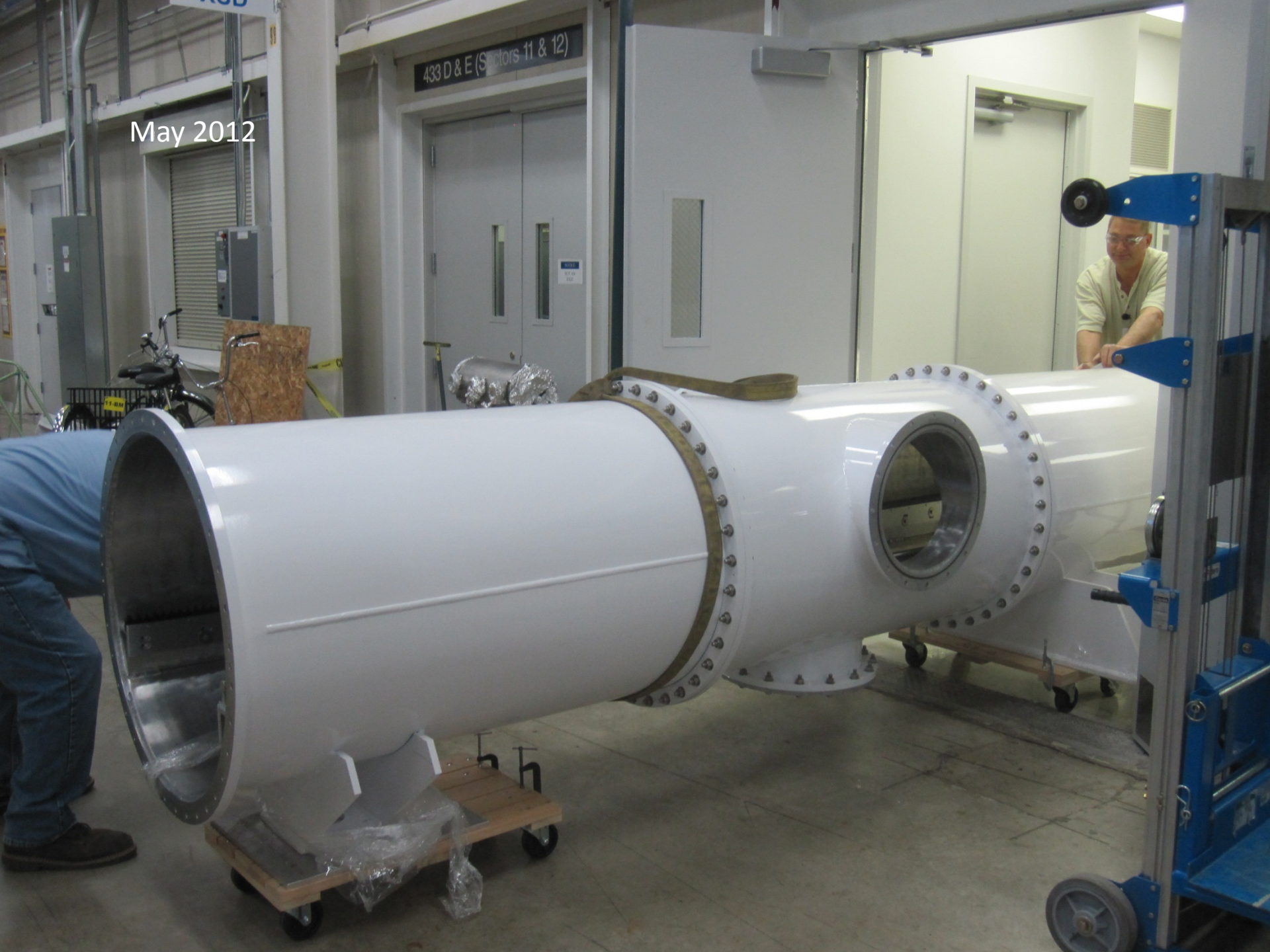
Two operation modes

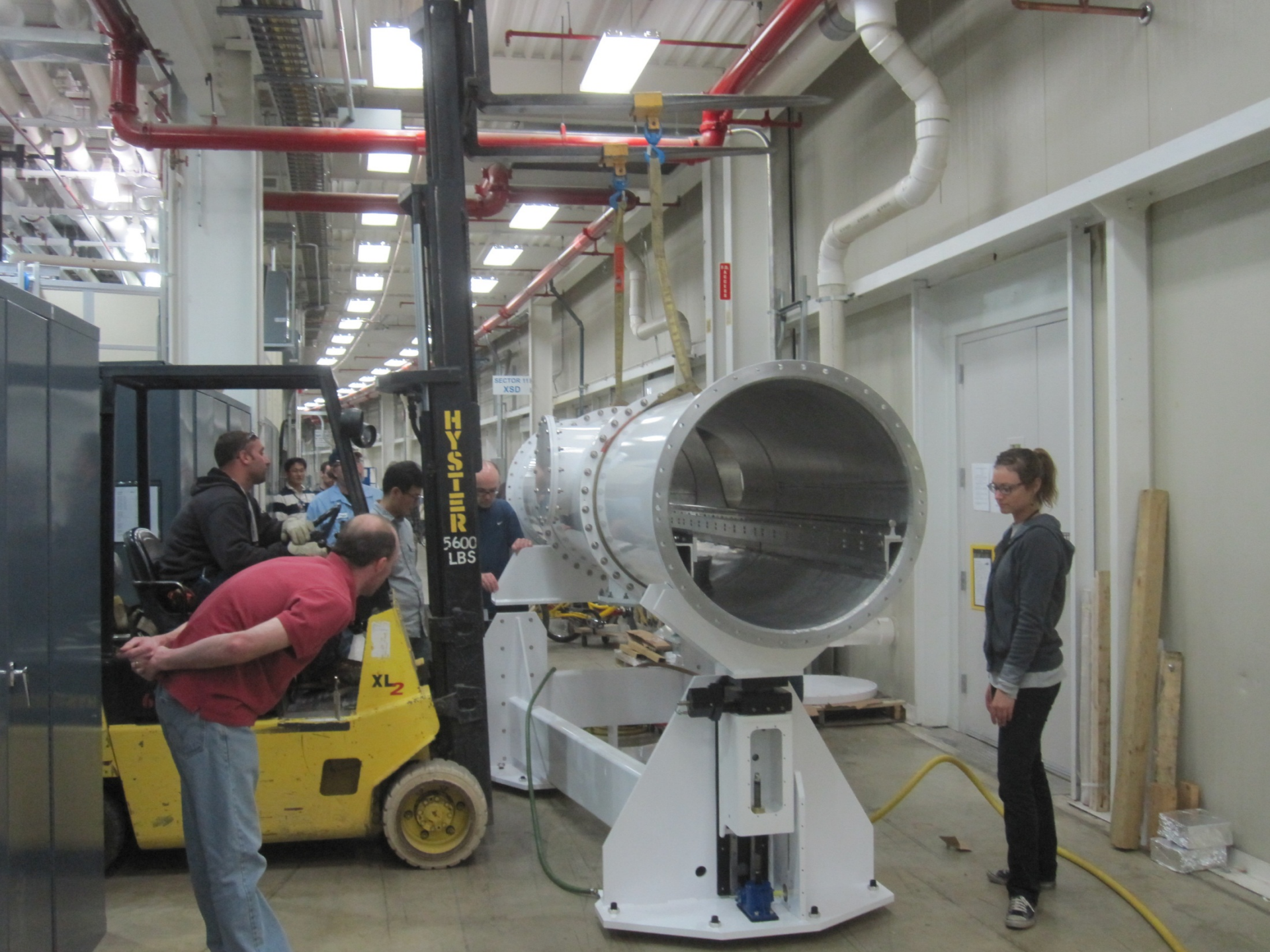




May 2012

433 D & E (Sectors 11 & 12)



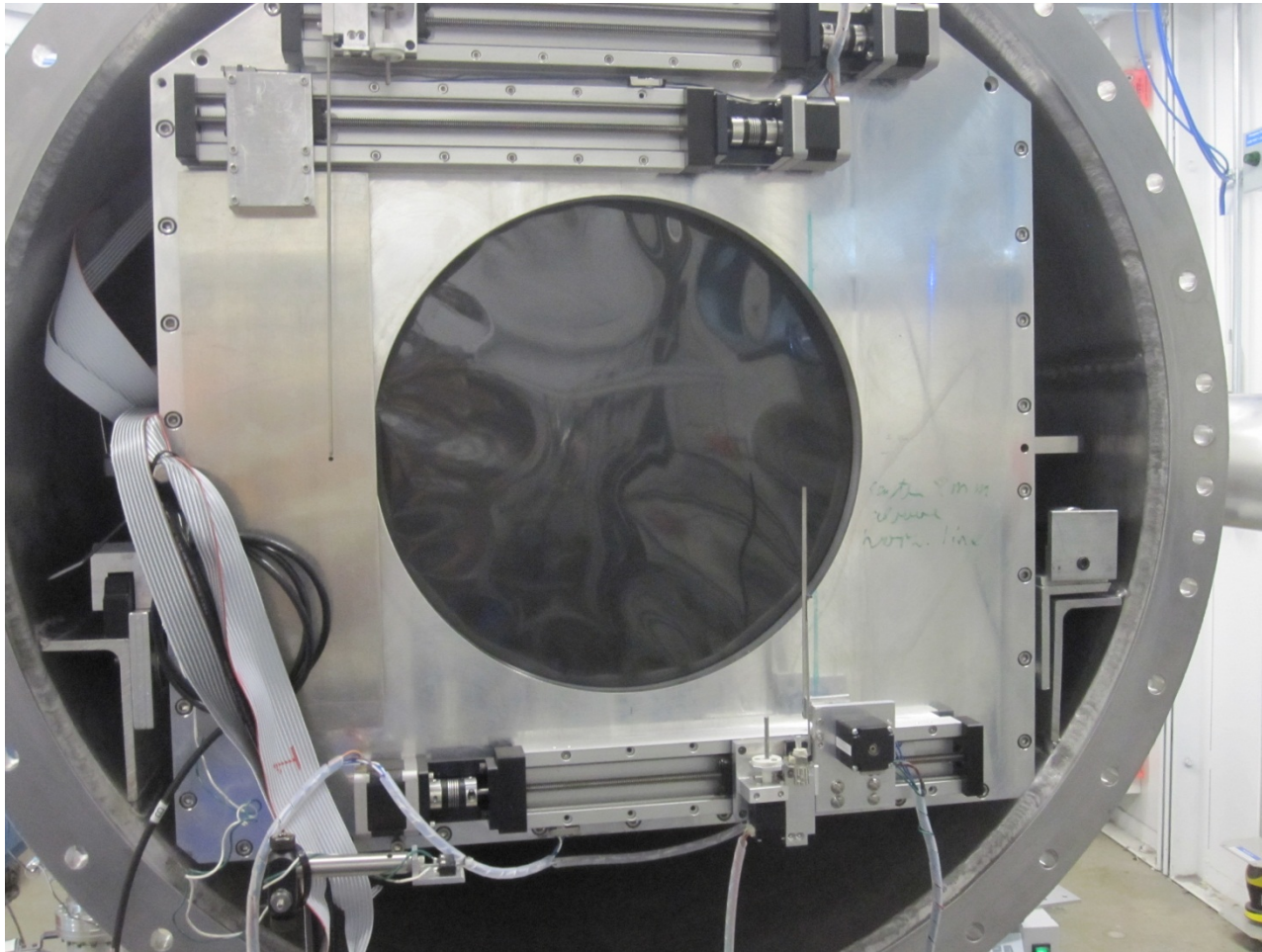


HYSTER
5600
LBS

SECTOR 11
XSD

XL2

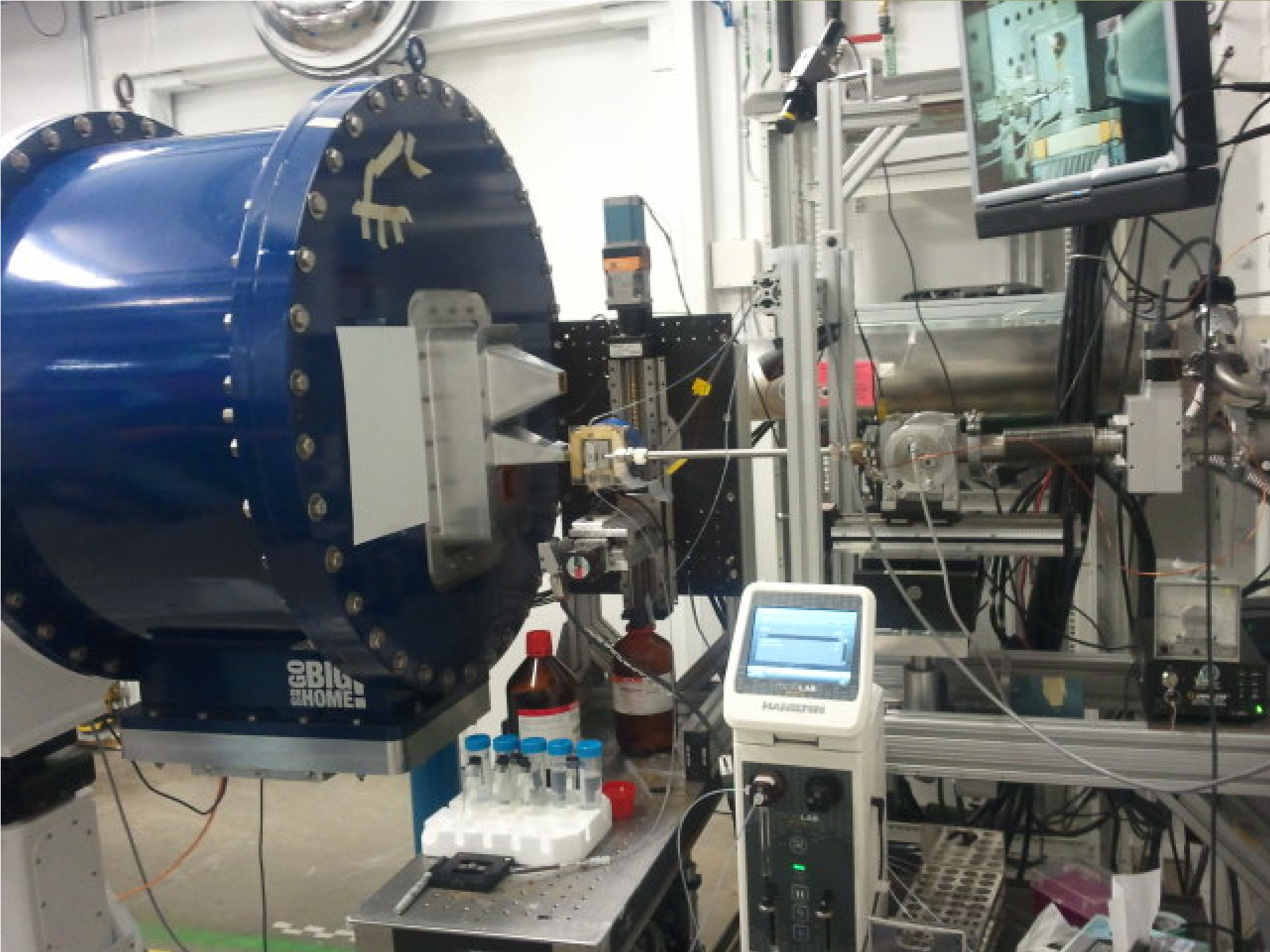
Air box for Pilatus2M (SAXS detector)



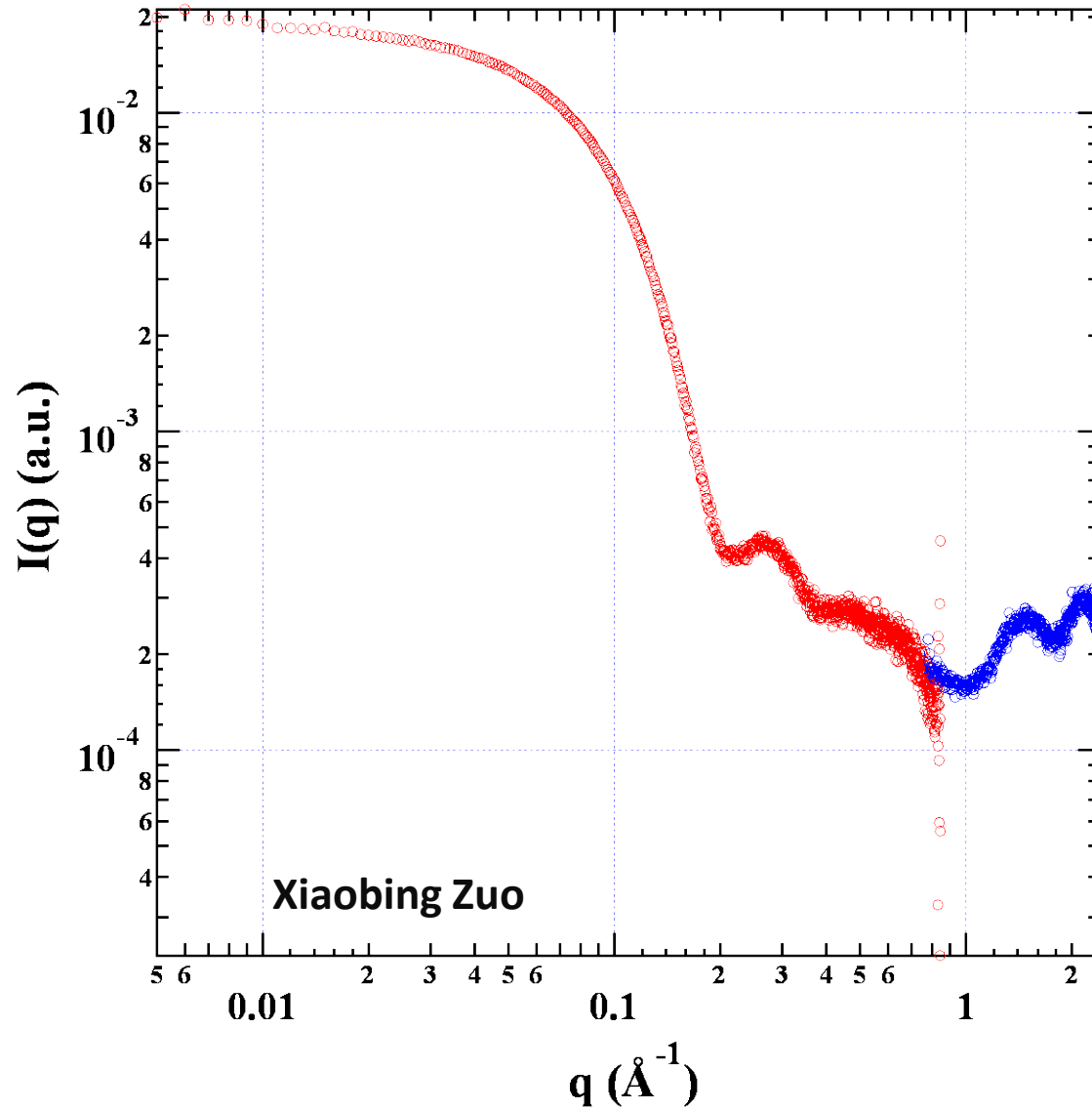
Sep. 2012

Argonne
NATIONAL LABORATORY





Experimental data: Protein in solution



Acknowledgement

