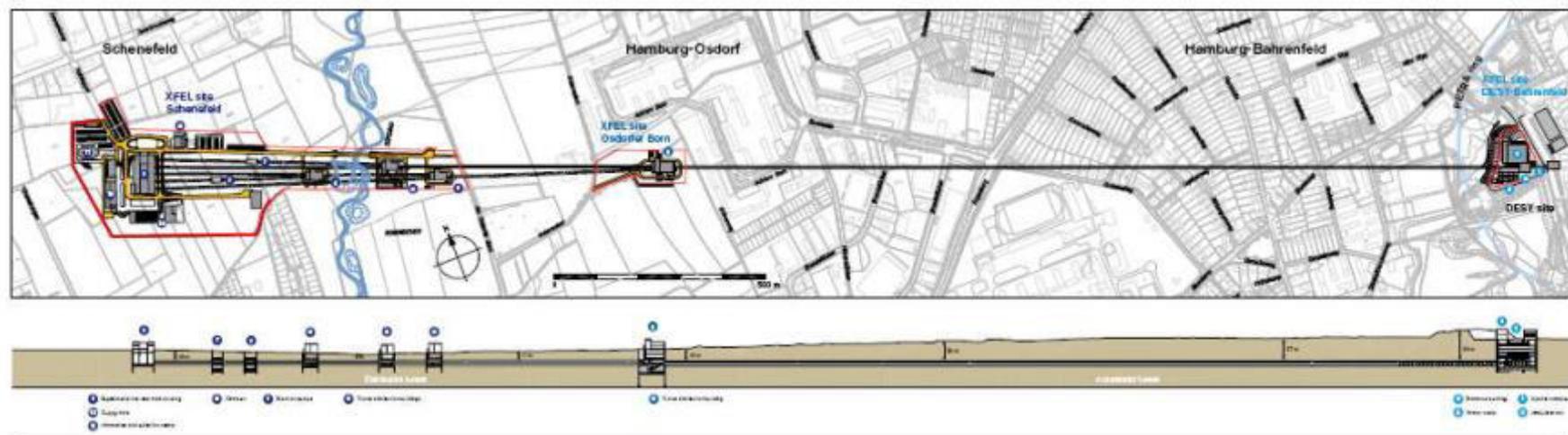




European XFEL Photon Diagnostics

short status update (a selection)



Dr. Jan Grünert

European XFEL GmbH, Hamburg, Germany
4th Satellite Workshop on Photon Beam Diagnostics

29 January 2016, DESY auditorium, Hamburg

X-ray Gas Monitor (XGM) from DESY-FS



- Delivery of first XGM unit happened in 05/2015

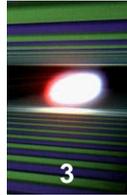


two more XGMs
arrived later in 2015

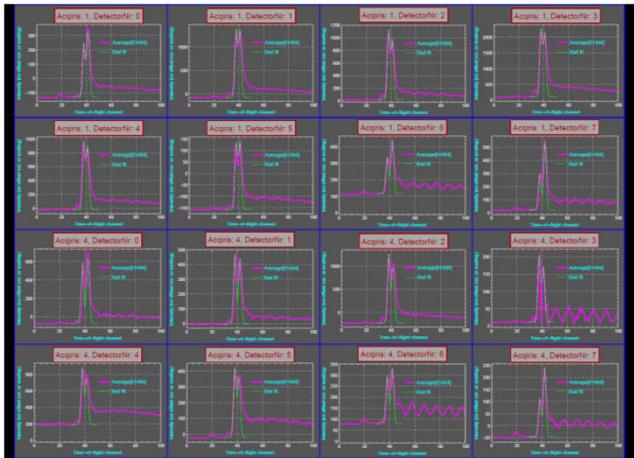


in 12/2015 the first
XGM was installed

Photoelectron Spectrometer (PES)

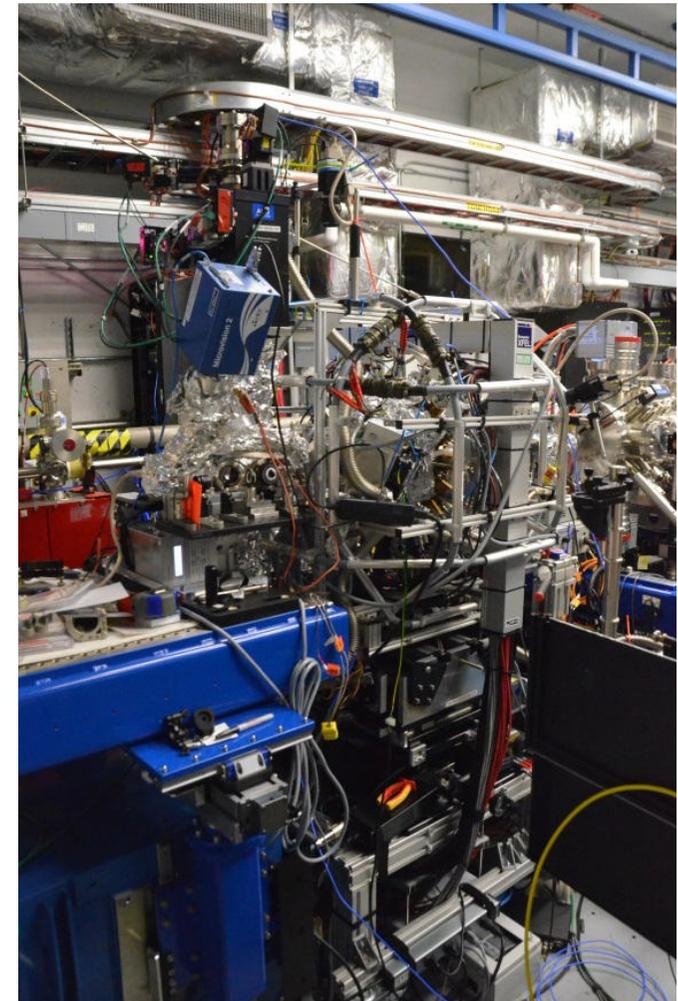
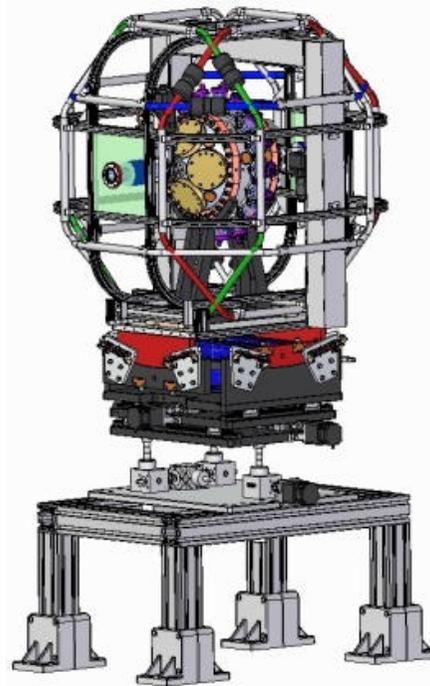


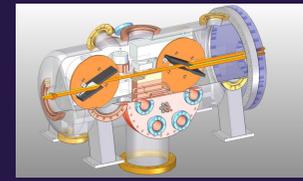
- Beamtimes with “our own” PES at LCLS/AMO in 2015:
 - DELTA undulator commissioning
 - user beamtime (W. Helml, LH-52)
 - inhouse beamtime (R. Coffee)
 - ➔ proof that the device is very **reliable, robust and performant** (currently up to 2kV retardation voltage is possible)



Signals from 16 radially distributed ToF-detectors
→ spectra and polarization

Ref. G.Hartmann, DESY and J.Buck, European XFEL



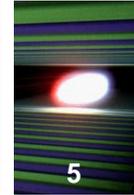


- Installation of first K-mono in the SASE1 tunnel XTD2

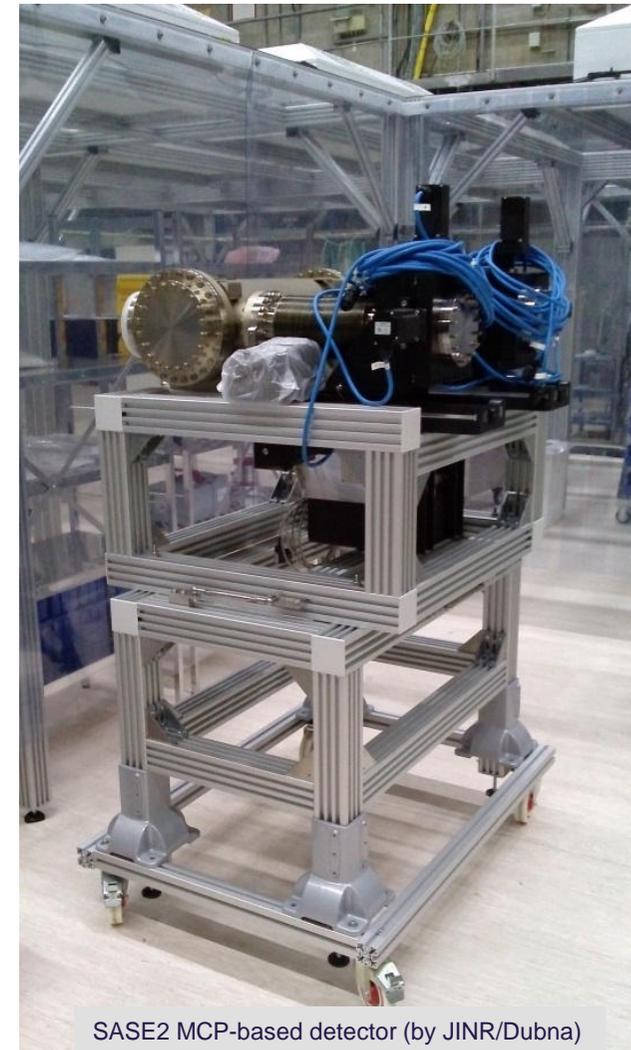
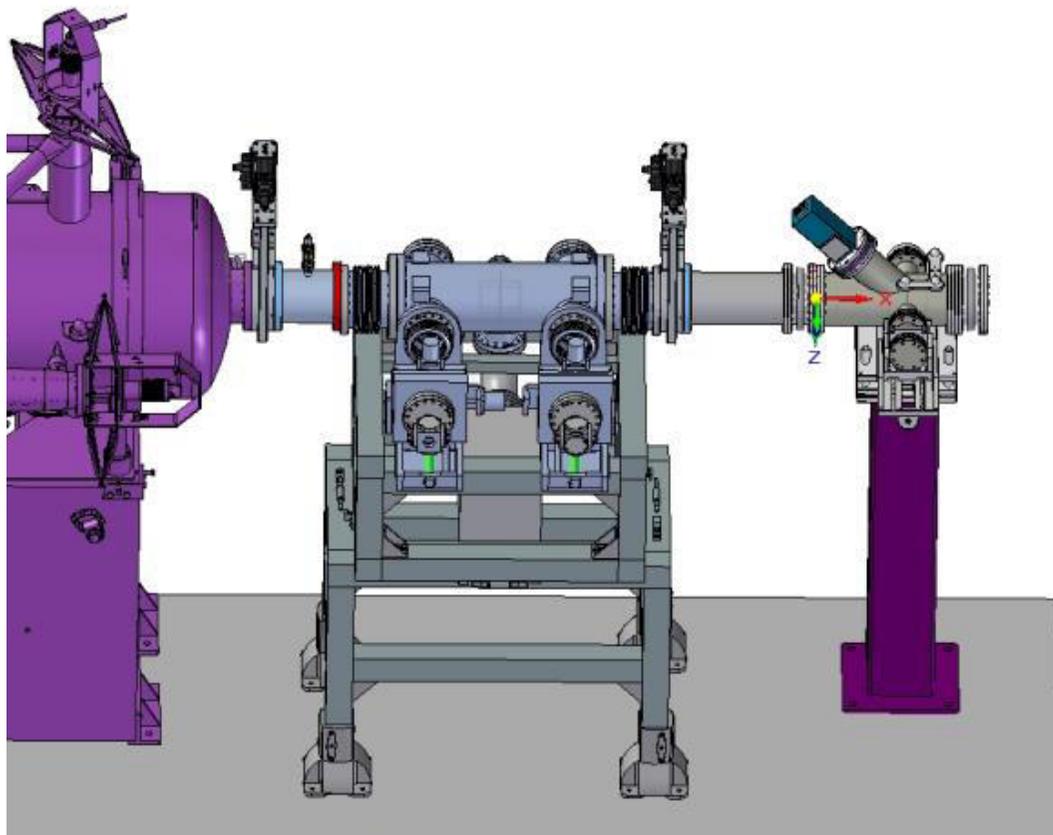


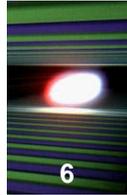
View inside the SASE3 unit



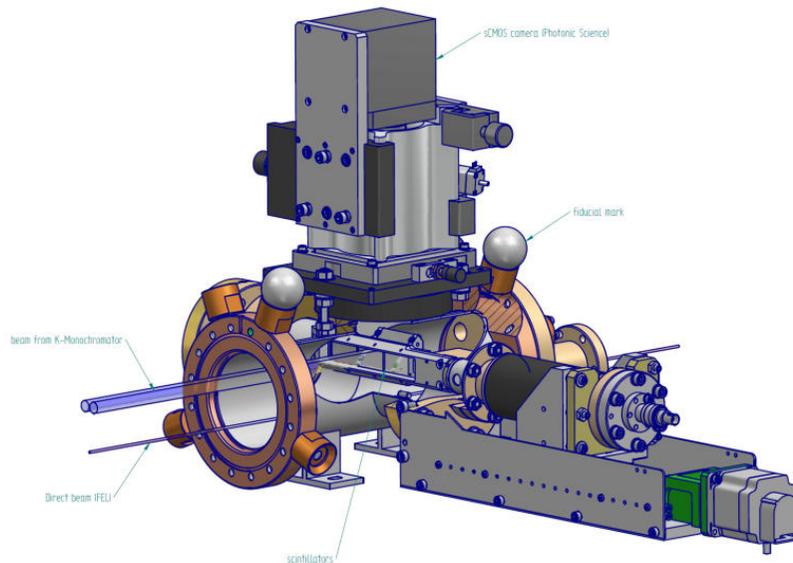


- **MCP-based detector (JINR/Dubna)**
 - SASE1 unit installed in tunnel
 - Local technical commissioning of controls done
 - Final assembly of SASE2 + SASE3 unit done





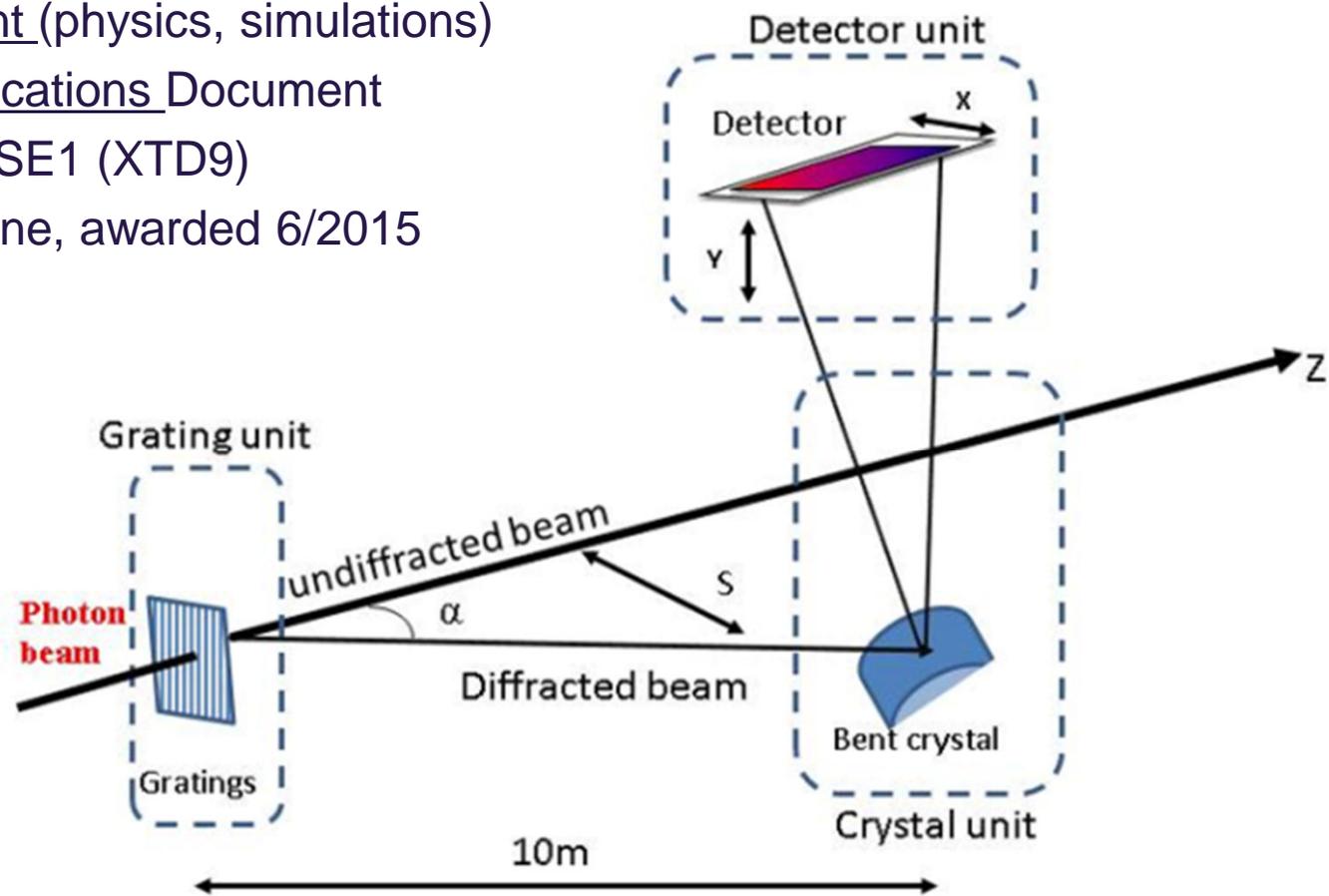
- **MCP-based detector (JINR/Dubna)**
 - SASE1 unit installed in tunnel
 - Local technical commissioning of controls done
 - Final assembly of SASE2 + SASE3 unit done
- **Imagers**
 - all SASE1 pop-in monitors assembled, tested, and installed in the tunnels (XTD2+XTD9)
 - SASE3 Exit Slit imager: under design
 - 2D-imager-FEL for SASE1 assembled and tested
 - 2D-imager-SR: produced at FMB



A.Koch (WP74) next to the first installed imager



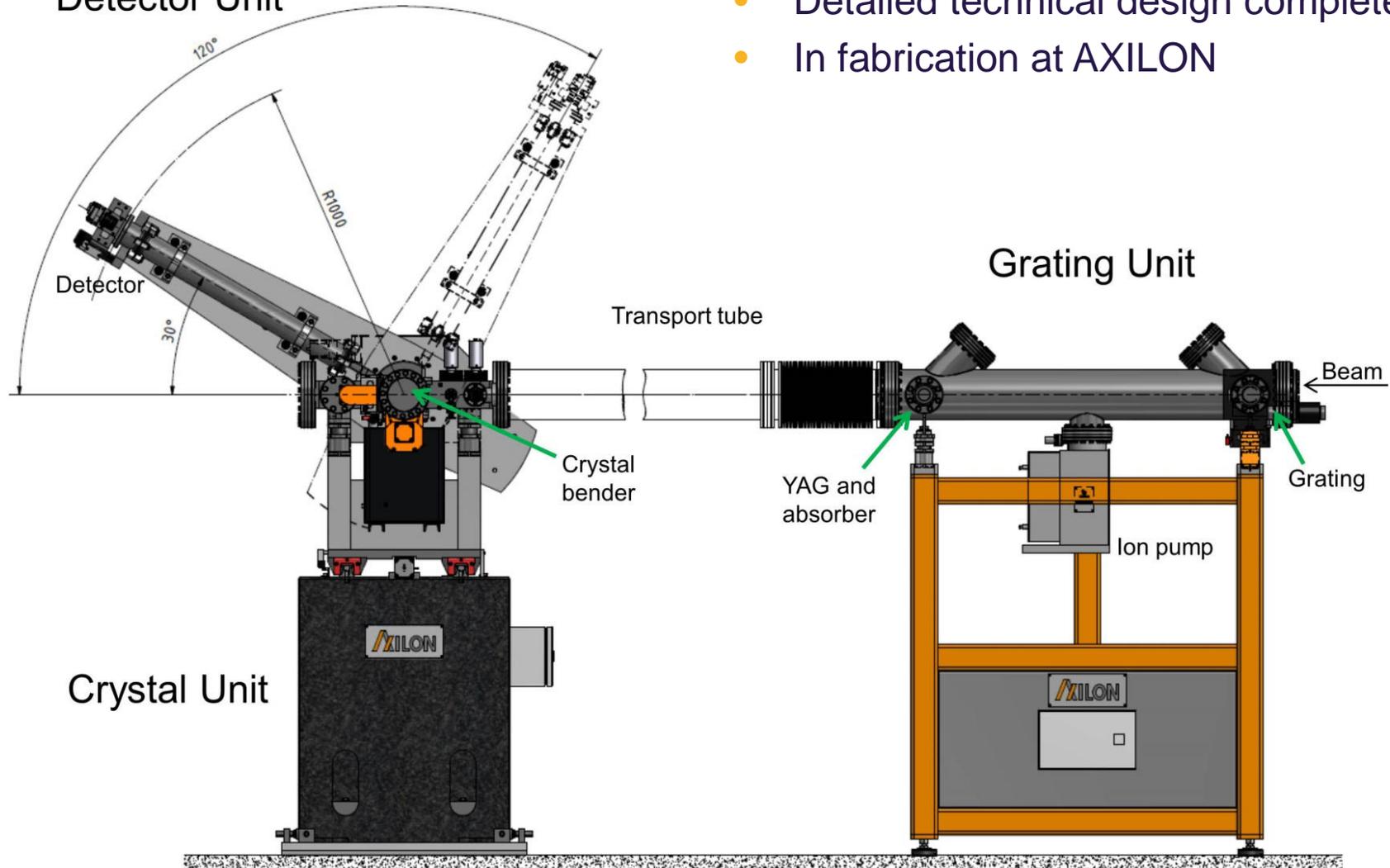
- Hard X-ray High Resolution Single Shot Spectrometer (**HiREX**) **new**
 - Design Document (physics, simulations)
 - Technical Specifications Document
 - Designed for SASE1 (XTD9)
 - Public Tender done, awarded 6/2015

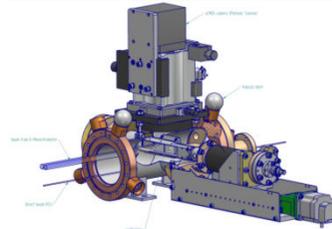
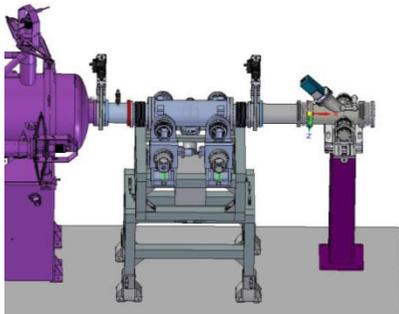
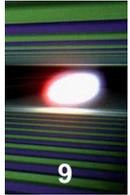




Detector Unit

- Detailed technical design completed
- In fabrication at AXILON

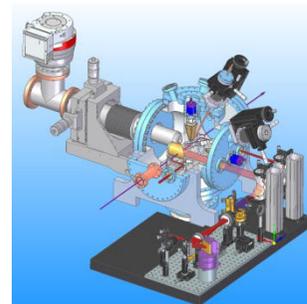
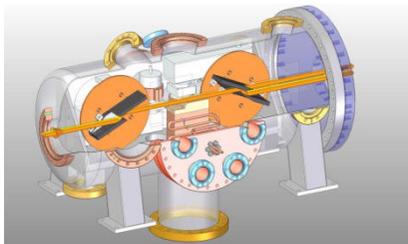
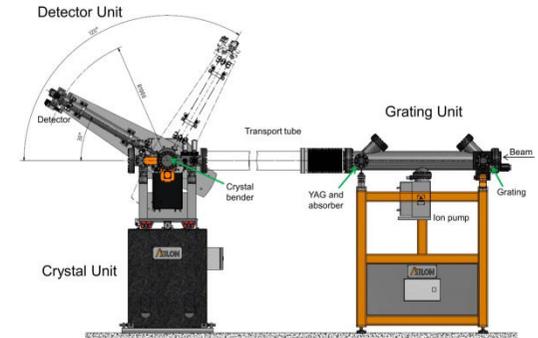


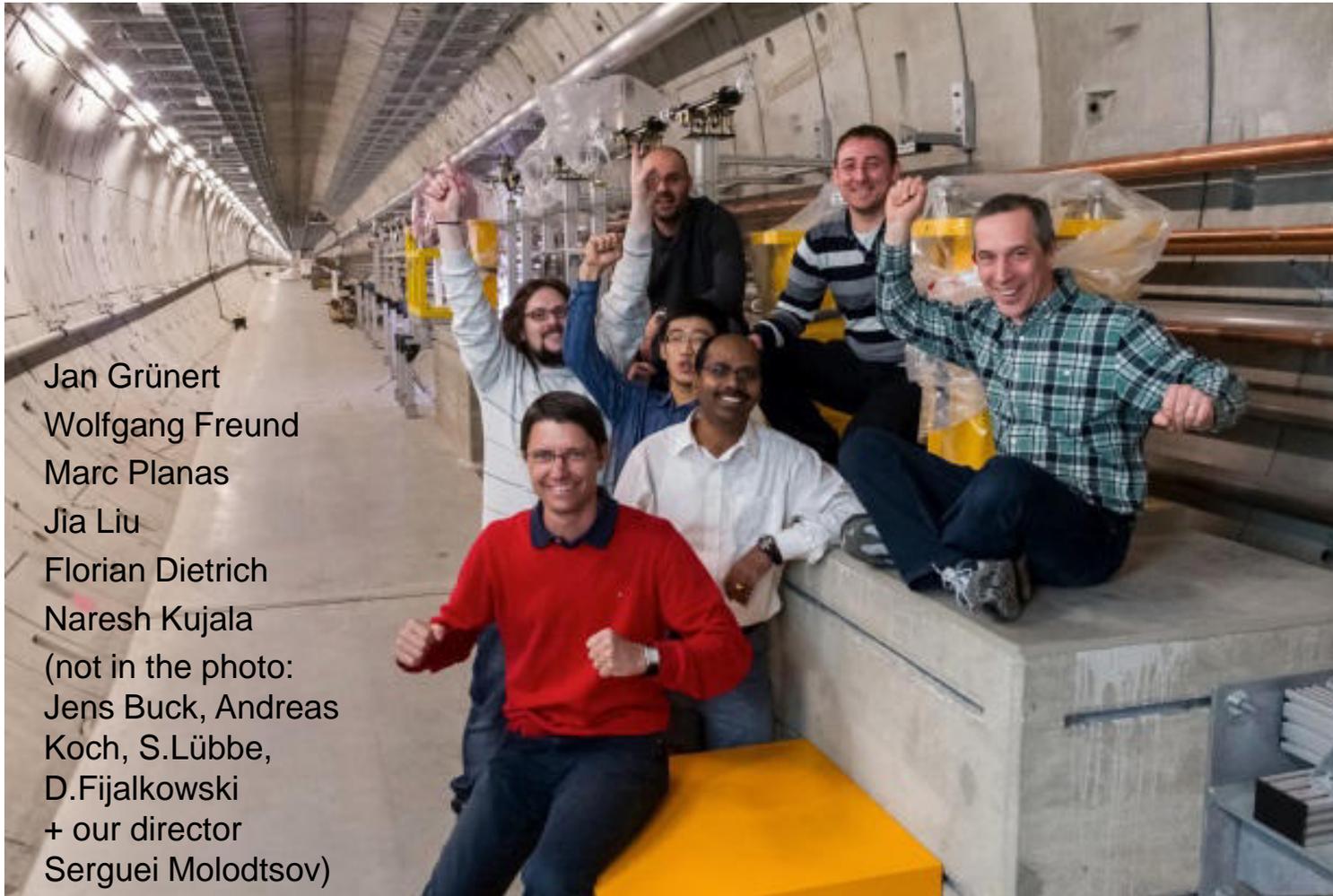


- Most SASE1 diagnostics installed in the tunnels

→ **Ready by end of 2016 for Commissioning and First Lasing attempt**

- SASE3 devices under final assembly
- Much other important progress: diff.pumping, tunnel gas supply etc
- A few more device *types* under design (eg temporal diags)





Jan Grünert
Wolfgang Freund
Marc Planas
Jia Liu
Florian Dietrich
Naresh Kujala
(not in the photo:
Jens Buck, Andreas
Koch, S.Lübbe,
D.Fijalkowski
+ our director
Serguei Molodtsov)

Thank you for your attention !