European XFEL Photon Diagnostics

short status update (a selection)

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4th Satellite Workshop on Photon Beam Diagnostics
29 January 2016, DESY auditorium, Hamburg
Delivery of first XGM unit happened in 05/2015

two more XGMs arrived later in 2015

in 12/2015 the first XGM was installed
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
MCP-based detector and Imagers

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

Jan Grüner, X-ray Photon Diagnostics (WP74)
**MCP-based detector and Imagers**

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

- 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)
Thank you for your attention!

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