

Microfluidics Workshop, June 15, 2017, Schenefeld

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European XFEL: Welcome

European XFEL Schenefeld



August 19 2016

- Schenefeld und Hamburg
- European User Facility for X-ray Science
- Start of operation: July 1. 2017
- First robust users September/October 2017.

View on the planned Canteen



Canteen

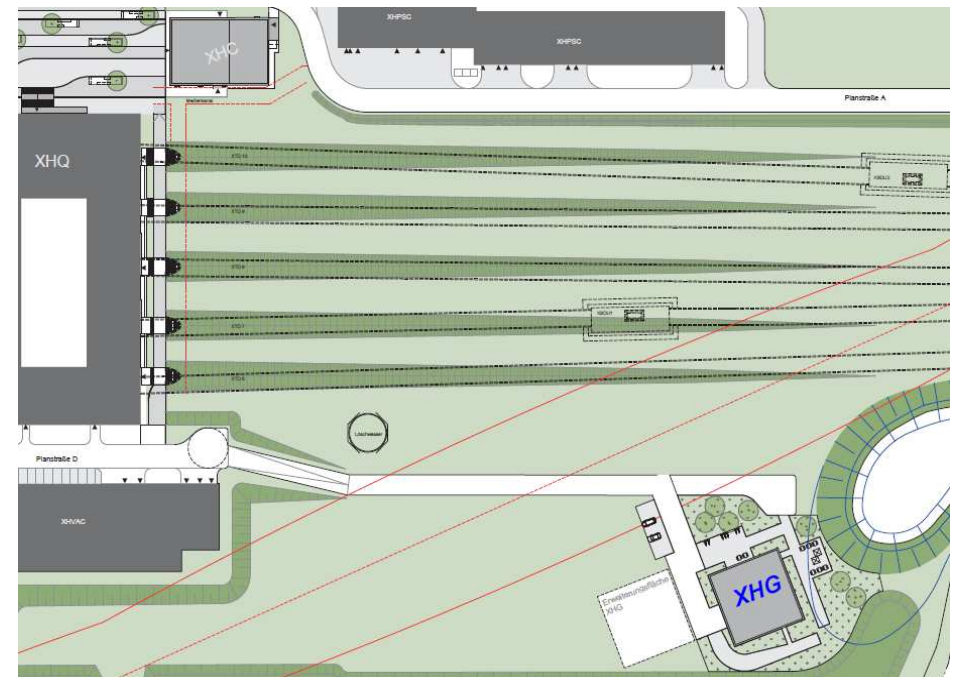


- Start of construction works:
April 2017
- Completion of the building:
Summer 2018

Guest house



- Start of construction works: June 2017
- Completion of the building: Summer 2018





About the European XFEL

- Start 2009
- Task : Construction and running of the X-ray Laser Facility
- Germany (Bund, Hamburg (65 M€) und Schleswig-Holstein (25M€)) 58%, Russia 27 %, others 1–3%
- DESY operates the accelerator
- Staff XFEL about 300, Staff @ DESY about 250
- Budgets_
 - 1,22 Mrd. € (2005 prices)
 - 600 Mio € in cash, 600 Mio € in-kind
 - Expected yearly running costs about 118 Mio € (2018)

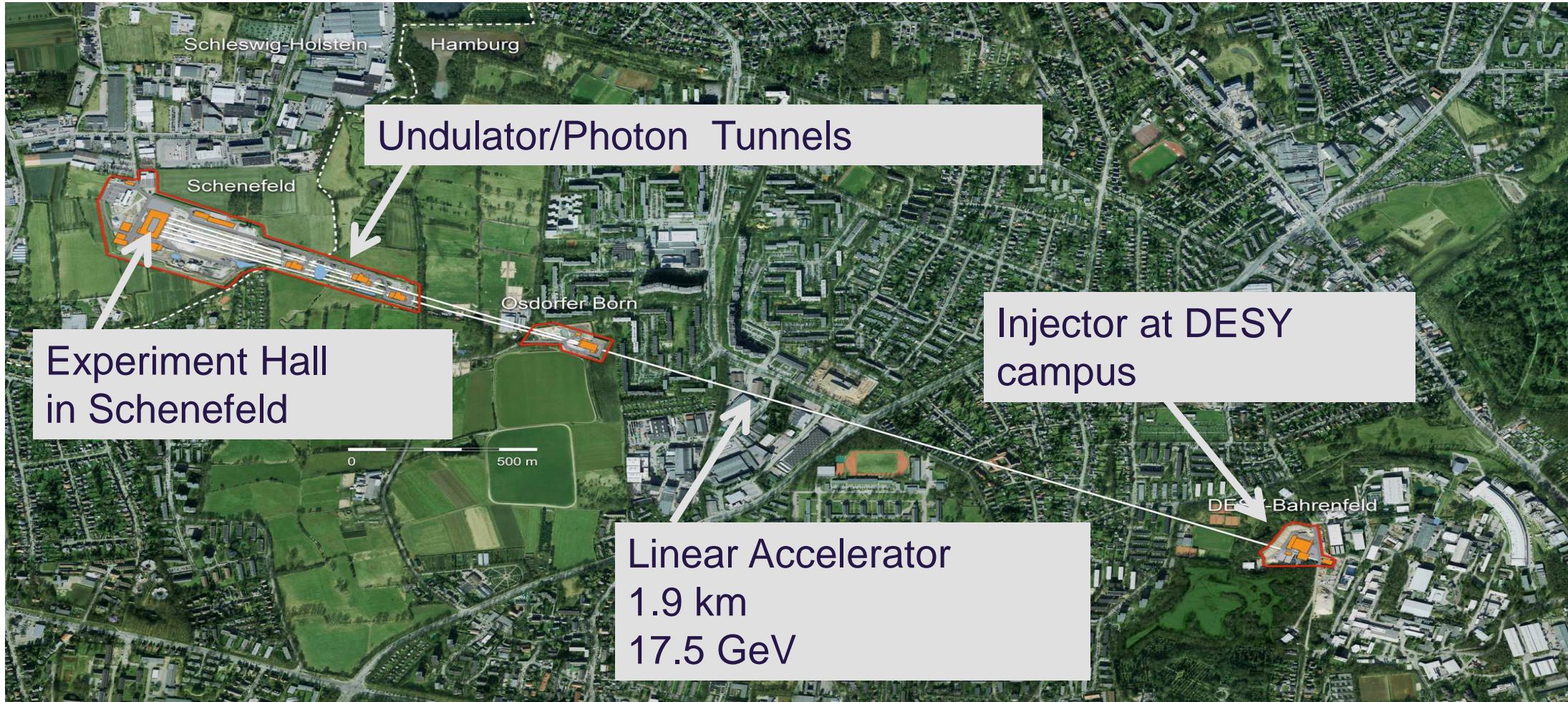
Slide 6

FP3

Flaggenleiste mit HH und S-H? Gerade wegen letzterem.

Poppe, Frank, 1/30/2017

General layout of the European XFEL

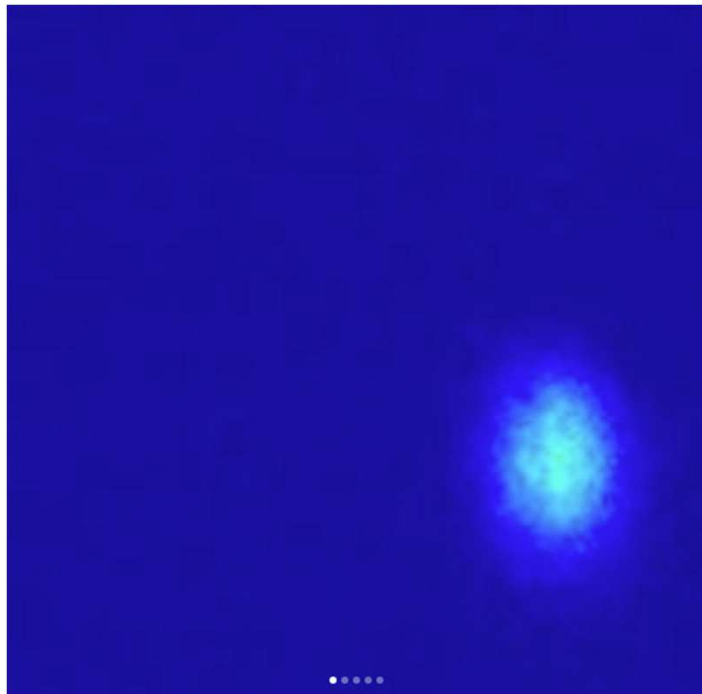


Comparison of the hard X-ray FEL Projects

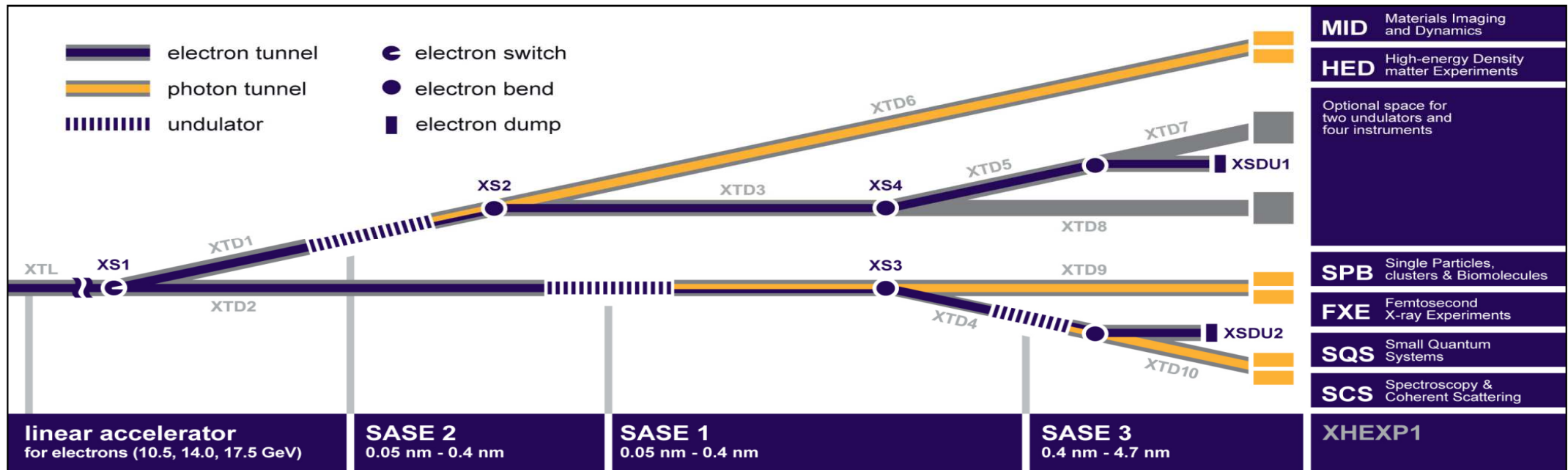
Project	LCLS I, US	SACLA, JP	European XFEL	SwissFEL, CH	PAL-XFEL, KR	LCLS II, US
Max. electron energy (GeV)	14.3	8.5	17.5	5.8	10	4
Wavelength range (nm)	0.1–4.4	0.06–0.3	0.05–4.7	0.1–7	0.06–10	0.25 – 4.7
Photons/pulse	$\sim 10^{12}$	2×10^{11}	$\sim 10^{12}$	$\sim 3.6 \times 10^{10}$	10^{11} – 10^{13}	2×10^{11} – 2×10^{10}
Peak brilliance	2×10^{33}	1×10^{33}	5×10^{33}	7×10^{32}	1.3×10^{33}	
Pulses/second	120	60	27 000	100	60	10^5 - 10^6
Date of first beam	2009	2011	2017	2016	2016	2019

European XFEL

First lasing May 4 2017



Undulator Segment	FEL radiation energy [keV]	Wavelength [nm]
SASE 1	3 - over 24 (Hard XR)	0.4 - 0.05
SASE 2	3 - over 24	0.4 - 0.05
SASE 3	0.27 - 3 (Soft XR)	4.6 - 0.4

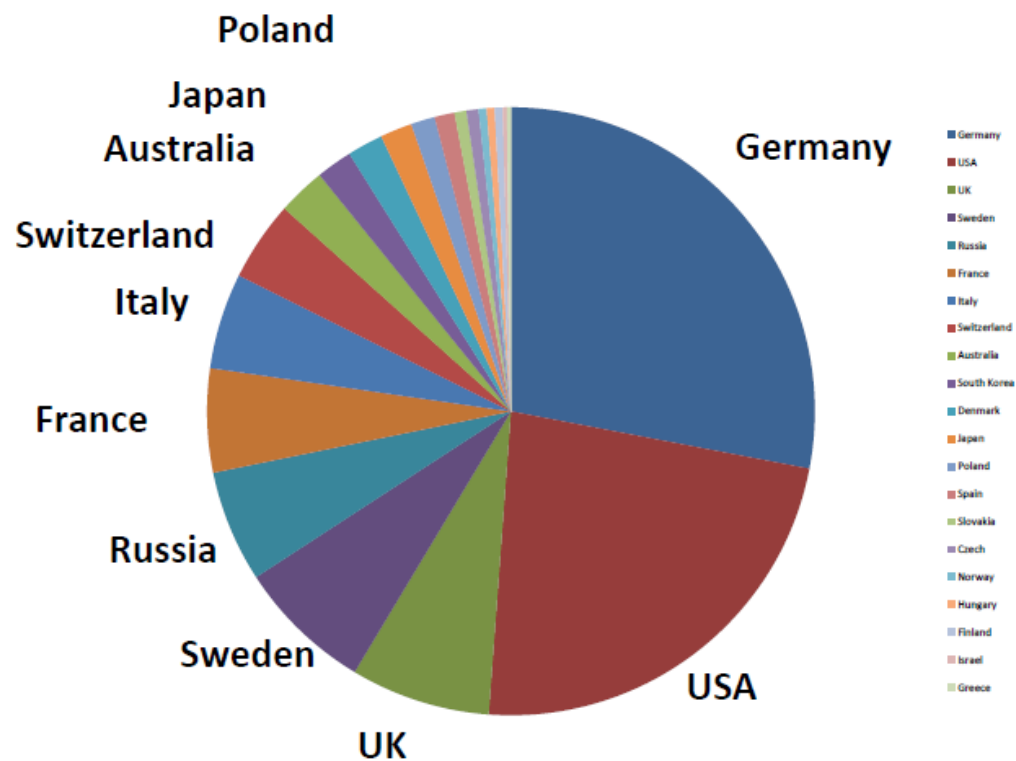


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Orange color: X-ray optics & Beam Transport

Analysis based on the first 63 proposals for FXE and SPB

*Number of co-proposers pr country
(excluding European XFEL)*



The European XFEL MB wishes fruitful and pleasant Workshop

