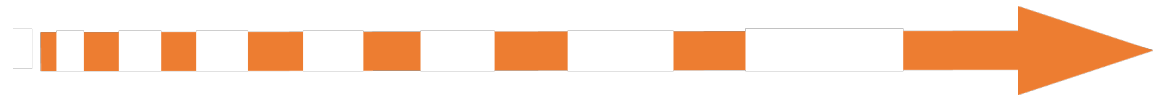


The XDC AHM in Hamburg



Data Management for extreme scale computing



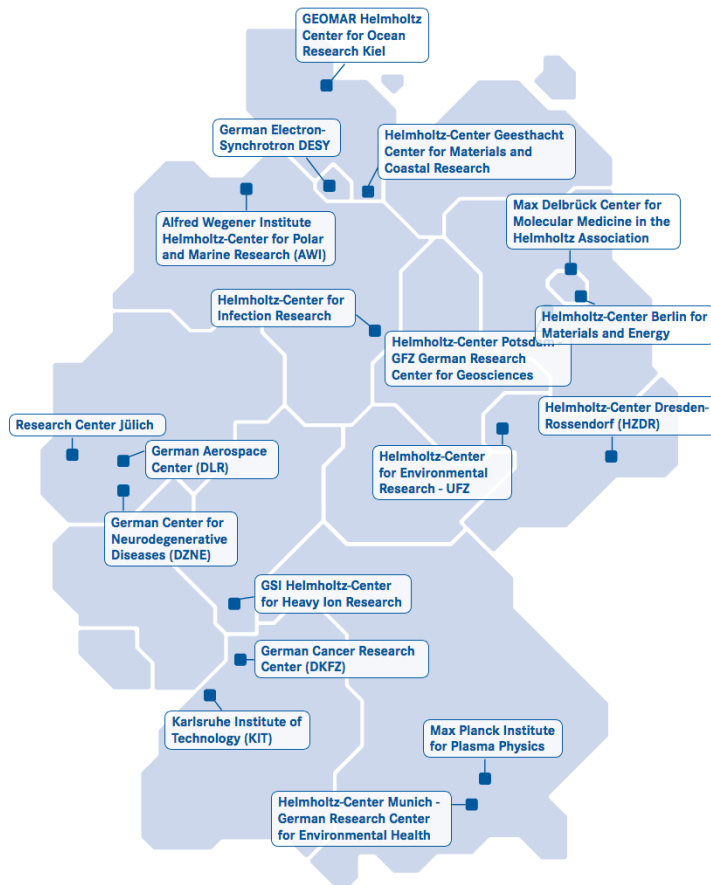
Many many people



eXtreme DataCloud is co-funded by the Horizon2020
Framework Program – Grant Agreement 777367
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DESY is member of the Helmholtz Alliance

DESY: Member of the Helmholtz Alliance

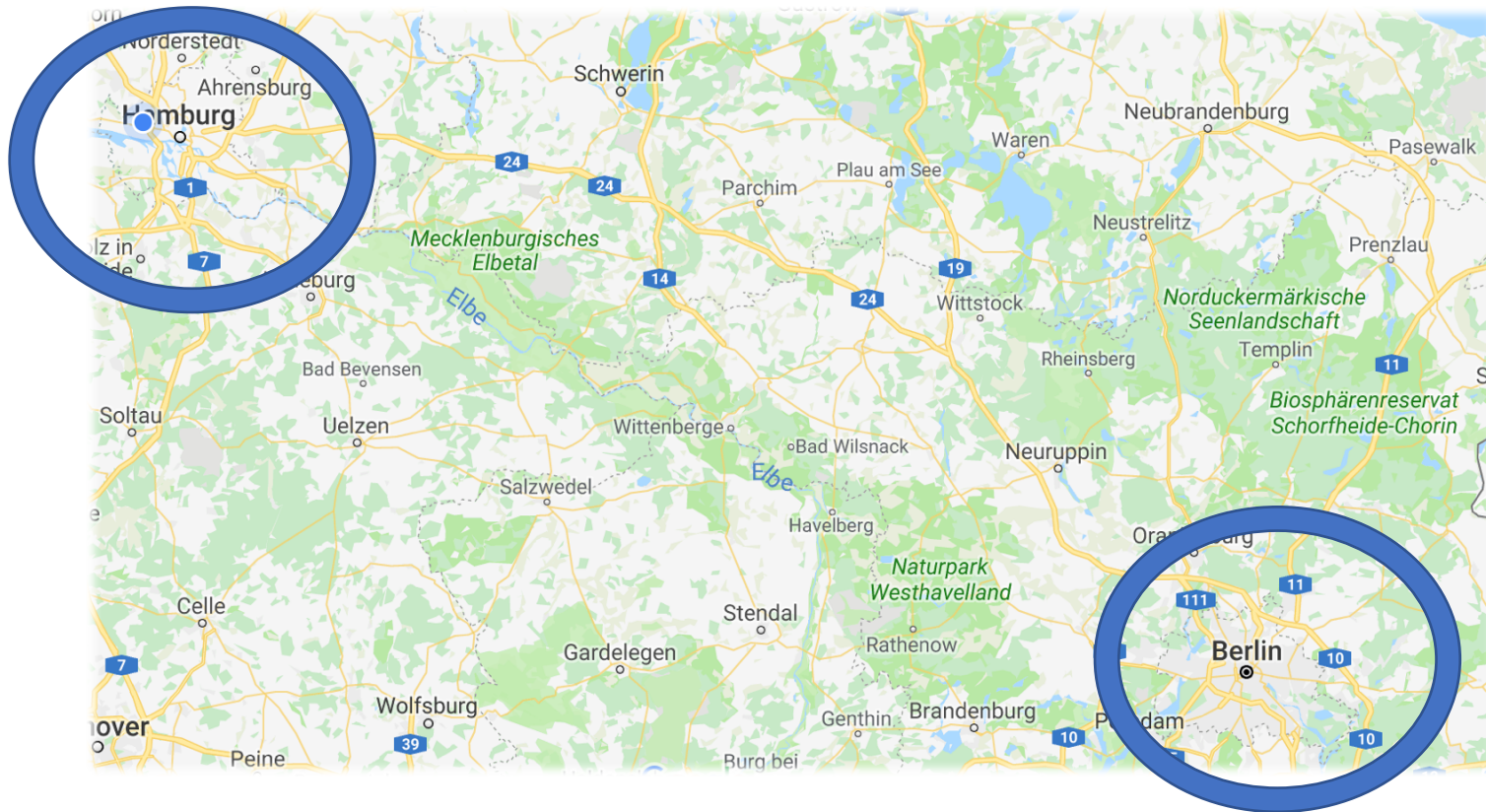


- ✕ Ocean Research
- ✕ Material and Coastal Research
- ✕ Polar and Marine Research
- ✕ Molecular Medicine
- ✕ Infection Research
- ✕ Center for Geosciences
- ✕ German Aerospace Center
- ✕ Heavy Ion Research
- ✕ German Cancer Research
- ✕ Plasma Physics
- ✕ Environment and Health
- ✕ Many more *****

DESY in a nutshell

One lab Two locations

Hamburg



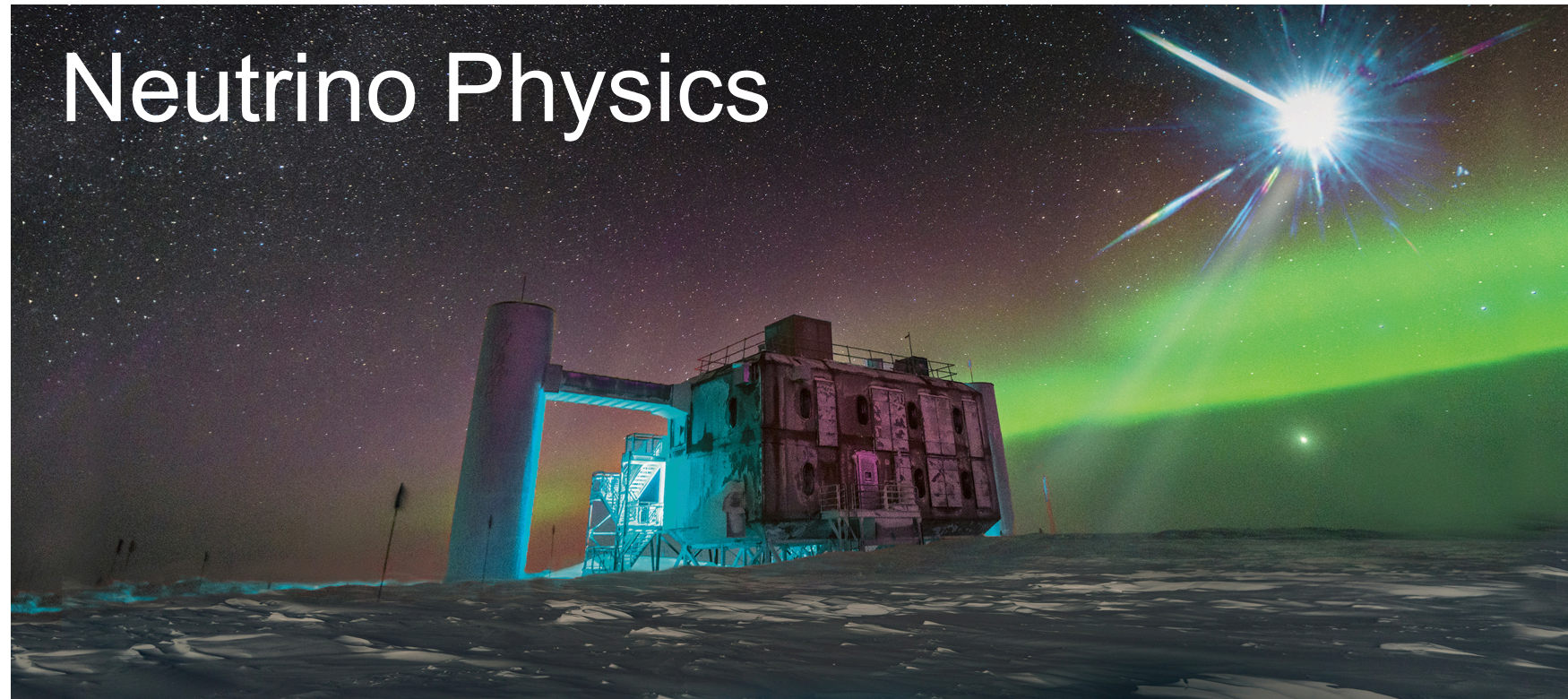
Zeuthen, Berlin

DESY Zeuthen

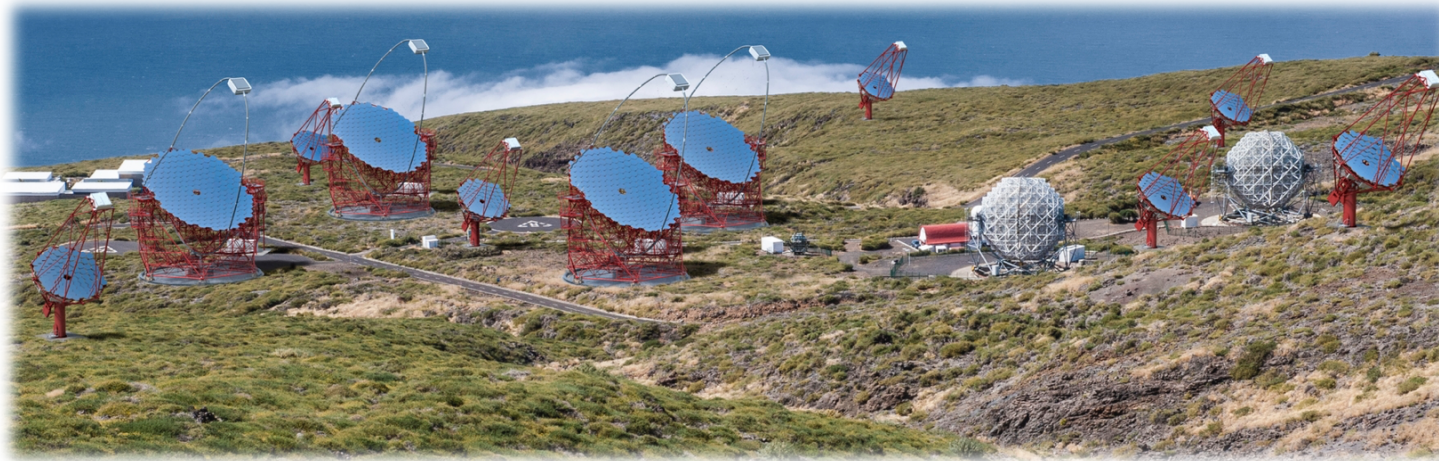


- ✕ Mostly astronomy
- ✕ Multi Messenger physics
- ✕ CTA (La Palma, Chile)
- ✕ ICE CUBE (South Pole)

ICECube (South Pole)



Cherenkov Telescope Array, CTA



- ✕ The Cherenkov Telescope Array (CTA) is the next generation ground-based observatory for gamma-ray astronomy at very-high energies.
- ✕ With more than 100 telescopes located in the northern and southern hemispheres, CTA will be the world's largest and most sensitive high-energy gamma-ray observatory.
- ✕ Chile and La Palma

Hamburg



✕ High Energy Physics

- ▢→ Tier II center for CMS and ATLAS

- ▢→ Physics groups from ATLAS, CMS and BELLE II

✕ Photon Science

- ▢→ Petra III

- ▢→ CFEL

- ▢→ XFEL

- ▢→ CSSB

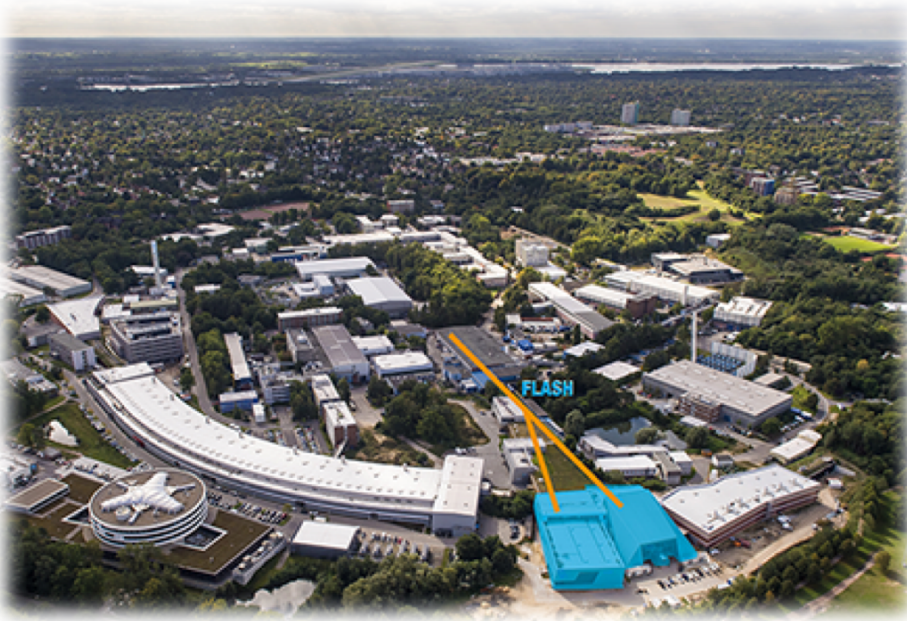
PETRA III Synchrotron Source



- ✗ The high brilliance 3rd Generation Synchrotron Radiation Source at DESY: **PETRA III.**
- ✗ With a circumference of 2.3 km PETRA III is the biggest and most brilliant storage ring light source in the world.
- ✗ 17 beamlines are available for users.
- ✗ PETRA IV is in preparation

FLASH.

Free Electron Laser in Hamburg



- ✗ FLASH, the **Free-Electron LASer** in **Hamburg**, started user operation in summer 2005 as the first free-electron laser for XUV and soft X-ray radiation.
- ✗ It is operated in the "self-amplified spontaneous emission" (SASE) mode and currently covers a wavelength range from 4.2 nm to about 52 nm in the first harmonic with GW peak power and pulse durations between 30 fs and 200 fs.
- ✗ FLASH1 offers five beamlines for users in the FLASH experimental hall 'Albert Einstein'

The European XFEL



It generates ultrashort X-ray flashes—27 000 times per second and with a brilliance that is a billion times higher than that of the best conventional X-ray radiation sources.

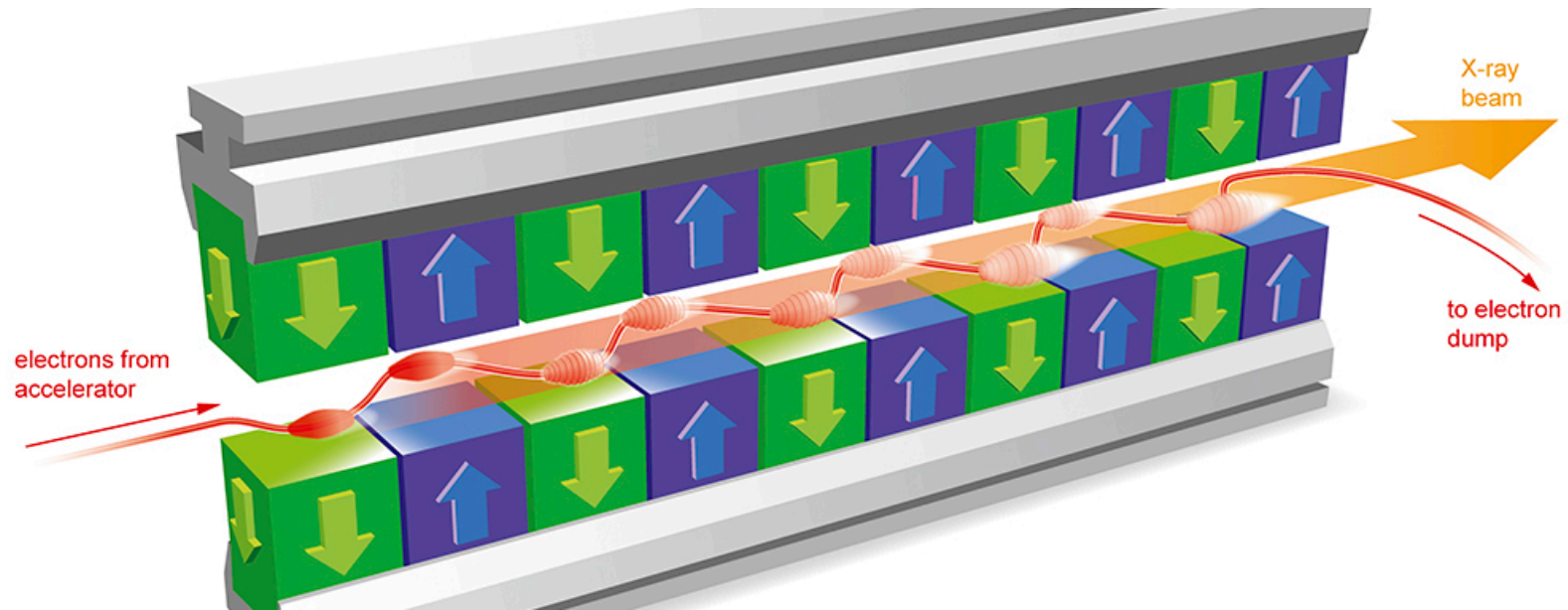
■ Experiment hall
■ Laboratories
■ Offices

■ Electron beam to photon beamlines
■ Undulator systems begin

■ Electron source
■ Linear accelerator begins

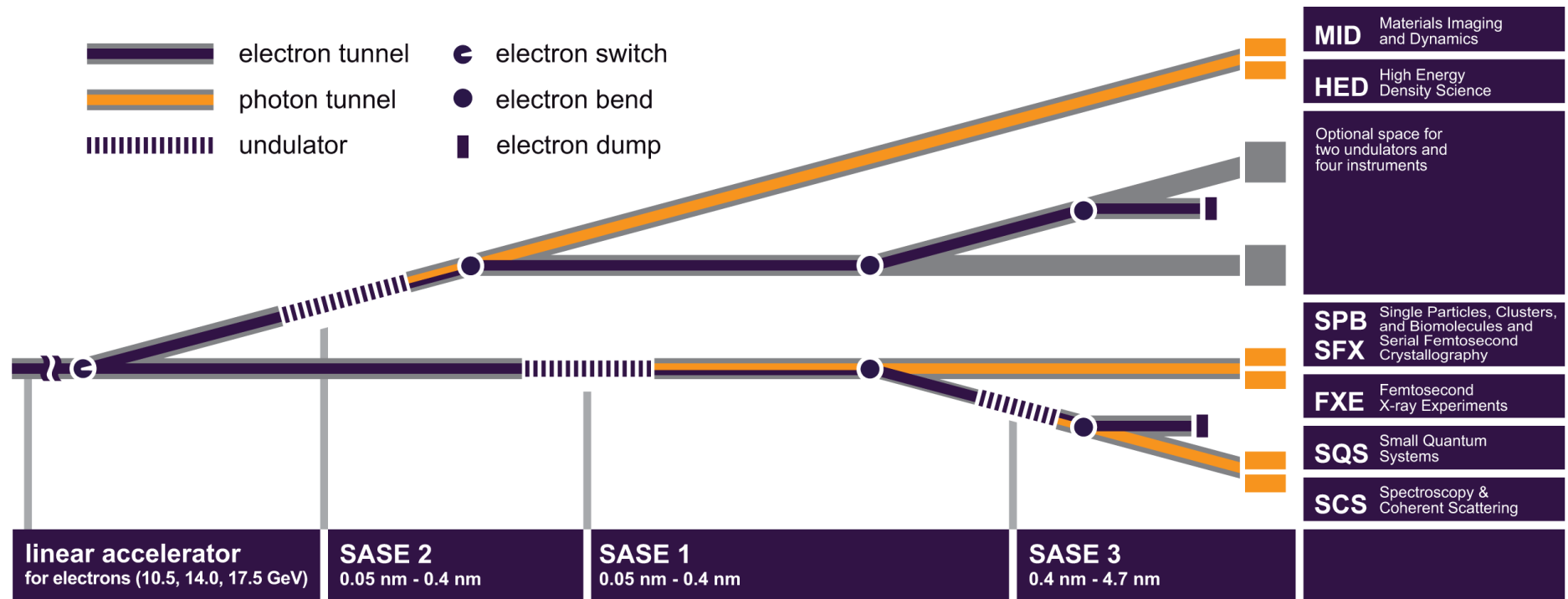
- 4 M Pixel Detector : 30 GBytes / sec about 1 ExaByte / year
- Expected 100 - 500 PBytes/year in full operation
- Planned installed storage : 50PB (2020)
- Up to 11 Beamlines

How it works



To generate the X-ray flashes, bunches of electrons are first accelerated to high energies and then directed through special arrangements of magnets (undulators). In the process, the particles emit radiation that is increasingly amplified until an extremely short and intense X-ray flash is finally created.

The XFEL Facility

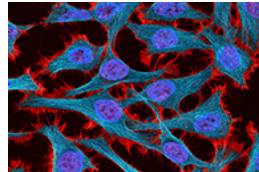
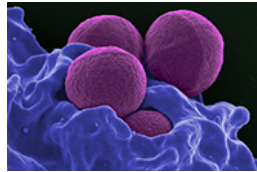


Center for Free-Electron Laser Science - CFEL



- ✗ The Center for Free-Electron Laser Science as a joint enterprise of DESY, the Max Planck Society (MPG), and the University of Hamburg is designed to advance science with next generation light sources and lasers.
- ✗ The three partners join forces to explore structural changes of atoms, molecules, condensed, biological, or warm dense matter on femtosecond time scales. CFEL envisions uncovering the "dynamics of matter" by uniting expertise from various disciplines and research institutions into a new interdisciplinary and synergistic effort.

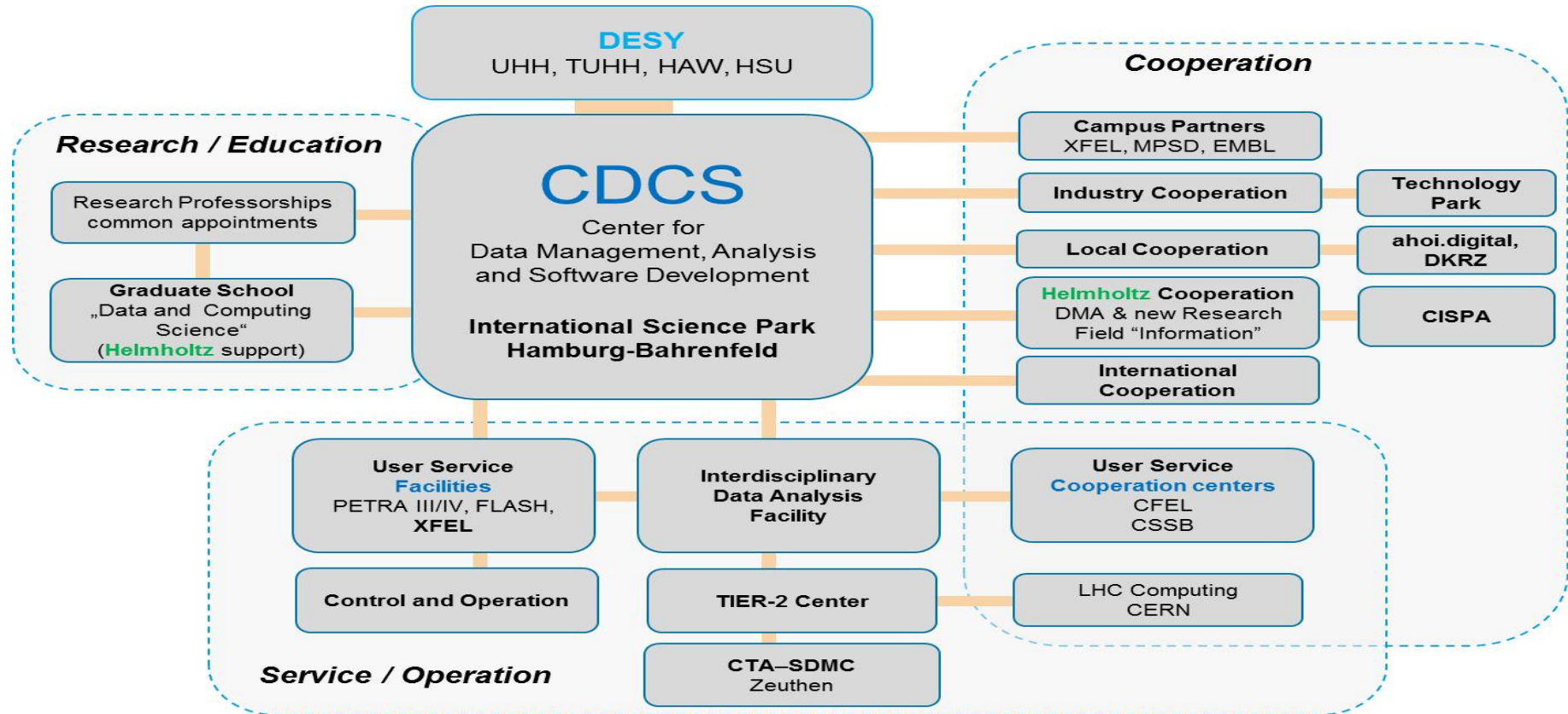
Centre for Structural Systems Biology (CSSB)



Pictures (l.-r.): NIAID, NIH, CDC/Melissa Brower

- ✗ The CSSB devotes itself to infection biology and medicine by utilizing structural and molecular biology methods and imaging techniques in conjunction with systems biology approaches. Our purpose is to unravel the underlying mechanisms of important pathogenic processes in order to discover more effective treatment options against bacterial and viral pathogens. To achieve this goal, CSSB uses the world-class research infrastructures on the DESY campus.
- ✗ CSSB is a joint initiative of ten research partners from Northern Germany, including three universities and six research institutes. We endeavor to become a leading international research centre in the city of Hamburg.

Center for Data Management, Analysis and Software development.

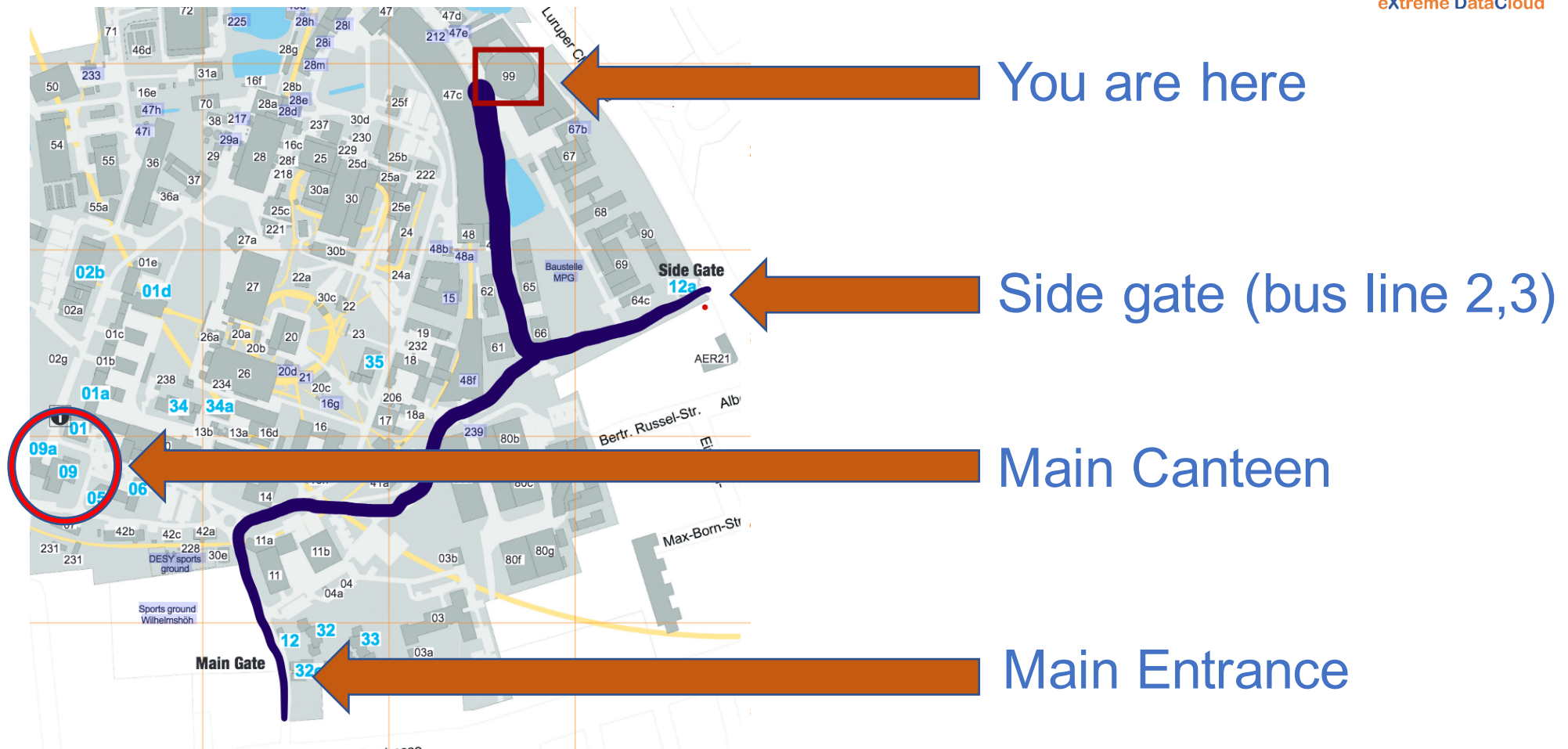


Logistics



- ✗ We meet here every day, starting 9:30
- ✗ INDICO sessions A,B,C are equivalent to rooms S I, S II, S III
- ✗ Lunch is in the small canteen outside (at your own expenses)
- ✗ Find Paul, Jürgen or myself for technical support.
- ✗ The ladies at the reception are Sabine and Stefanie.
- ✗ Working Dinner is tonight (bus at 18:30 outside)

DESY Topology



Working Dinner



✕ TONIGHT

- KLEINHUIS' Restaurantschiff Bergedorf
- Ponton Neumühlen
- 22763 Hamburg
- Tel. 040 - 39 73 83

✕ Bus from CFEL Building to boat

→ 18:30

✕ Party starts about 19:15

✕ HVV Bus Stations for boat

- Neumühlen/Övelgönne (Fähre)
 - Line 112 from/to Altona
- Hohenzollernring (and some walking)
 - Line 15 from/to Altona

✕ Back from boat to city

→ On your own

DESY Contacts

✕ Contact

....→ Sabine & Steffi

....→ itsec@desy.de

....→ +49 40 8998 3326 (Steffi)

....→ +49 40 8998 1789 (Sabine)

....→ Patrick

....→ +49 170 780 7476

Los geht's