

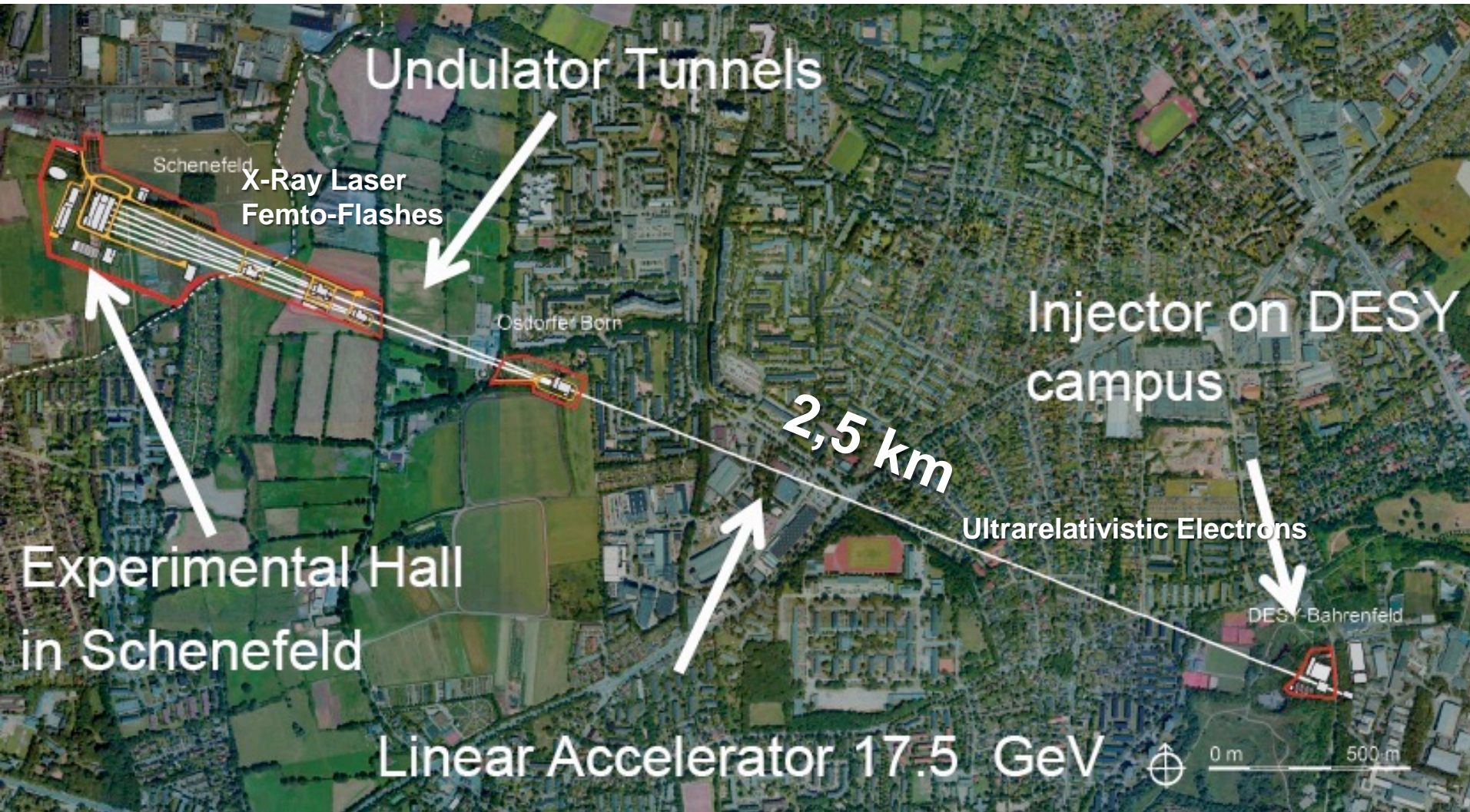
DESY, Helmholtz, ICFA

Joachim Mnich

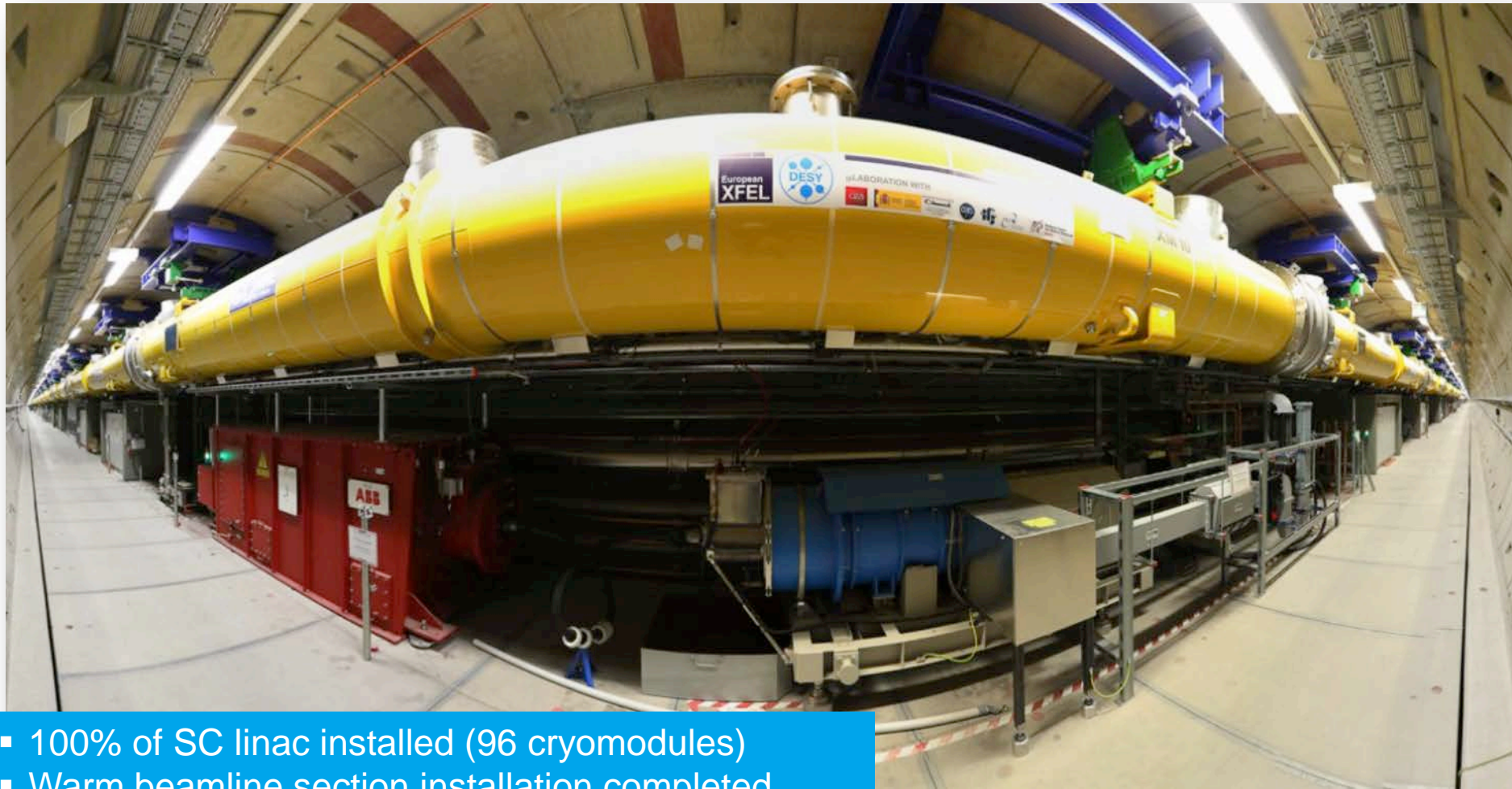
KET Annual Meeting
Bad Honnef, November 19, 2016



EUROPEAN XFEL



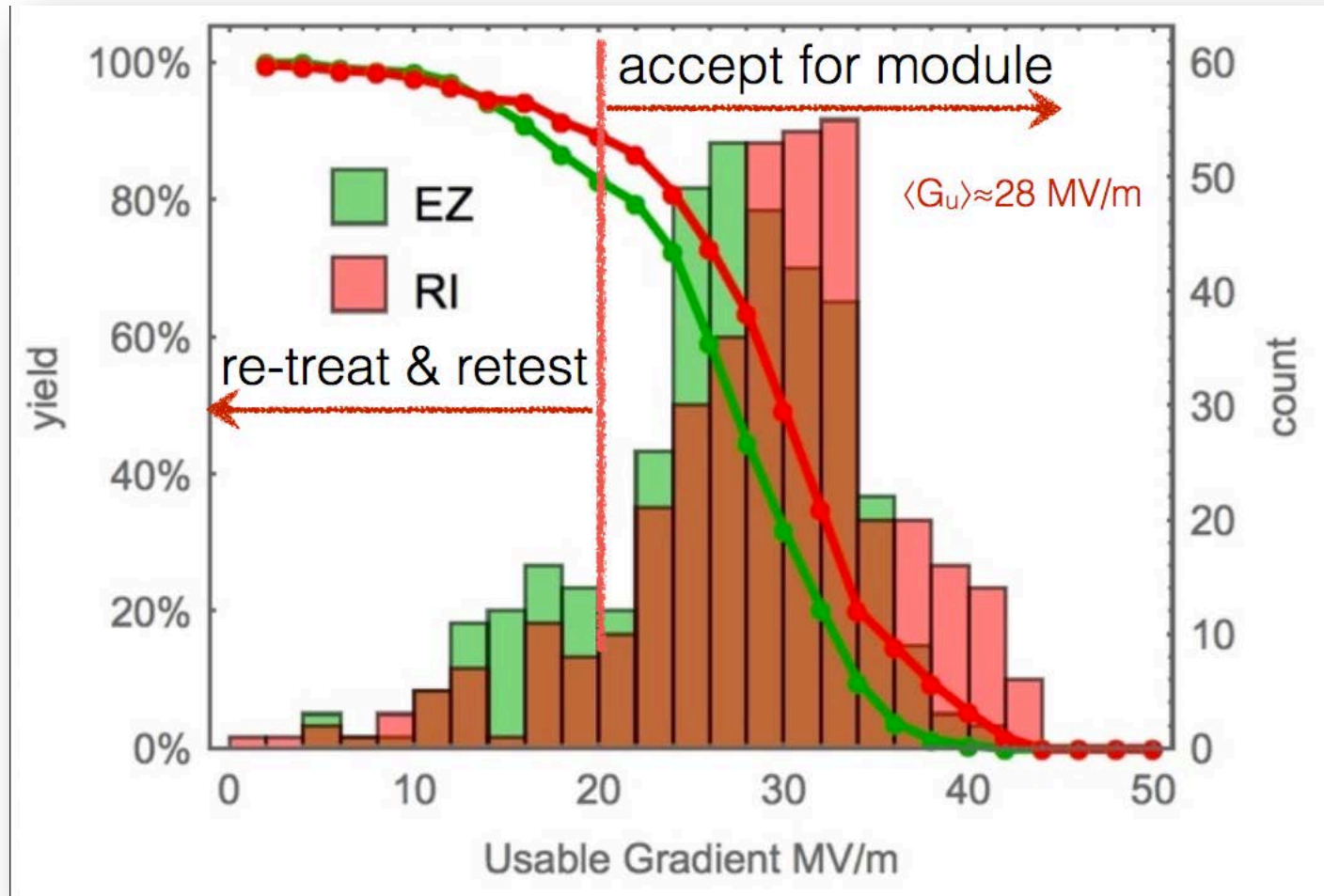
XFEL – OVERALL STATUS



- 100% of SC linac installed (96 cryomodules)
- Warm beamline section installation completed
- Injector commissioning completed 7/2016

CAVITY PERFORMANCE AFTER RE-TREATMENT

- > Close to ILC specs!
- > Large scale, industrial production!

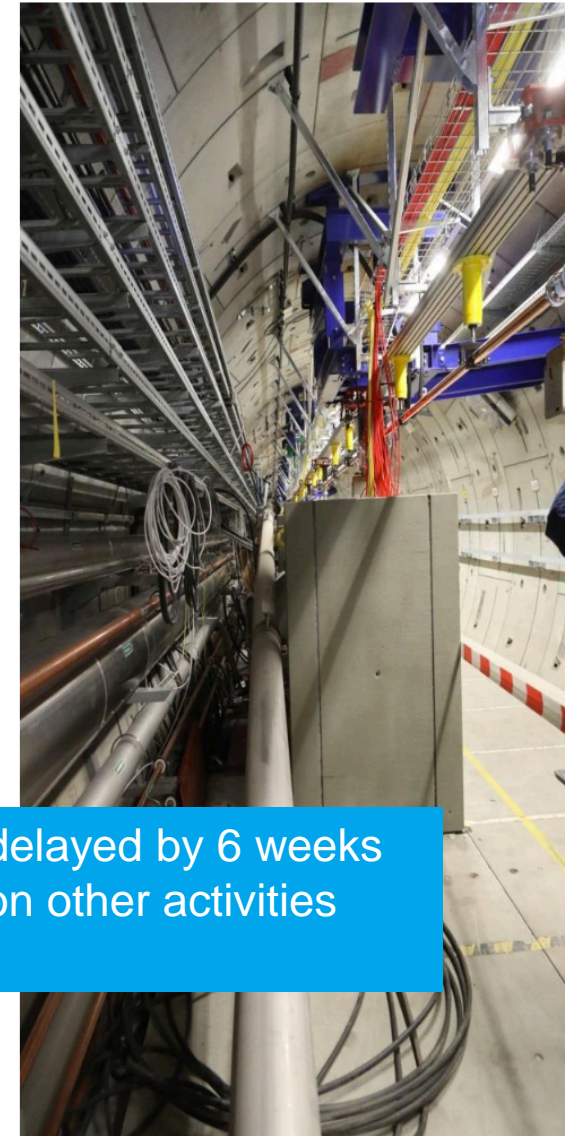


XFEL – MOVED TO SCHENEFELD IN JUNE 2016



Seemed to be ready to start linac cooldown in October...

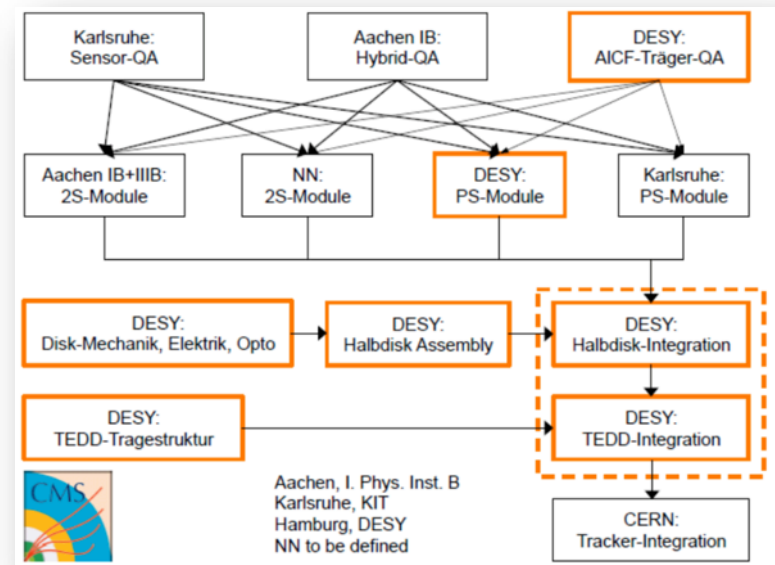
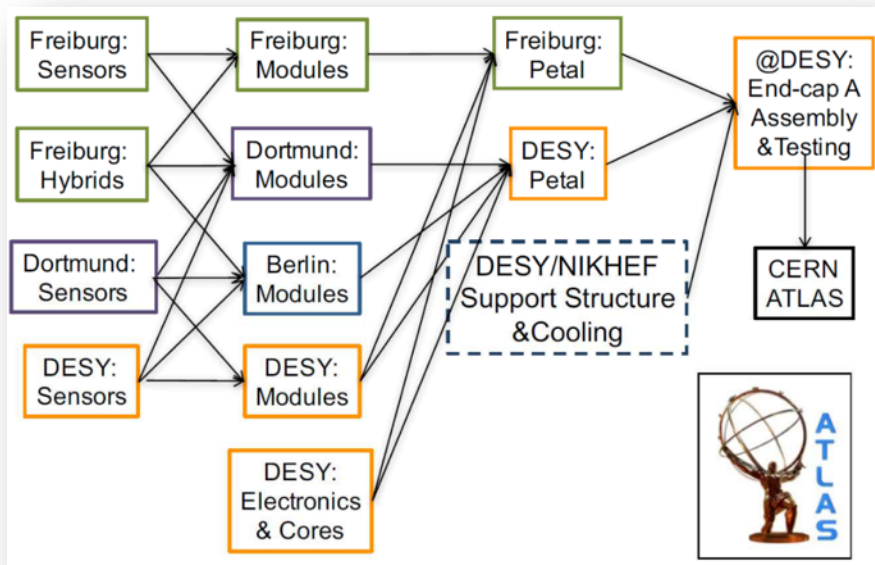
- > ... until the pressure test (~20 bar) of the Helium exhaust line on Oct 11...
 - > He pipe was tested 2 years ago, apparently without problems (but probably with bellows in a different state)
 - > Design, construction and installation performed by professional company experienced in such systems (and well known & reputed at DESY)
 - > Fix point at the end of the line (~50m from last module) could not stand the ~10 tons longitudinal force and broke loose
 - > Pipe elongated by 1.5m and tore down suspensions over length of ~250m, connections to 2 cryo boxes were destroyed
 - > Much of the pipe landed on wave (fortunately) stayed in place
 - > **No damage to insulation or beam vacuum of the modules!!**
- Cooldown schedule delayed by 6 weeks
 - No significant effect on other activities (e.g. DAF etc.)



LHC PHASE 2 UPGRADES (HL-LHC) IN GERMANY

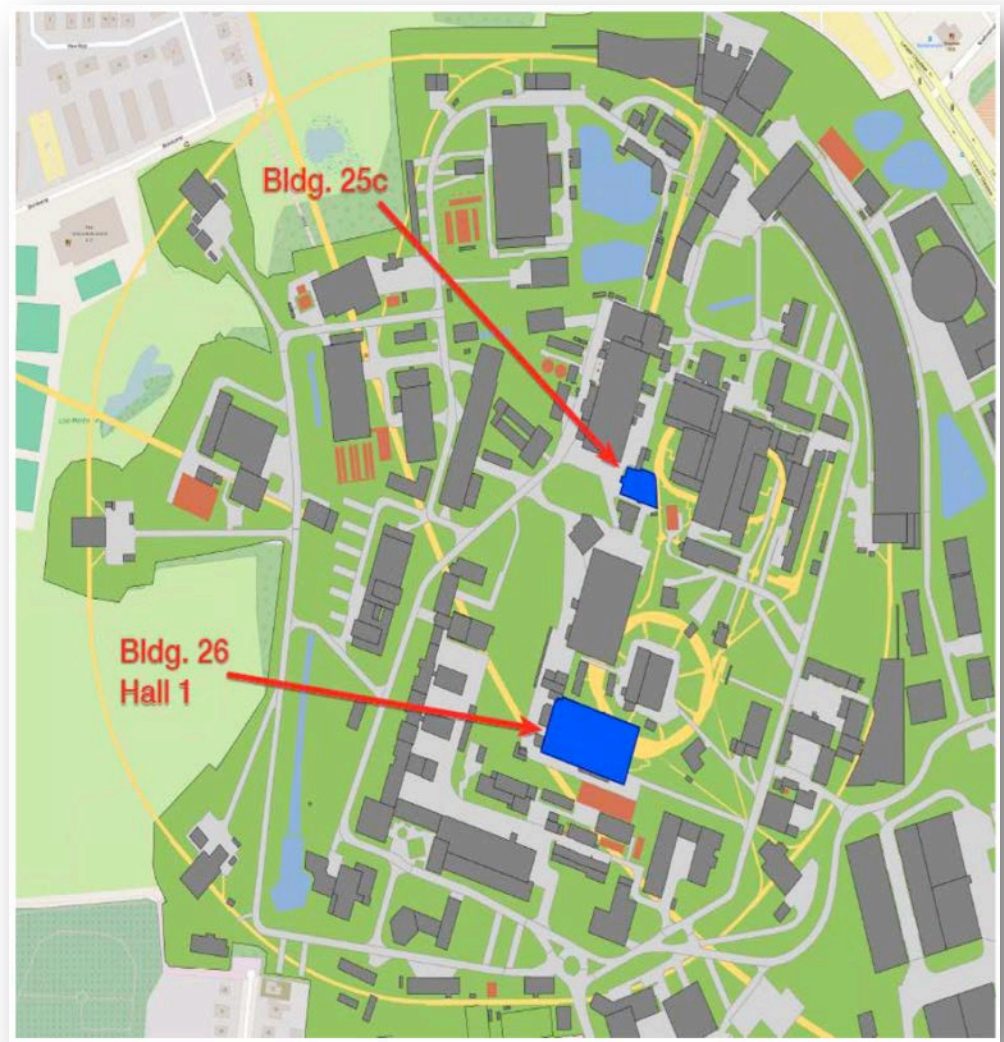
Major contributions from universities and DESY in both experiments:

- > ATLAS: Strip & pixel Si detectors, calorimetry, muon system, trigger&DAQ
- > CMS: Outer tracker, pixel detector, muon spectrometer
- > Helmholtz contribution: 15.7 M€ strategic investment funds for tracker end-caps @ DESY (wrt. 20 M€ requested)
- > Strong cooperation between universities and DESY
 - Reporting and controlling of BMBF funds coordinated through DESY
 - Assembly and system tests of tracker end-caps for CMS and ATLAS @ DESY



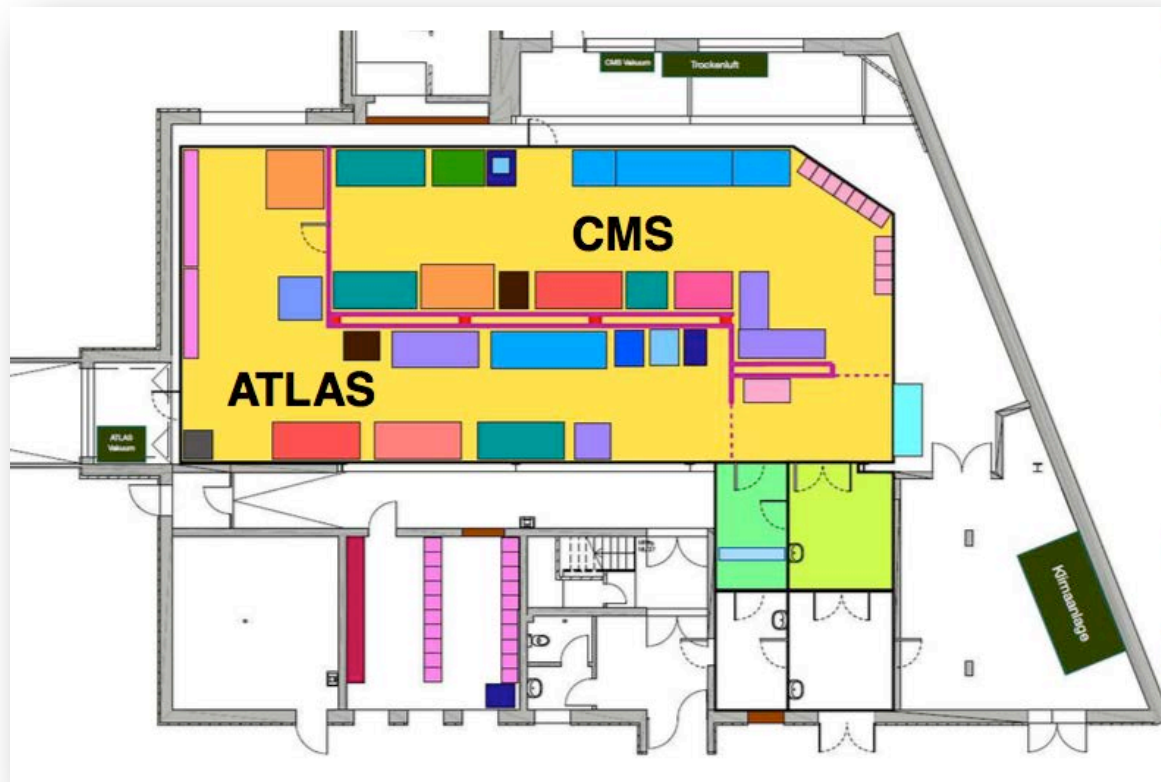
DETECTOR ASSEMBLY FACILITY (DAF) AT DESY

- > Approved by Foundation Council
 - 8.5 M€ from non-strategic investment funds
 - 1.5 M€ from base funds.
- > Building 25c:
 - Lab space and clean rooms
 - QA
 - Module production
 - Module testing
- > Building 26 (hall 1):
 - Hall with cleanrooms
 - Petal & DEE assembly
 - End-cap integration
 - System test
- > Shared by ATLAS and CMS



BUILDING 25c – GROUND FLOOR

- > Module production and testing
- > Clean room ISO6
 - ~255 m²
 - Storage
 - Technical equipment
- > Status:
 - Old infrastructure / walls removed
 - Preparing for clean room installation
 - Tender for clean room in progress
- > Plan:
 - Clean room installation at the beginning of 2017
 - Ready for users mid-2017



BUILDING 25c: 15 NOVEMBER



DESY-II TEST BEAM FACILITY

> Run 2016

- March 14th -December 23rd
- Availability of synchrotron ~99%!

> Requests 2016

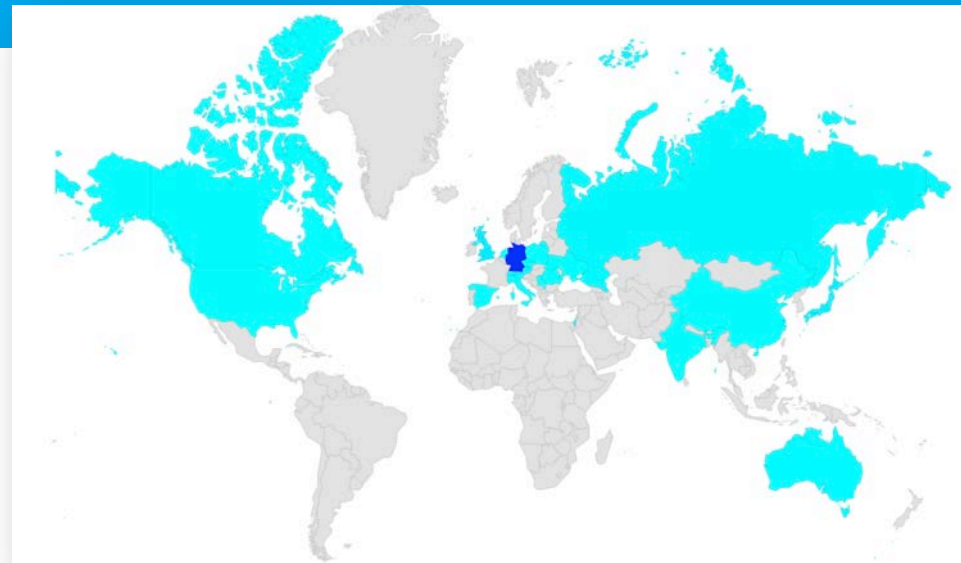
- ~ ½ from LHC groups
- 70% of groups request telescopes
- 243 users from 20 countries
- 62 % booked, 38% new users, 47 % students

> Highlights

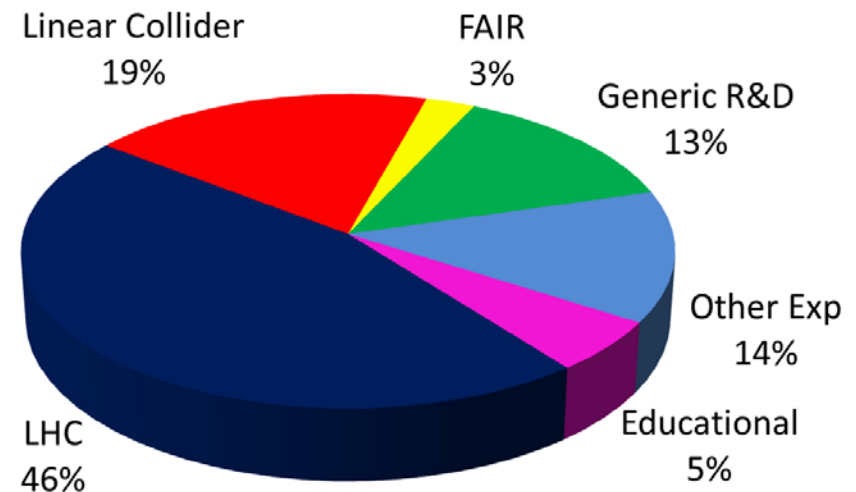
- Belle II tracking system test with 66 users
- First time: physics teachers from Hamburg to perform experiments

> Perspective:

- 2017 call out; so far 30 weeks requested

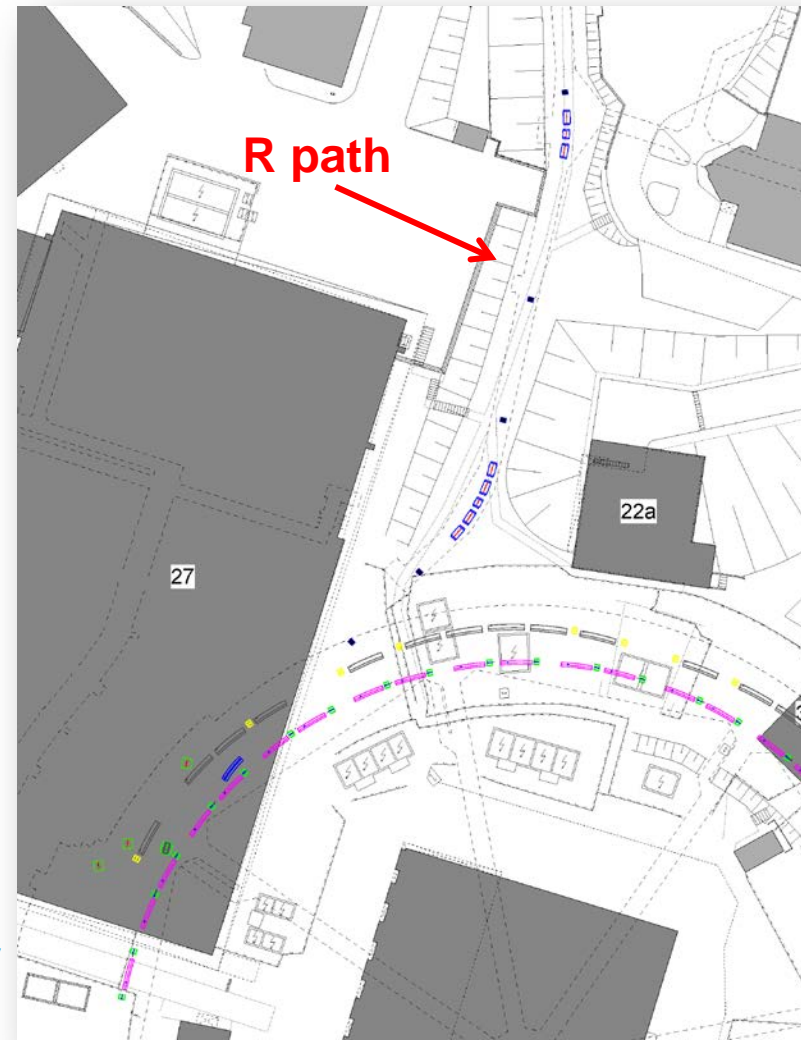


2016: 243 Users from 20 countries



DESY-II TEST BEAM FACILITY – UPGRADES?

- > Complement existing facility (3 beamlines) with direct extraction:
 - Electron beams of 6.3 GeV (monochromatic) with high intensity (100 kHz or more); particularly interesting for future tracker developments
 - Pion / muon beams: additional test possibilities; specifically for calorimetry and PID R&D for HL-LHC, HE-LHC, FCC, ILC, HI community, ...
 - Electromagnetic irradiation with high fluxes of electrons and photons below 1 GeV, for beam instrumentation purposes, space technology etc.
- > Idea: the old DORIS extraction (“R”) path
 - Currently used as beam dump
 - Parameters: repetition rate up to 12.5 Hz, with $1 \cdot 10^8$ to $3 \cdot 10^{10}$ particles / bunch
 - Extraction energies from 450 MeV to 6.3/7 GeV
- > R path uses existing infrastructure
 - Would come at moderate cost (small building, targets, instrumentation, interlock ..)



COMPUTING / TIER 2 etc. DESY

- > Batch, grid and NAF running smoothly (about 500 NAF users, 56% non-DESY)
 - Better-than-expected LHC running exerts pressure on storage and CPU capacities. DESY Tier 2 resources critical to dealing with increased demand.
- > Belle I/II: all collaborative tools and services moved to DESY. Plus:
 - Major MC campaigns and data challenges at DESY
- > Helmholtz Data Federation (HDF) now funded; provides hardware across many disciplines (lead institute KIT).
 - Some hardware for DESY (HEP / photon science): reduction to 6.5 MEUR; compensated by 2 MEUR from DESY base funds.
 - Kickoff meeting 21 September 2016; work plan under construction
- > Numerous running EU projects:
 - Indigo data cloud SW
 - European Open Science Cloud (EOSC, 52 PMs granted for DESY+XFEL)
 - HNSciCloud (procurement) running
 - EU-Call (mainly sensors, but for DESY HPC, FEL community) running
 - CREMLIN cooperation with Russia running
 - Preparation for EINFRA-12 Services and EINFRA-21 Development



Status GridKa 2016

- > BMBF money (6 M€) allowed for addressing the invest backlog (→ HDF)
 - Late availability of the money and required EU wide call for tenders lead to delays of procurements.

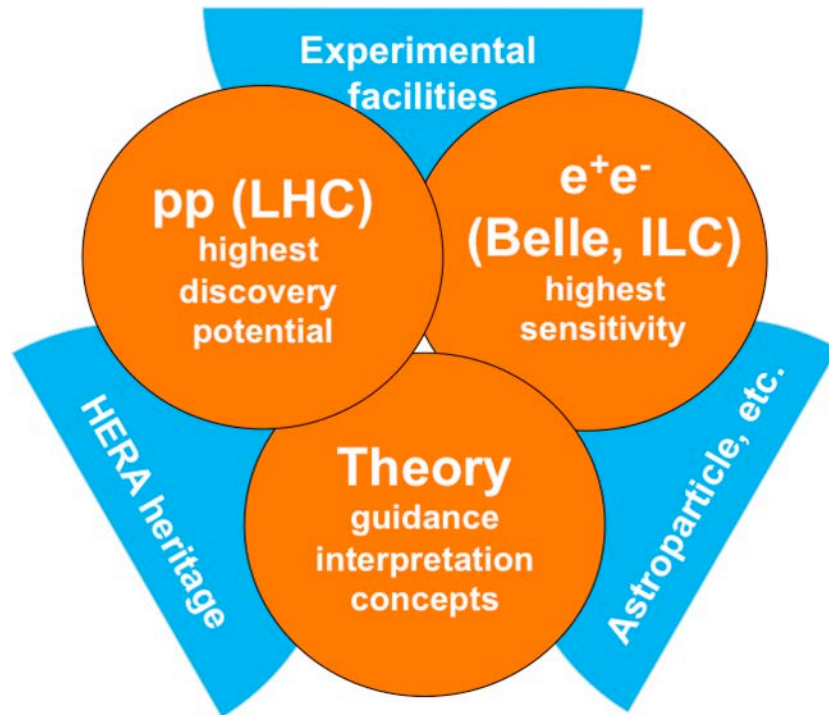
- > Achieved goals 2016:
 - Upgrade of the network infrastructure
 - WAN: 2 x 10 Gb/s dedicated to CERN, 1 x 100 Gb/s to DFN/X-WIN (LHCONE)
 - LAN: simplified core router setup, 100 Gb/s backbone
 - CPU farm extension and replacement of old hardware: 78000 HS'06 Available to the experiments since November
 - Online storage replacement and capacity extension: 20 PB
 - Disks are delivered. Server, controller, Infiniband infrastructure announced for begin of December.
 - Additional disk space available for experiments begin of 2017

- > Personnel: ATLAS exp. contact position filled since 7.11. (Haykuhi Musheghyan)

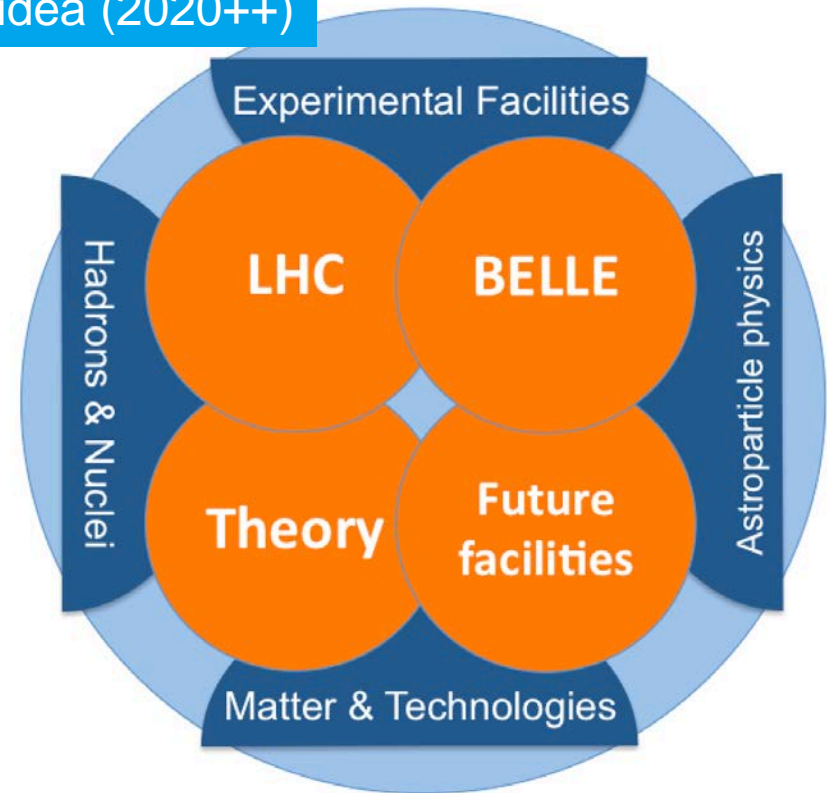


DESY: FROM POF 3 TO POF 4

POF 3 (2015-19)



POF 4 idea (2020++)



- > LHC (+ Belle + Theory) will remain the backbone of DESY particle physics in next funding period.
 - Explore potential in neutrinos (LBNF, CERN platform), axions (IAXO) and collider-based experiments (ILC, CLIC, FCC, CEPC, ...)

MATTER & UNIVERSE DAYS (MAINZ, 12/13 DECEMBER)

- > Annual meeting of the Helmholtz programme Matter & Universe
 - DESY, GSI, KIT, Jülich in particle and astroparticle physics, and hadrons&nuclei
 - Warm invitation to university colleagues – optimal possibility to foster collaboration and broaden horizons!

MU Programtag 2016

12-13 December 2016
Helmholtz Institute Mainz
Europe/Berlin timezone



Overview

Scientific Programme

Timetable

Contribution List

Author List

Registration

↳ Registration Form

Participant List

Contact:

✉ klotter@uni-mainz.de

☎ 0049 6131 3923443



Starts 12 Dec 2016 09:00
Ends 13 Dec 2016 16:05
Europe/Berlin



Helmholtz Institute Mainz
Staudingerweg 18
55128 Mainz
Germany



Accommodation

Please book a hotel on your own. Day rates given below may change as they depend on availability.

Near Main Station:

Hotel Königshof, Schottstr. 1-5, 55116 Mainz (special University rate available: 65€/single room, 72€/ double room used by single person, both incl. breakfast)

City-Hotel Neubrunnenhof, Große Bleiche 26, 55116 Mainz (62-86 €/single incl. breakfast)

Advena Europa Hotel, Kaiserstr. 7, 55116 Mainz (start at price of 89€/single incl. breakfast, day rate)

InterCity Hotel, Binger Str. 21, 55131 Mainz (start at price of 80 €/single without breakfast, day rate)

Hotel Hammer, Bahnhofplatz 6, 55116 Mainz (start at price of 92€/single incl. breakfast)

Near University/HIM:

Hotel Römerstein, Draiser Str. 136 f, 55128 Mainz (small house in walking distance to University/HIM; to get special University rate for 69 €/single incl. breakfast mention "MU-Tag 2016" in your reservation request)

ParkInn by Radisson, Haifa-Allee 8, 55128 Mainz, day rates (no walking distance but easy to reach by car within 5 min.), start price of 87€/single without breakfast, day rate

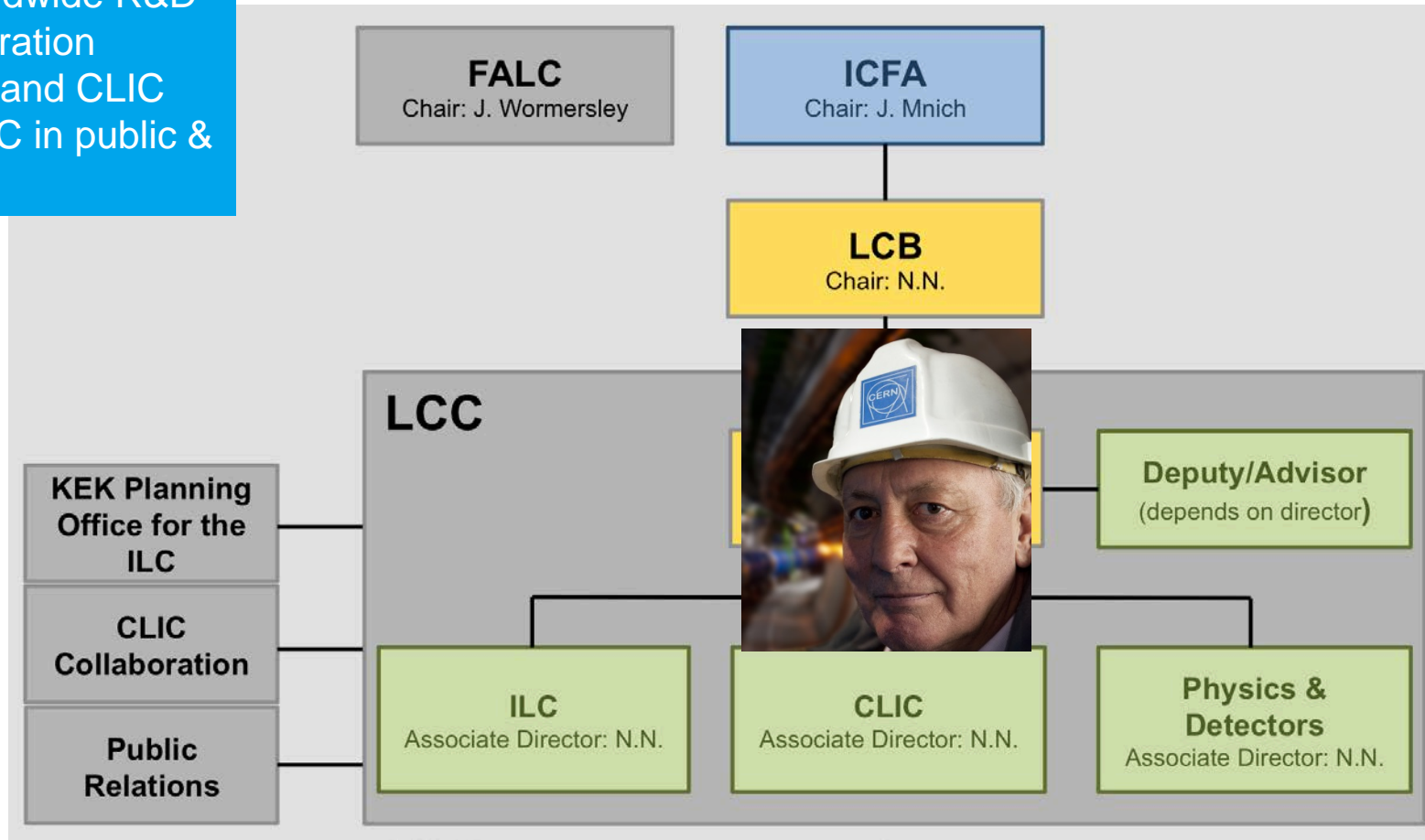
The first event in the Mainz INDICO:
<http://indico.him.uni-mainz.de/event/1>



ICFA: NEW MANDATE FOR LCB/LCC

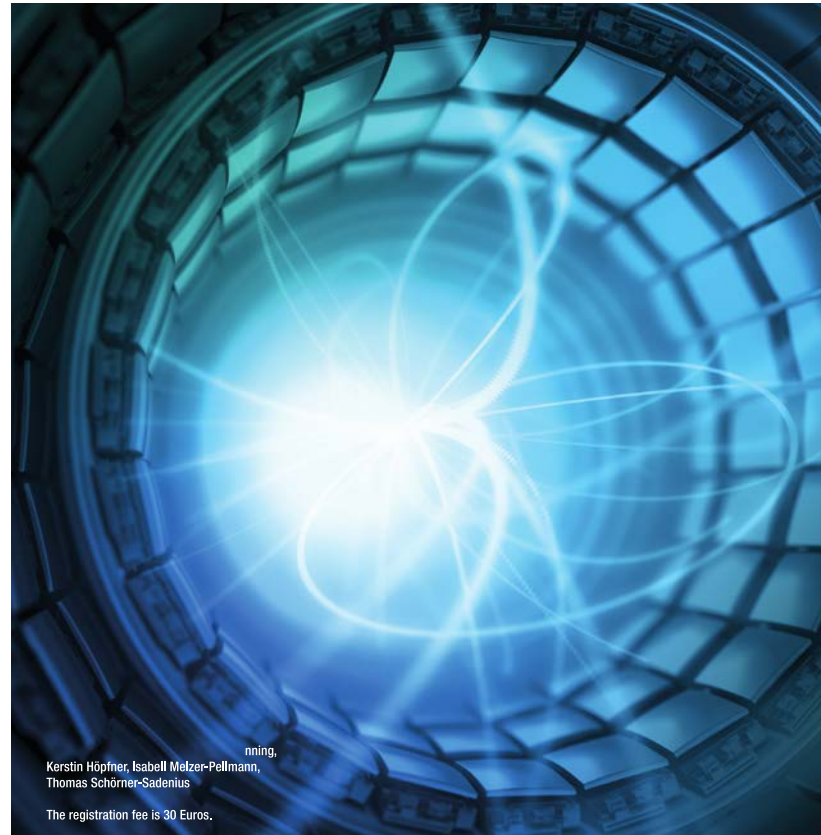
Tasks:

- Oversee worldwide R&D
- Keep collaboration between ILC and CLIC
- Promote ILC in public & politics etc



- > To be reviewed by ICFA at least every 3 years
 - Now: Fill remaining boxes with names

TERASCALE ANNUAL MEETING NEXT WEEK



nning,
Kerstin Höpfner, Isabell Melzer-Pellmann,
Thomas Schörner-Sadenius

The registration fee is 30 Euros.



ADVERTISEMENT: FCC WEEK IN BERLIN 2017



FCCWEEK2017
Future Circular Collider Conference
BERLIN, GERMANY
29 MAY - 02 JUNE
fccw2017.web.cern.ch

Logos: European Union, CERN, IEEE CSC, DPG, DESY



DESY SUMMER STUDENT PROGRAMME

SUMMER STUDENTS.

DESY International Summer Student Program 2017
18 July to 7 September

DESY is one of the world's leading accelerator centers for investigating the structure of matter. DESY develops and builds large particle accelerators and conducts research in the fields of photon science and particle physics. The research facilities of DESY are used by a large international community of scientists. Each summer DESY offers students in physics or related natural science disciplines the opportunity to participate in its research activities. About 100 students from all over the world take part in DESY's research and attend the lecture program.

www.desy.de/summerstudents



Photon Science

Summer students join groups at DESY and European XFEL which address fundamental and applied questions in the fields of physics, biology, chemistry, crystallography, materials and geological sciences, computing and engineering. This includes research with synchrotron radiation on molecules, soft matter, solid-state and nanomaterials, the development of new experimental techniques based on synchrotron radiation and lasers and the theory of interaction of matter and light.

Elementary Particle Physics, Astroparticle Physics and Accelerators

Summer students will work in the analysis, software or detector related fields of experiments in elementary particle physics (ATLAS, CMS, ILC, BELLE II, ALPS-II) and astroparticle physics (CTA, IceCube), development of particle accelerators, theory of elementary particles and astroparticles, or computing.

Application Deadline is 31 January, 2017.

Qualified applicants should have completed three years of full time studies on a university level by summer 2017.

All participating students will obtain financial support.

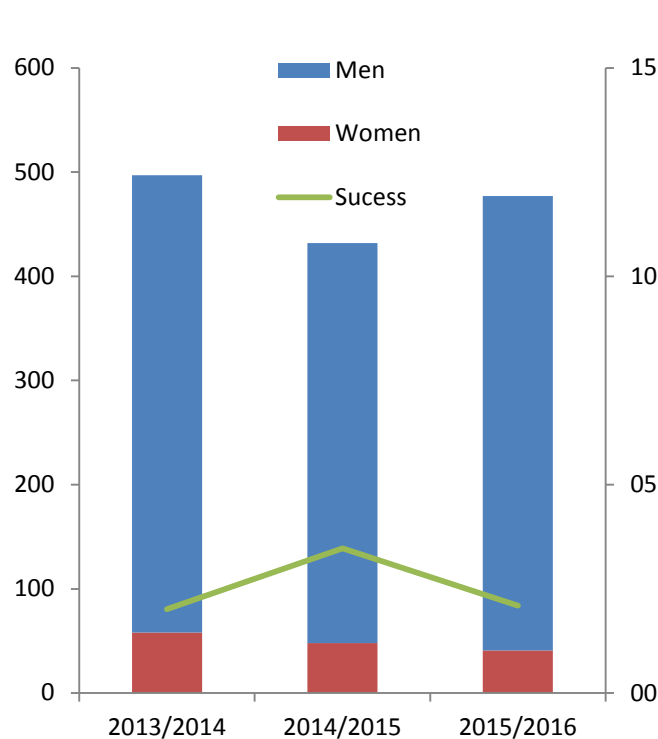
Beschleuniger | Forschung mit Photonen | Teilchenphysik

Deutsches Elektronen-Synchrotron
Ein Forschungszentrum der Helmholtz-Gemeinschaft

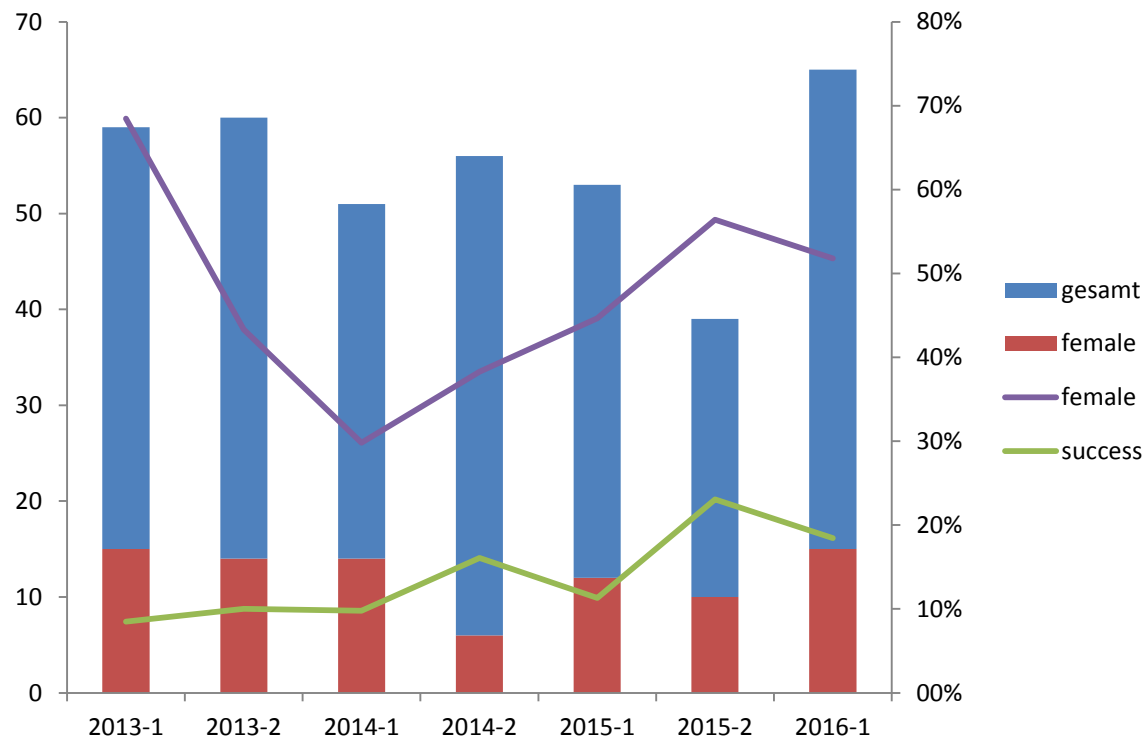


DESY FELLOWSHIP PROGRAMMES

> Applications DESY Fellowship Programmes:



Theory
1 call per year



Experiment
2 calls per year



DESY FELLOWSHIP PROGRAMMES

Accelerators | Photon Science | Particle Physics
Deutsches Elektronen-Synchrotron
A Research Centre of the Helmholtz Association



PARTICLE PHYSICS.

**DESY has openings for:
DESY-Fellowships -
experimental particle physics**

DESY

DESY is one of the world's leading research centres for photon science, particle and astroparticle physics as well as accelerator physics.

Next deadline 31.03.2017

The position

Fellows in experimental particle physics are invited to participate in a project of DESY's particle physics research programme.

- Analysis and detector-upgrade in the LHC experiments ATLAS and CMS
- Preparation of the International Linear Collider ILC (accelerator and experiments)
- Cooperation in the Analysis Forum of the Helmholtz Alliance "Physics at the Terascale"
- Participation in experiments like ALPS and BELLE II
- Generic development of detectors and accelerators for applications in particle physics

DESY Theory

ACCELERATORS | PHOTON SCIENCE | PARTICLE PHYSICS

Deutsches Elektronen-Synchrotron
A Research Centre of the Helmholtz Association



URL: https://theory-hamburg.desy.de/e57892/e106220/index_eng.html

PostDoc positions

The DESY Theory Group in Hamburg announces a **Fellowship Program** for young scientists in **theoretical particle physics**. The fellowships normally start in October 2017 and are awarded for two years. Applicants must hold a Ph.D. in theoretical physics at the time of appointment.

The research programme of the group includes collider phenomenology (in particular Higgs physics, physics beyond the Standard Model, flavour physics, QCD, Monte Carlo generators), particle cosmology, axions and other nonstandard light particles, string theory and mathematical physics (in particular gauge-string dualities, conformal field theories and integrable models).

Applications can be submitted via [this web interface](#) and should include a statement of research interests, CV, list of publications, as well as the names of three referees who will be asked to send letters of recommendation. In case of technical problems, you may contact pd-app-desyt@desy.de.

The deadline

Next deadline 01.12.2016

Salary and benefits

based upon qualifications and assigned duties. DESY operates flexible work schemes. Handicapped persons will be given preference to other equally qualified applicants. DESY is an equal opportunity, affirmative action employer and encourages applications from women. There is a bilingual Kindergarten on the DESY site.

