

DESY Summer Student Program 2022



Orga-Team: Olaf Behnke, Friederike Januschek, Andreas Przystawik,
Ute Micheelsen, Andrea Schrader

The 76 Summer students at DESY Hamburg come from
35 Nations

- Afghanistan, Austria, Brazil, Bulgaria, Colombia, Cuba,
- Denmark, Ecuador, Egypt, France, Germany, Greece,
- India, Iran, Italy, Jordania, Kosovo, Lithuania, Malaysia,
- Norway, Pakistan, Palestine, Phillipines, Poland, Romania,
- Russia, Slovakia, South-Africa, Spain, Switzerland, Taiwan,
- Thailand, Turkey, United Kingom, Ukraine

NICE TO MEET
YOU!

The 76 Summer students at DESY Hamburg come from
35 Nations

- Afghanistan, Austria, **Brazil**, Bulgaria, Colombia, Cuba,
- Denmark, Ecuador, **Egypt**, France, **Germany**, Greece,
- **India**, **Iran**, **Italy**, Jordania, Kosovo, Lithuania, Malaysia,
- Norway, **Pakistan**, Palestine, Phillipines, Poland, **Romania**,
- **Russia**, Slovakia, **South-Africa**, **Spain**, Switzerland, Taiwan,
- Thailand, Turkey, United Kingdom, **Ukraine**

**We welcome 58 Summer Students
on-site and 18 Remote**

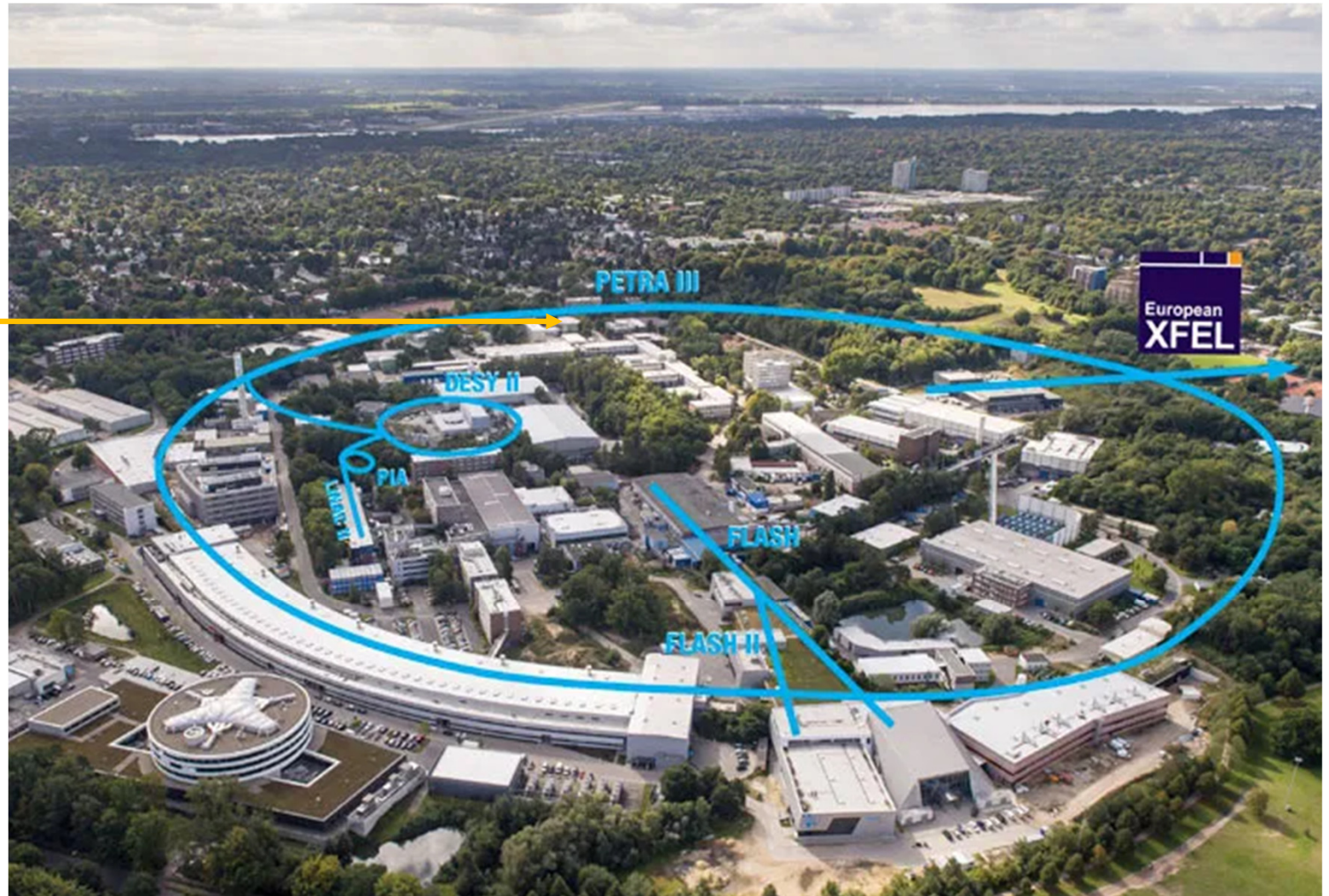
Organisers (core team)

- **Olaf Behnke, Friederike Januschek, Andrea Schrader** ← **HEP (B)**
- **Andreas Przystawik, Ute Micheelsen** ← **Photon Science (A)**

For all communications with us, please write to
summie-org@desy.de

DESY Site at Hamburg

We are HERE now





ATLAS group:

- Physics analysis: H, top, SM & BSM
- Detector operation
- Tracker upgrade



DESY PARTICLE PHYSICS in 2022

FTX group

- Prepare future experiments
- e+e- collider program
- Science, software, detector, test beam and accelerators

LUXE:

- XFEL e beam + laser → test non-perturbative QED regime



CMS group:

- Physics analysis: H, top, SM & BSM
- Detector operation
- Tracker upgrade

Theory:

- Collider phenomenology
- Cosmology
- String theory

IT:

- high tech computing infrastructure



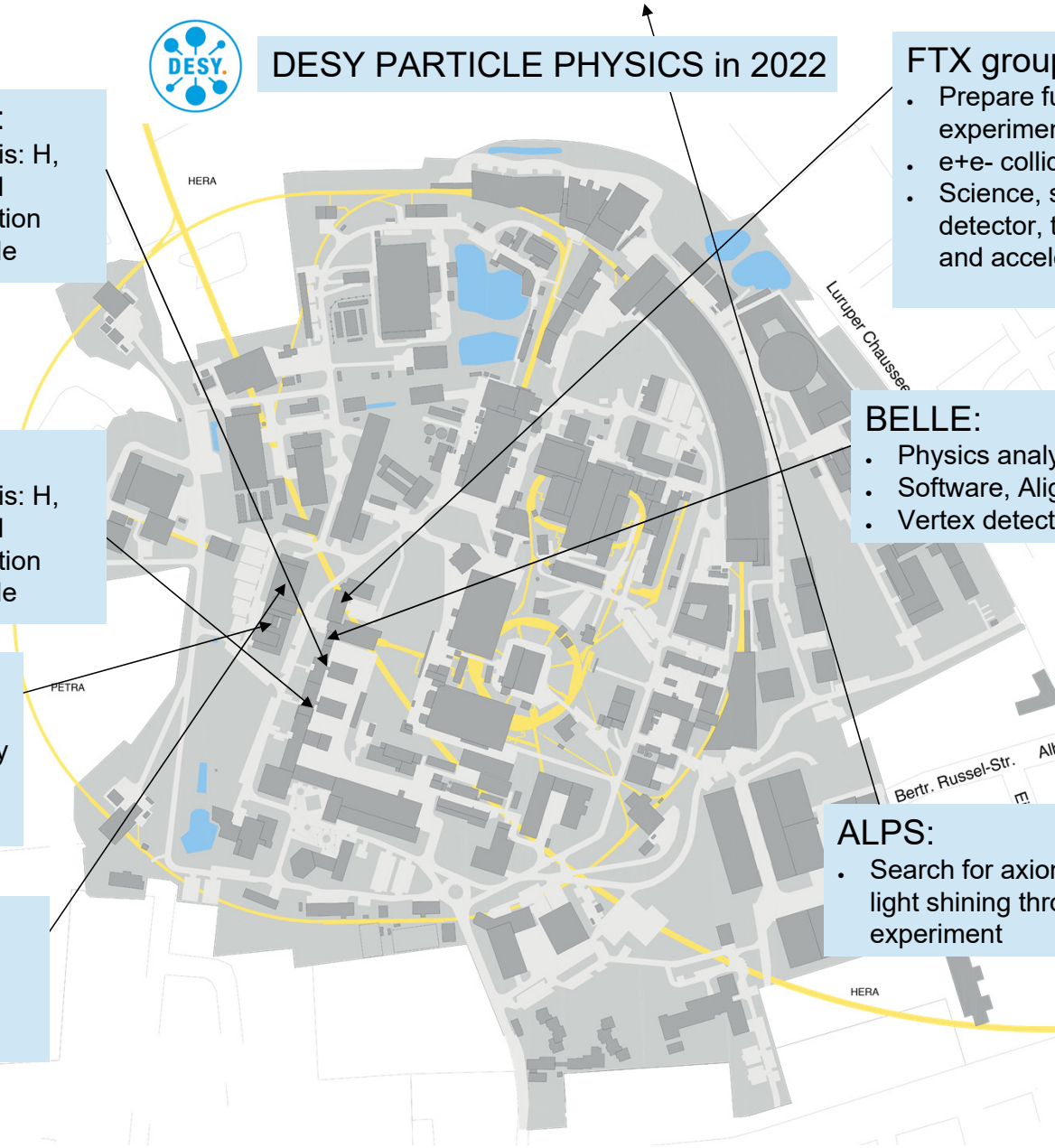
BELLE:

- Physics analysis
- Software, Alignment
- Vertex detector



ALPS:

- Search for axions with light shining through wall experiment





Photon Science at DESY – strong collaborations on campus

EuXFEL

~3km towards Schenefeld

- Many research teams can make use of the facilities for their experiments
- Applies to on-campus research as well as external users

Center for FEL Science (CFEL)

European Molecular Biology Laboratory

Center for Structural Systems Biology

University Hamburg
Institute of Laser Physics,
Center for Optical
Quantum Technologies

Max Planck Institute
for the Structure and
Dynamics of Matter



Photon Science at DESY – strong collaborations on campus

Wide range of techniques and topics (not exhaustive):

- Nuclear resonant scattering (Mössbauer spectroscopy)
- Hard x-ray scattering under extreme conditions (in diamond anvil cells)
- Wide angle scattering of nanofocussed x-ray beams
- Magnetic spectroscopy, XMCD
- Nanotomography, phase contrast imaging
- Coherent diffraction imaging, x-ray microscopy
- X-ray photon correlation spectroscopy, time-resolved x-ray spectroscopy
- Imaging of biological samples (there are dedicated beamlines at PETRA III)
- Molecular crystallography
- Femtosecond diffractive imaging
- Femtosecond x-ray holography

Center for FEL
Science (CFEL)

European Molecular
Biology Laboratory

Center for Structural
Systems Biology

University Hamburg
Institute of Laser Physics,
Center for Optical
Quantum Technologies

Max Planck Institute
for the Structure and
Dynamics of Matter

Your Research Projects at DESY

Work project technical support:

All support is provided locally by the project supervisors and their respective DESY groups, system administrators, etc.

You will be integrated in the DESY groups like normal researchers, for work related questions ask your supervisors or group secretaries!

Your Research Projects at DESY

What we expect from you:

On-site students

Remote students:

Work duration:
(including lecture time)

39 h per week

max. 39 h per week
on average \geq few hours/working day

Final work

Report: $\mathcal{O}(10)$ pages

at least few pages

All students should have the chance to present their project work and results at least at once to their DESY group (e.g. towards the end of the project)

General recommendation for project work:

→ don't be shy, be pro-active and don't hesitate to ask your supervisors questions and give feedback!

Lecture programme

<https://indico.desy.de/event/35182/timetable/#20220719.detailed>

- By DESY researchers
- Provide background on DESY research

Examples:

2. Introduction to HEP 2

 Achim Geiser (CMS (CMS Fachgru...

 7/20/22, 10:30 AM

General lectures

3. Introduction to Photon Science 1

 Lucas Schwob (FS-BIG (Biomolekue...

 7/20/22, 11:30 AM

General lectures

29. Dark Matter / Axionen / ALPS: Part 1

 Axel Lindner (ALPS (ALPS _ Any L...

 7/28/22, 10:30 AM

HEP Lectures

10. Fundamentals of X-Ray Matter Interaction: Part 1

 Sang-Kil Son (CFEL-DESY)

 7/25/22, 9:15 AM

PS Lectures

Lecture types:

- **Common:** all lectures not marked in the agenda with HEP Lectures: or PS Lectures :
- **HEP** (for B summies)
- **PS** (for A summies)

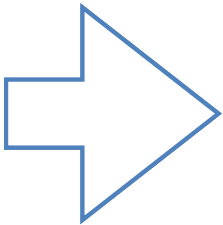
*We recommend you to attend the common lectures and **either the HEP or the PS lectures** but not both of them.. **however, all lectures are open to anyone***

We will try to record lectures, but lecturers have to agree on it, we will keep you posted..

Communication

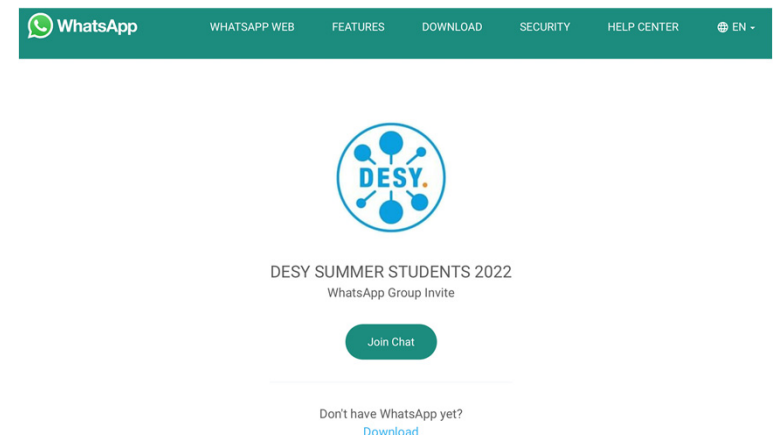
Between summies using social media: → organise yourself

In 2021 the summies used: DISCORD and WHATSAPP GROUPS.. in 2022 we have so far



<https://chat.whatsapp.com/lc7JMOK7EGl5Wu0WtwTkWp>

Thanks to Carolina and two other summies for creating this group



We will keep communicating with you on program related matters via email:
→ please write to summie-org@desy.de
→ we will write to your email addresses (or to your DESY email address, let us know if you prefer that)

INFORMATION on WEB :

Main page

<https://summerstudents.desy.de/hamburg/>

Message board:

https://www.desy.de/f/students/summer_home_2022.html



Thursday

Lets do a snapshot photo
of remote summies in
ZOOM NOW

Question: Should we do some other joint virtual Event during the programme together with you and the on-site summies? Maybe they can provide you a virtual tour through DESY Lab...

Last day of programme

- Tuesday 19 July, 10:00-11:00, DESY auditorium building 5:
Welcome Session: Welcome talk and personal Check-In with the DESY summerstudent team, please bring all the necessary documents mentioned in [Administrative procedures](#) with you. The webpage for the welcome session is [here](#).
- **Travel reimbursement:** Please hand in the reimbursement sheet at the DESY travel department: C. Tornau, and K. Koch, bld 7/401, Opening hours: tuesday - thursday, mornings and afternoons
- **Thursday 21 July at 11:15, stairs at entrance to foyer of DESY auditorium:**
A photo of the summer students will be taken after the first lecture.
- Friday 22 July, 18:00 - 22:00, DESY Canteen Extension bld. 9:
Welcome Dinner with buffet and drinks
- Monday 25 July 14:00 - 16:00 and Tuesday 26 July 14:00 - 16:00:
Guided tour around the DESY site; meeting point: Foyer DESY auditorium
We will split, up to 30 students can participate on each day:
 - Monday: **Tours are mainly reserved for students working on B1-36 projects. Please register [here](#).**
 - Tuesday: **Tours are mainly reserved for students working on A1-A6 projects. Please register [here](#).**Please register for your tour by friday 22 July.
- Thursday 11 August:
Guided tour around the XFEL site in Schenefeld (experimental halls): The tour will start in the morning and end in the afternoon, details TBA.
- Friday 26 August, the **DESY Zeuthen Summies will visit DESY Hamburg,** lets see if we can organize some social event, details TBA.
- **Thursday 8 Sep 9:30 - 16:00, SR4:**
Final Students session with ~20 representative brief presentations by summies on their work projects, and a course review, details TBA.

Enjoy the programme!

