DESY Summer Student Lecture program 2025

Pre-Meeting with Lecturers, July 9, 2025

Olaf Behnke, Nick Styles, Andreas Przystawik

Lecture webpage: https://indico.desy.de/event/49320/timetable/

Agenda:

- Lecture plan/scope
- Student's feedback from last years
- Some guidelines
- Feedback/wishes from you

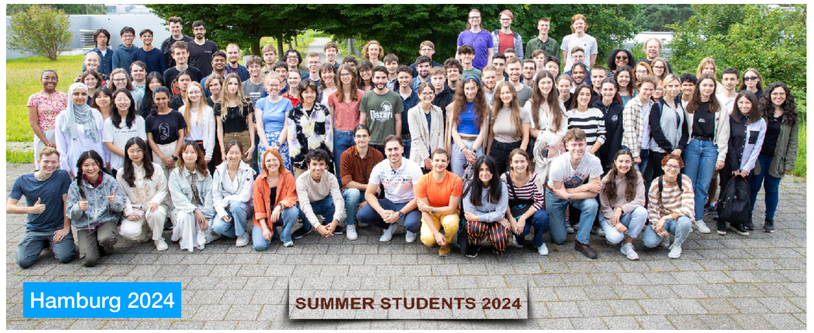
Thank you for giving the lectures -
they are one of the most important elements of the DESY summer student program!

DESY Summer Student Program in a

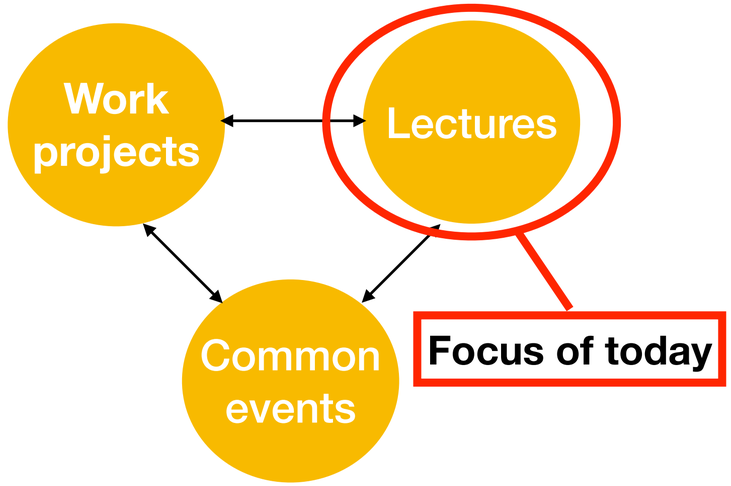
Poster for 2025 edition

https://www.desy.de/f/students/2025/DESY_Sommerstudenten_Poster2025.pdf

- ~100 students from all over the world participate for 8 weeks (22 July - 11 Sep) in the DESY research at Hamburg and Zeuthen sites
- Astroparticle physics, Accelerators, Particle Physics and Photon Science (hands-on, data analysis, software, computing, theory)



School elements:



- Main target audience: physics students with 3-4 years study experience

https://summerstudents.desy.de

For 2026 program: Online application will be open: 15 Nov 2025 - 31 Jan 2026

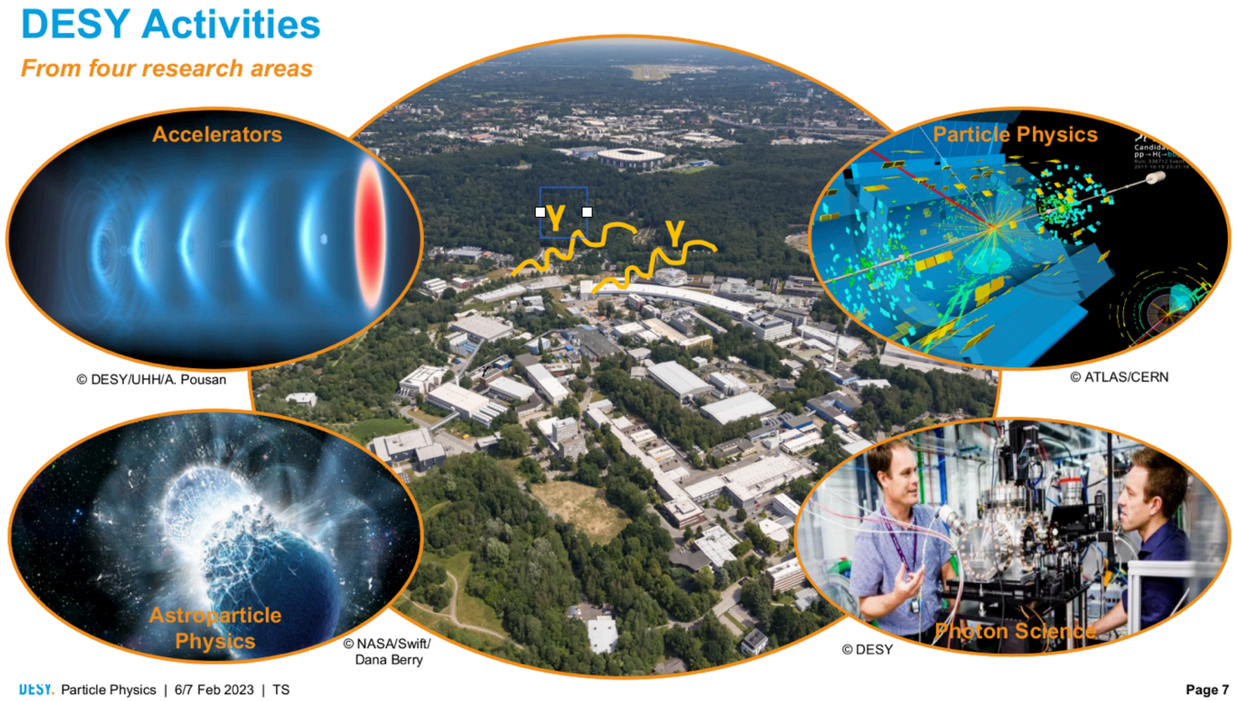
The lecture program - some basics

Motto:

- Elucidate/illuminate the physics background behind the DESY research
- Provided by DESY researchers → can directly relate to their own experiences

Structure/Splitting:

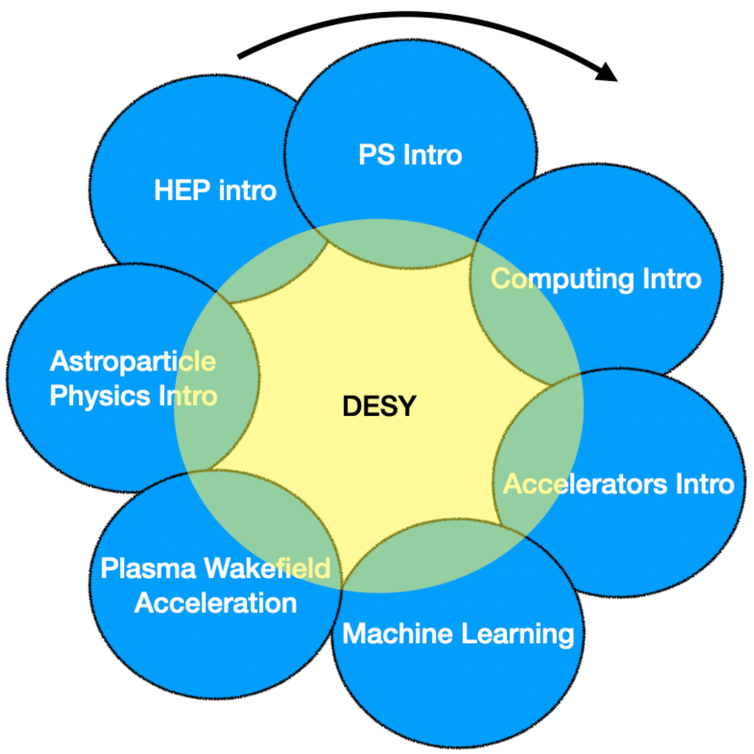
- Common introductory lectures on the 4 DESY research pillars: Accelerators, Particle Physics (PP), Photon Science (PS) and Astroparticle Physics



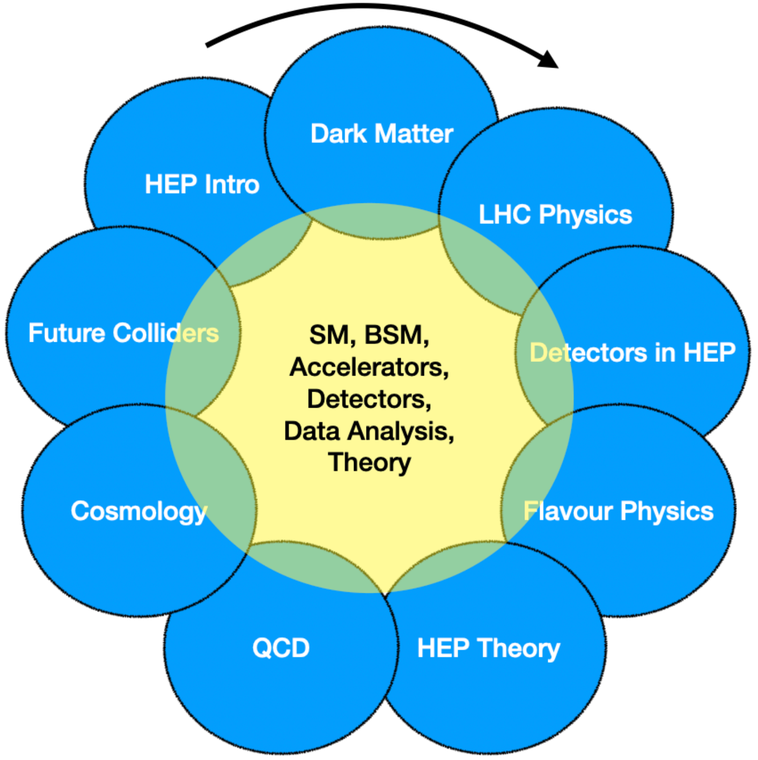
- Separate lectures on sub-topics of PP and PS, attended by the students working in PP or PS
- Some special common lectures, e.g. on DESY computing and Machine Learning

Lecture cycles in 2025

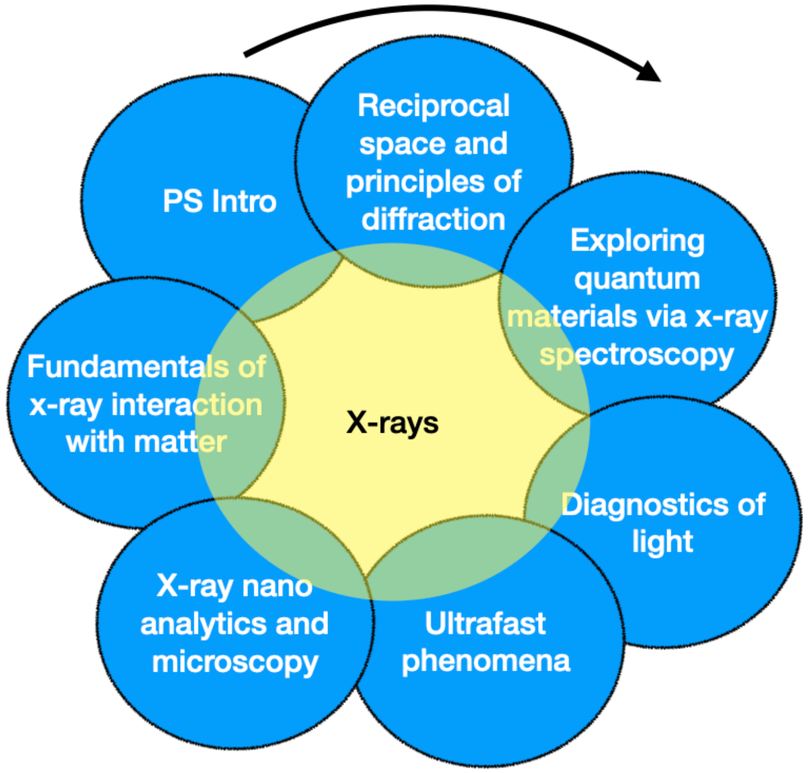
Common general + special



Specific PP



Specific PS



⇒ **Share in each block many common things**

The lecture program - exemplary 2nd week

Monday, July 28, 2025	Tuesday, July 29, 2025	Wednesday, July 30, 2025	Thursday, July 31, 2025	Friday, August 1, 2025
10:00 A **Introduction to Accelerators** - Michaela Schaumann (MPY (Beschleunigerphysik))	10:00 A **Introduction to Accelerators** - Michaela Schaumann (MPY (Beschleunigerphysik))	10:00 A **Reciprocal space and principles of diffraction**	10:00 A **Introduction to Machine Learning** - Stephen Jiggins (ATLAS (ATLAS-Experiment))	10:00 A **Dark Matter**
11:00 A **Introduction to Accelerators**	11:00 A **Introduction to Accelerators** - Michaela Schaumann (MPY (Beschleunigerphysik))	11:00 A **Modern crystallography: processing petabytes of data**	11:00 A **Introduction to Machine Learning** - Stephen Jiggins (ATLAS (ATLAS-Experiment))	11:00 A **Dark Matter**

Attended by PS students

Attended by PP students

- Lectures typically start at 10 am
- 2x45 min with 15 min breaks — please adhere to having breaks
- Typically one lecture free day per week
- Lecture program ends August 29, ~2 weeks before general program end

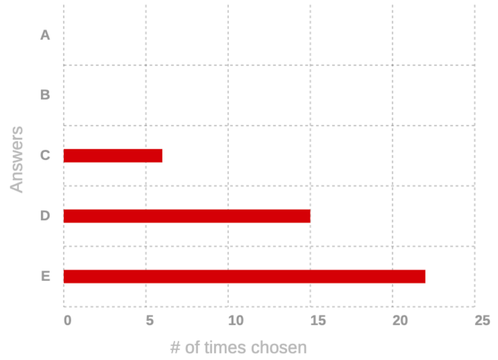
Venues: Common and PP lectures mostly in DESY Auditorium bld 5, PS lectures in FLASH SR 28 c

We will try to broadcast in ZOOM at least the 4 introductory common lectures - for Ukrainians

Student's feedback in 2024

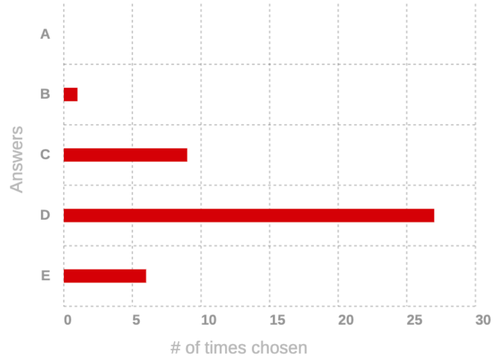
Please rate how you liked your project work overall — **Answered:** *43* — 1=bad, 5=excellent

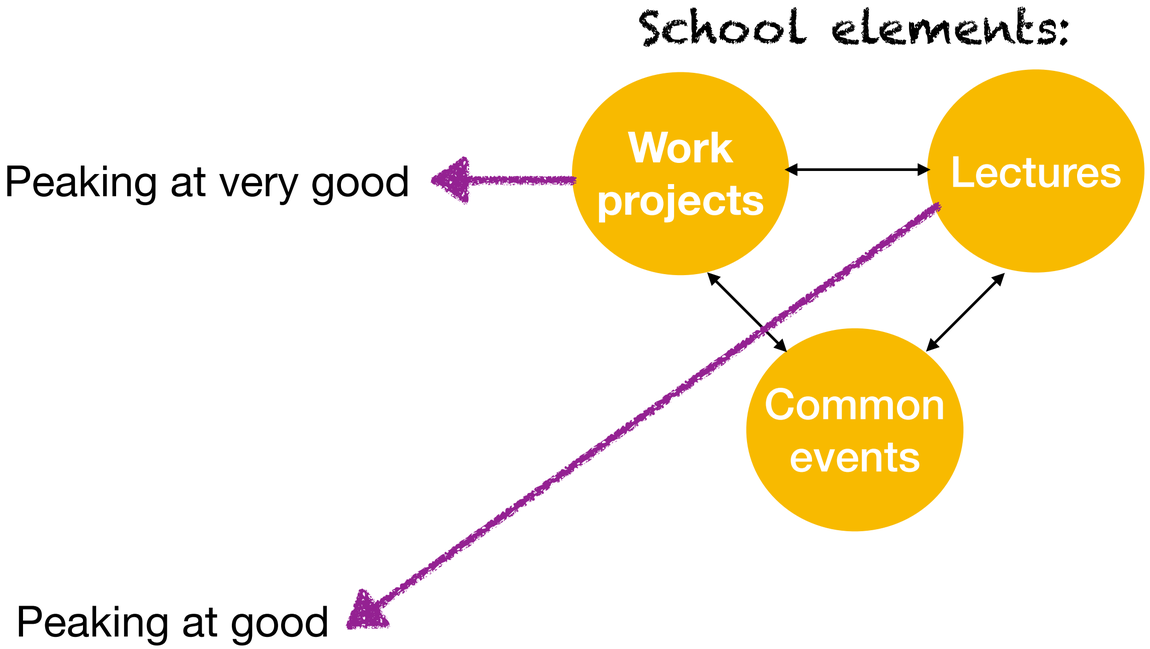
- **A. 1**: 0 (0.00%)
- **B. 2**: 0 (0.00%)
- **C. 3**: 6 (13.95%)
- **D. 4**: 15 (34.88%)
- **E. 5**: 22 (51.16%)



Please rate the overall quality of the lecture programme — **Answered:** *43* — 1=bad, 5=excellent

- **A. 1**: 0 (0.00%)
- **B. 2**: 1 (2.33%)
- **C. 3**: 9 (20.93%)
- **D. 4**: 27 (62.79%)
- **E. 5**: 6 (13.95%)





Student’s feedback in 2024

General impressions:

I thoroughly enjoyed the lectures. The program and length was good

Gave a very good overview of the research conducted at DESY.

The lectures were very well diversified and all interesting in their own way

Super interesting! Would be good to communicate to all the lecturers
to keep it short and focused as paying attention towards the end of the lecture series was hard for many of us.

.. some lecturers definitely passed on the enthusiasm

I don't like when lecturer are over time/ don't stick to the given timeframe.

⇒ Adhere to given time slots

Student's feedback in 2024

Topic selection/presentation style:

It was good, not enough time for what they wanted to accomplish on some of the lectures. I liked the diversity, but it could be more guided towards just one subject than cover as many as you can...

I liked the concept of the lectures, but I felt like I rarely learnt that much new stuff from them. It was mostly repetition, which can be nice though. The most interesting parts were when the lecturers would talk about specific stuff they have done. That gave some more insight to the work behind a lot of the particle physics research.

I especially liked to ask questions, because the presenters took time in answering. I liked that the lectures in Photon Science where held by researchers presenting there specific projects. This is unique.

⇒ **"Less is more" and including some of your own research is welcome**

Student's feedback in 2024

Target audience:

I just finished my Bachelor degree and did not really get to know many of the topics covered in the lectures in depth, so for me the lecture program was really great. Every lecturer seem to enjoy what they were talking about and in general the choice of topics was really good as well.

I think the lectures are very well suited for students in BSc and first year MSc that still have to attend specialised courses, rather than more advanced students.

⇒ **Large majority of students is in 3rd or 4th study year, so we are doing ok!**

Student's feedback in 2024

Difficulty level:

But in general the length and difficulty level where good to follow the lectures.

The difficulty level of the lectures is ok

I feel like there was a huge variance on the difficuly level of the lectures, some of them being too introductive and some other being to specific.

Either you have heard a lecture concerning a perticular topic before, and know everything that is being presented already, or you didnt and it was really difficult to follow

Lectures often started out banal and then went straight into specifics

.. but were a little too specific if you had no prior knowledge of the topic

⇒ hard to draw general conclusion → perhaps better to cover fewer topics and providing more explanations

Student's feedback in 2024

Coordination of the lectures:

Maybe some repetitions could be avoided.

It was varied but it felt very repetitive at times. The lecturers might want to think about coordinating and leveraging the material that was thought already.

The topics where really interesting. I would like that the lectures communicate with each other so that parts are not redundant and are referenced

⇒ request better inter-coordination, perhaps we could have shorts abstracts in Indico for each lecture (series) describing which topics are covered ?

Student’s feedback in 2024

Availability of slides:

And some lecturers provided their presentation for download while others didn't (not afterwards either) - that should be handled consistently.

Ideas for improvement 1. Always upload lecture slides before presentation. Even if some changes later. Makes it easier to follow along or look at interesting plots for more time. Also allows to ask questions to specific slides.

⇒ Please upload the slides in Indico beforehand.. it requires you to login to DESY indico, click in the timetable on your contribution and then click the button for uploading materials.. please test this as soon as possible (e.g. this week) and in case any problems let us know. We organizers cannnot provide a special upload service for you, but we can make sure the lecture is properly booked in indico.

Student’s feedback in 2024

Improvement suggestions/wishes

Offer every DESY group to present their research.

A lecture about statistics ("From Raw Data to Physics Results")

I wish it would've been more clear that I could have attended any lecture I liked (e.g. photon science lectures even though I had a B category project).

using a combination of a digital presentation and using blackboard

Do you have improvement suggestions for the selection of lecture topics - Short answer: No. Long answer: Nein

The lecture program - some general guidelines/tips

Mostly based on the student's feedback:

- Please upload your slides (.pdf) in Indico https://indico.desy.de/event/49320/timetable/ **beforehand**, so the students can watch them during the lecture on their laptops
- Please check the lectures **given before** you - and if necessary adjust your content, to avoid larger overlaps/repititions (one of the most frequent criticism by previous cohorts)
- Try to avoid to **rush in 90 minutes** through 130 Powerpoint slides (Adhere to breaks after 45 minutes)
- Be aware that your audience is **mixed in experience level** (3rd to 5th study year)
- Criticism in the past: The lecturer totally **saturated** the audience
  - Often **"less is more"**, don't try to pack the brief lectures with exhaustive materials competing with extended university lectures, rather present **selected highlights** and things based on your own research experiences and favorite topics
- Try to **engage/activate students** with **questions/quizzes/polls** e.g. https://www.mentimeter.com/ - please take note that attention drops heavily after continued listening for 20+ minutes to a talk
- Try to use **multimedia**, e.g. mixture of slides and occasionally using the blackboard

The End - back to the start

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Agenda:

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Now it's your turn →

Thank you for giving the lectures -
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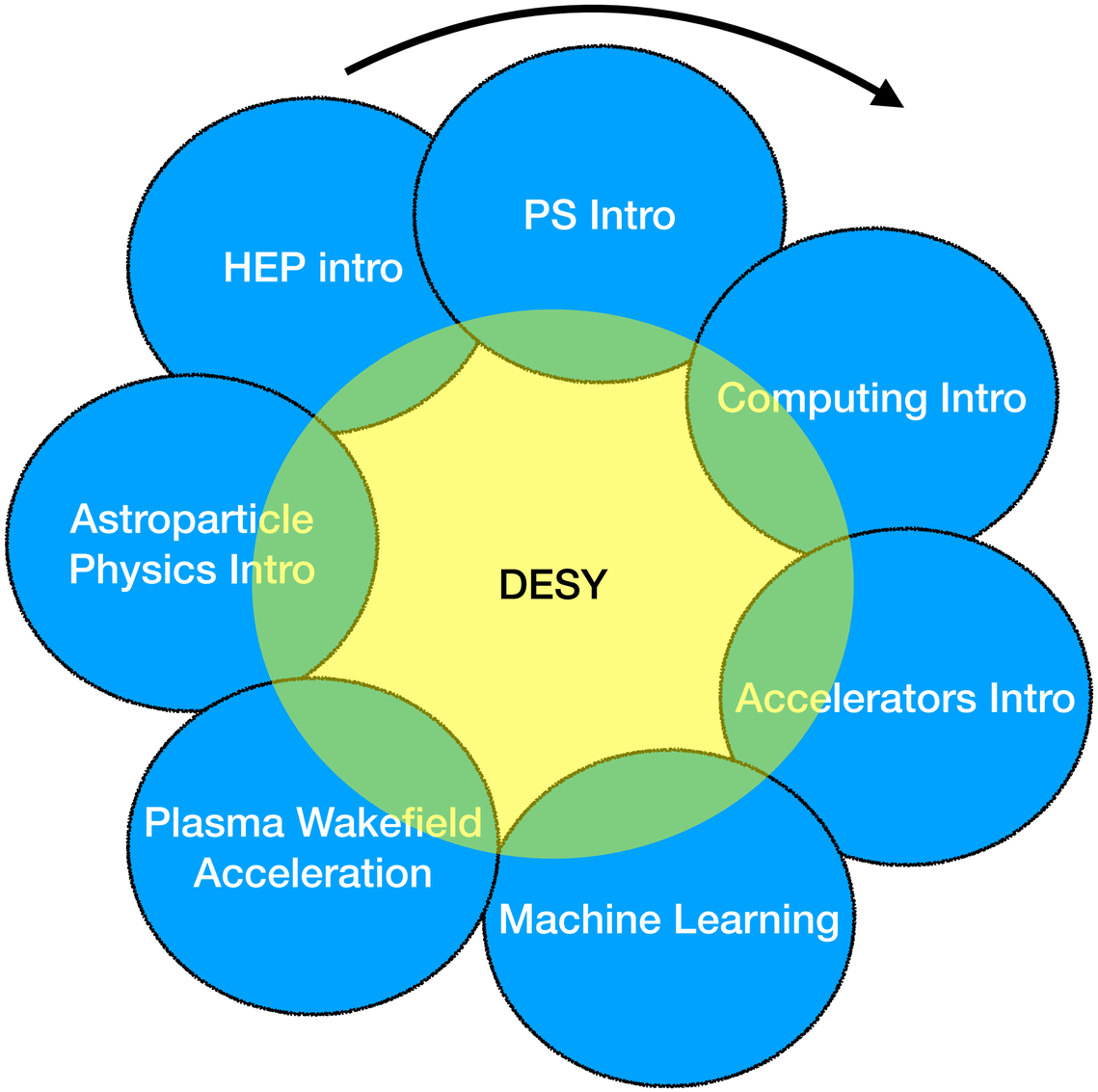
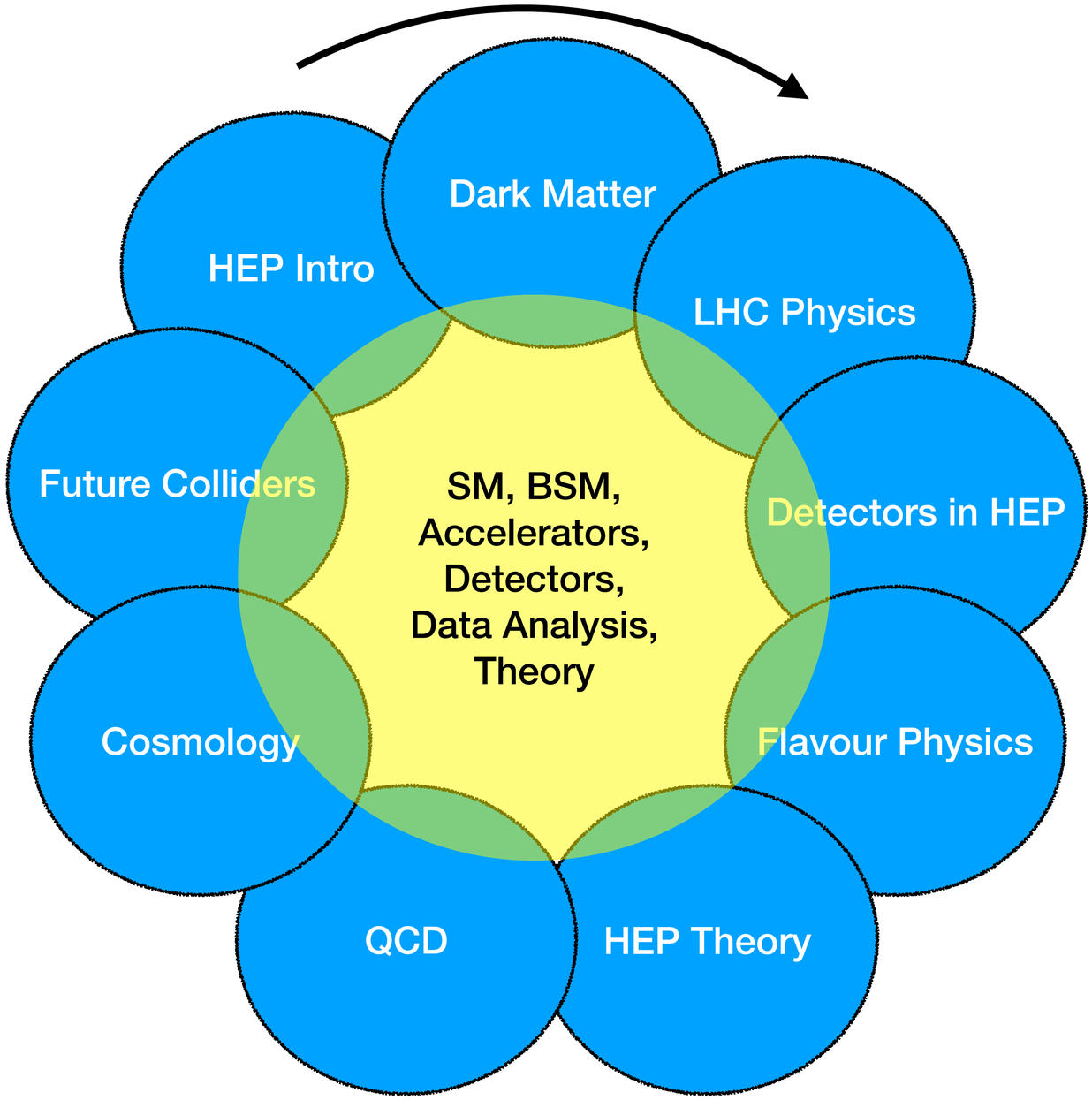
Backup slides

Common general and special lectures



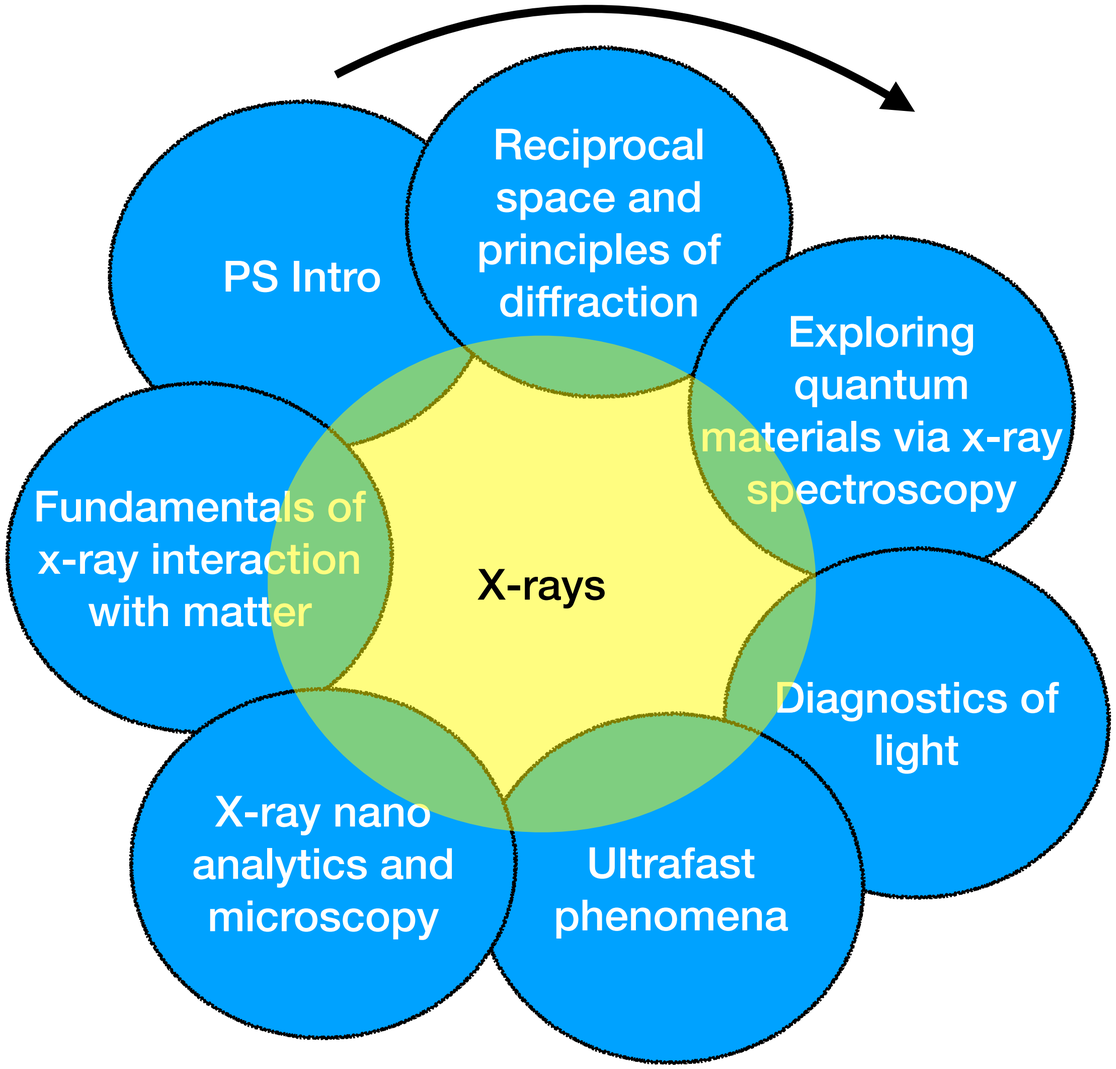
⇒ **Share many common things**

HEP specific lectures in 2025



⇒ **Share many common things**

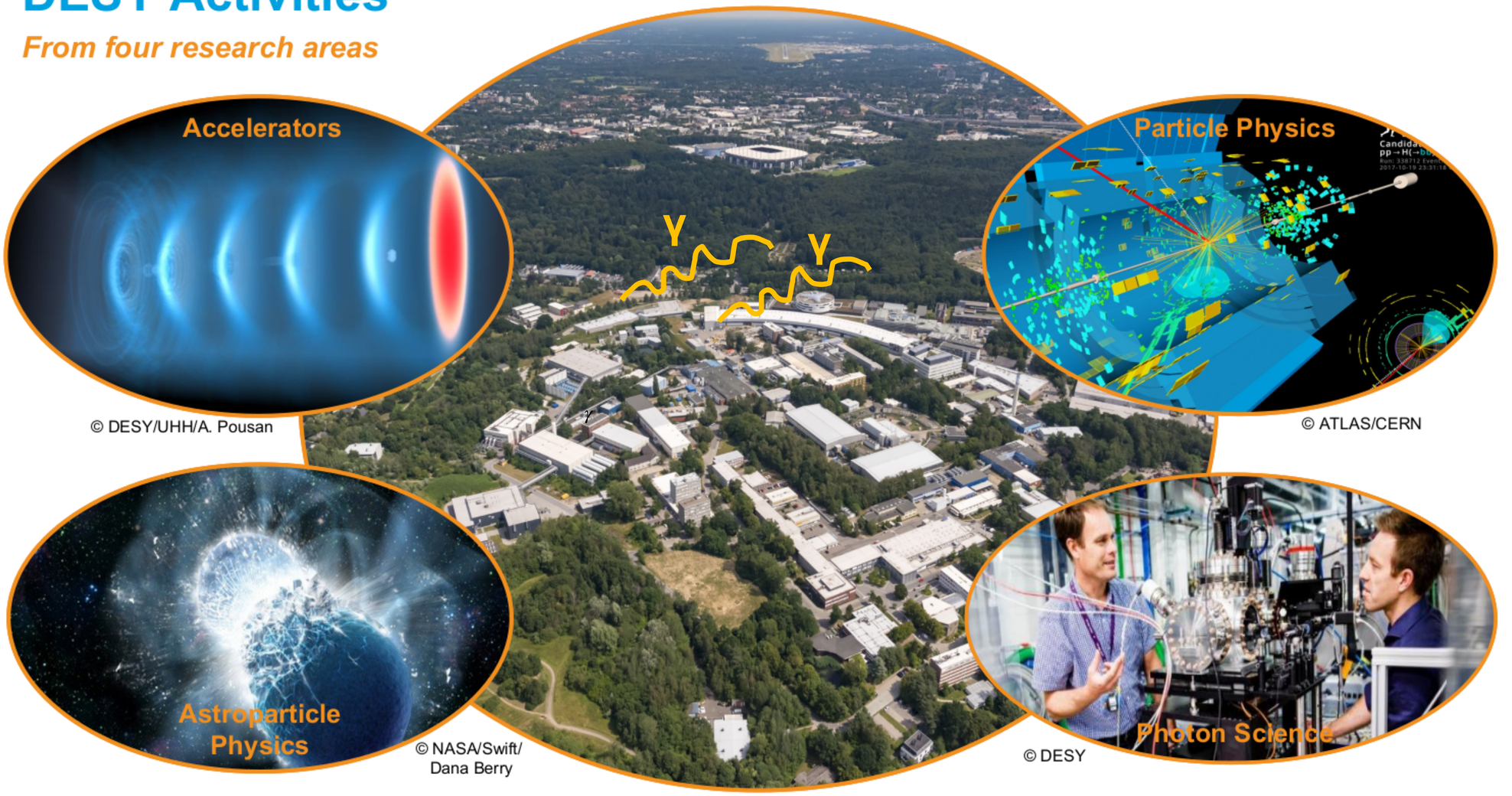
PS specific lectures in 2025



⇒ **Share many common things**

DESY Activities

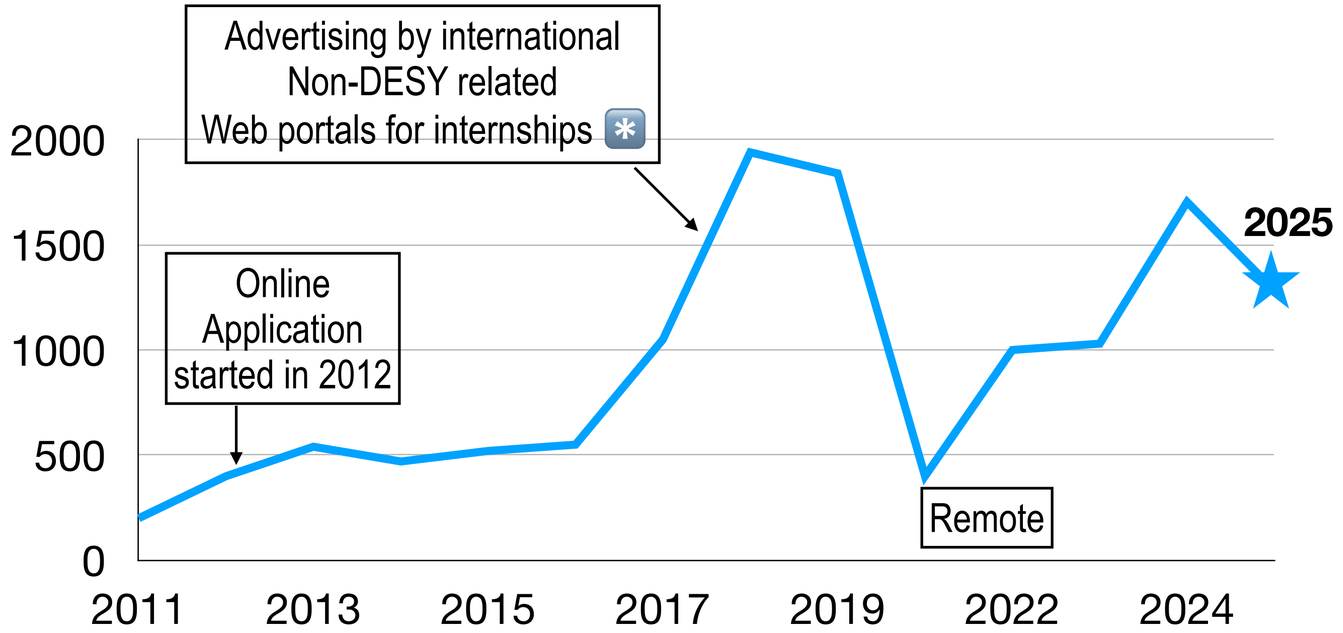
From four research areas



Application Statistics - Developments

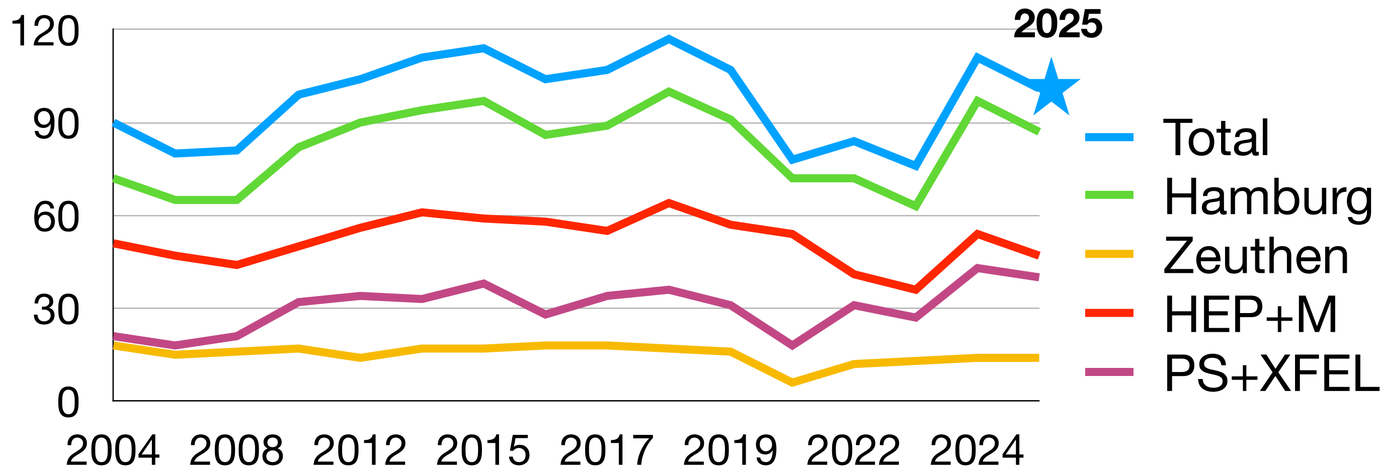
#of applications

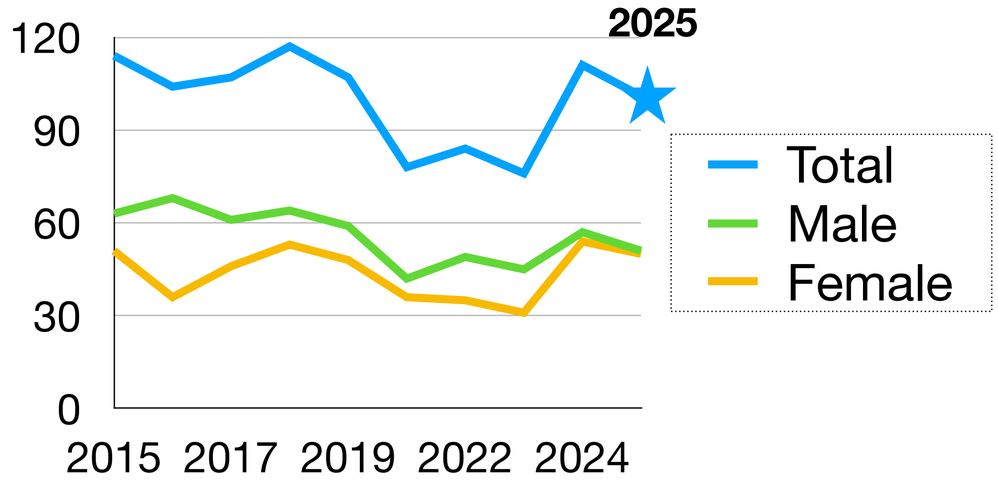
Please take note:
The program exists since the 1960's !!!



* Example advertising

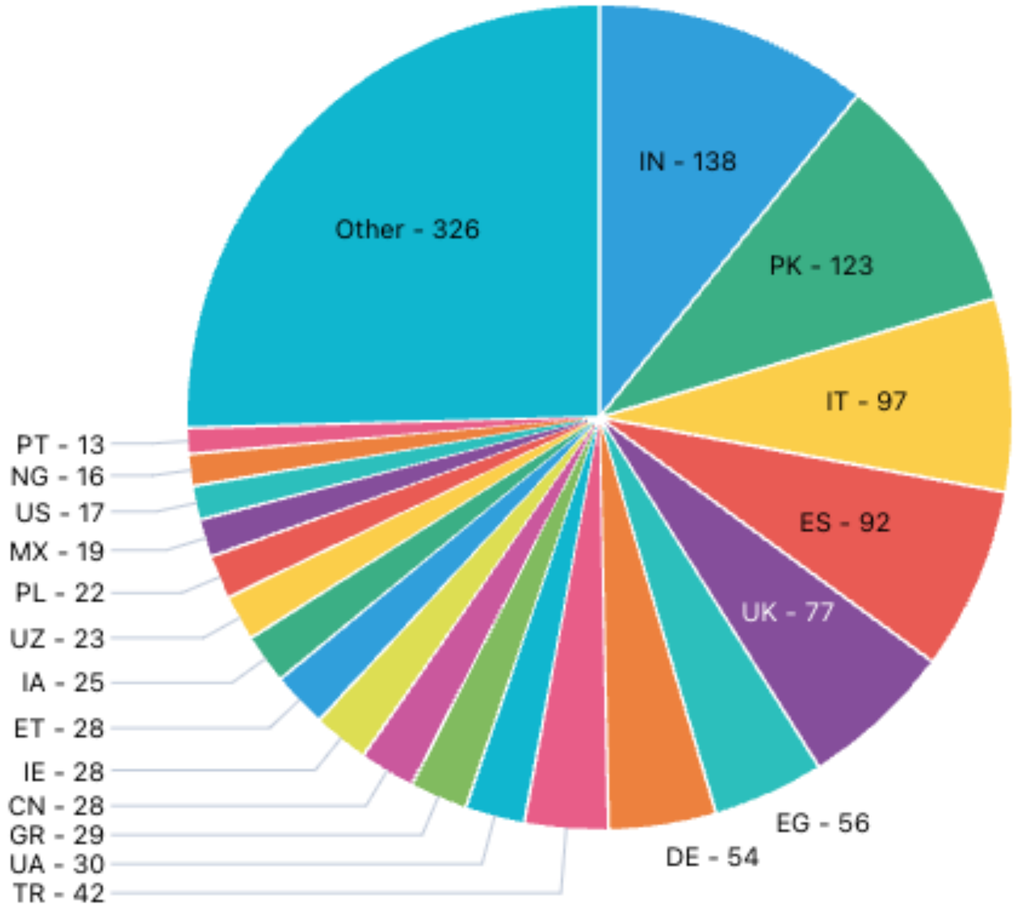
#of participants



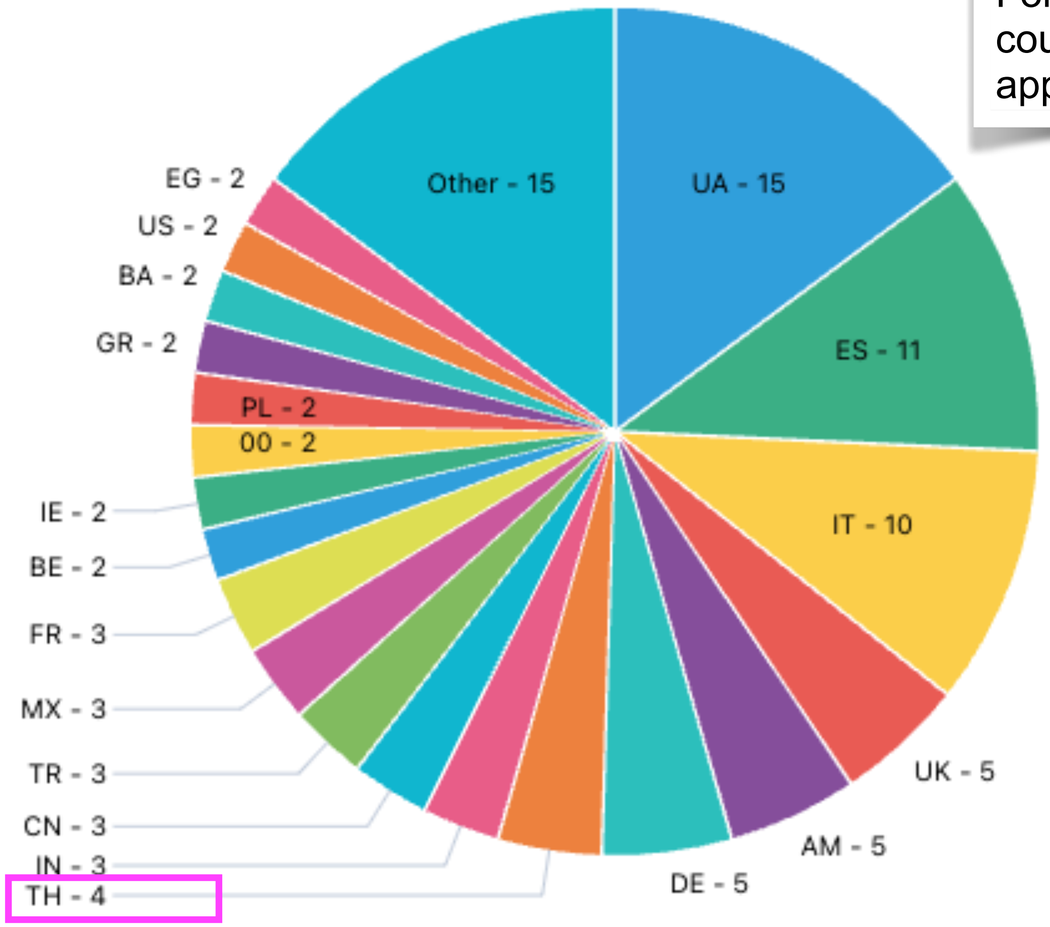


Applicants and Participants per nation in 2025

#of applicants per nation



#of participants per nation



For students from EU countries: ~10% of applicants are invited

Value of the program

Pictures of some previous cohorts, find all at
https://summerstudents.desy.de/previous_program/

For the students:

- Provide education (alone in 2011-2024 for >1000 students)
- Often provide students with 1st
  - Research experience at a big international lab
  - Starting point for growing an academic network

For DESY:

- Talent management/recruitment for DESY
  - Foster interest of students in DESY's scientific activities
  - >10% of students come back, mostly for PhD, but also for post-doc or as professor (see Appendix)
  - PR Outreach → shows DESY as a fascinating and rewarding place to work