PIER Helmholtz Graduate School (PHGS)

A Graduate Education Program of DESY in Cooperation with Universität Hamburg

Why doing a doctorate at DESY?

- Is one of the world's leading accelerator centres: *Researchers use the large-scale facilities at DESY to explore the microcosm in all its variety – from the interactions of tiny elementary particles and the behaviour of new types of nanomaterials to biomolecular processes that are essential to life.*
- Excellence scientists
- Cooperations with excellent partners worldwide
- Exciting interdisciplinary setting
- Cooperates with industry and business
- Benefits from the metropolitan regions of the two DESY locations: Hamburg & Zeuthen
- DESY is directly involved in three graduate schools which offer tailored made structures, services and scientific excellence to early career researchers like you!

DASHH Graduate School

- Data Science in Hamburg-Helmholtz Graduate School for the Structure of Matter
- Nine partners, main partners: DESY, UHH, TUHH
- Structured program and regular networking in data science
- Interdisciplinary data science projects in Photon Science | Accelerator Science | Particle Physics | Structural Biology | Materials Science | Reproducible Data Science
- Applications as Associate Doctoral Researcher throughout the year
- Open fully funded projects to be found here:
  https://www.dashh.org/application/phd_topics/index_eng.html
  https://www.dashh.org

International Helmholtz-Weizmann Research School on Multimessenger Astronomy (MM School)

- Joint German-Israeli Graduate School
  - Partners: DESY (Zeuthen), Humboldt University, Potsdam University, Weizmann Institute of Science (Israel)
  - Associates: Friedrich-Alexander University Erlangen-Nürnberg, Ruhr University Bochum
- Topics: gamma rays, other electromagnetic radiation, neutrinos, gravitational waves, theory spanning from fundamental physics to particle acceleration to plasma physics, compact objects, dark matter, particle cosmology, etc.
- 34 doctoral researchers at the moment

- What we offer:
  - International supervision
  - Networking events: Cohort + Annual Meetings, Science Journal Clubs,...
  - Research stays at partner institutions
  - Training opportunities for professional and personal skills

Next application round: 25 Sept – 5 Nov 2023. More than 10 paid doctoral positions available.
For info and how to apply see: www.multimessenger-school.de/application/
Contact: Silvia Alessandria (School Coordinator) multimessenger-school@desy.de

MMS Annual Meeting in Israel, June 2023

PIER Helmholtz Graduate School (PHGS)

- Graduate Education Program at DESY in Cooperation with Universität Hamburg
- Located on Campus Bahrenfeld, Hamburg
- Open to doctoral students who have an affiliation/employment contract with DESY Hamburg and/or the University Hamburg who do their doctorate in one or more of the following PIER research fields:
  - Particle and Astroparticle Physics
  - Photon Science
  - Nanoscience
  - Infection and Structural Biology
  - Accelerators
  - Theoretical Physics

  = encompasses all research fields on Campus Bahrenfeld, Hamburg
- Registration possible all year long.
- https://graduateschool.pier-hamburg.de/

PHGS: facts

- Oldest graduate school at DESY – founded in 2012
- Largest graduate school on Campus Bahrenfeld, Hamburg
- Currently 270 members
- 60 % international doctoral students: Non EU: 36% | EU: 24% | GER: 40%
- Gender mix: female 35% | male: 65%
- Language of instruction: English
- Offers many German language courses

PIER activities: language courses

German courses

6 different courses

Level A1.1 (beginner) to B2.2 (advanced)

English courses

Academic writing for doctoral researchers

Communication and pronunciation

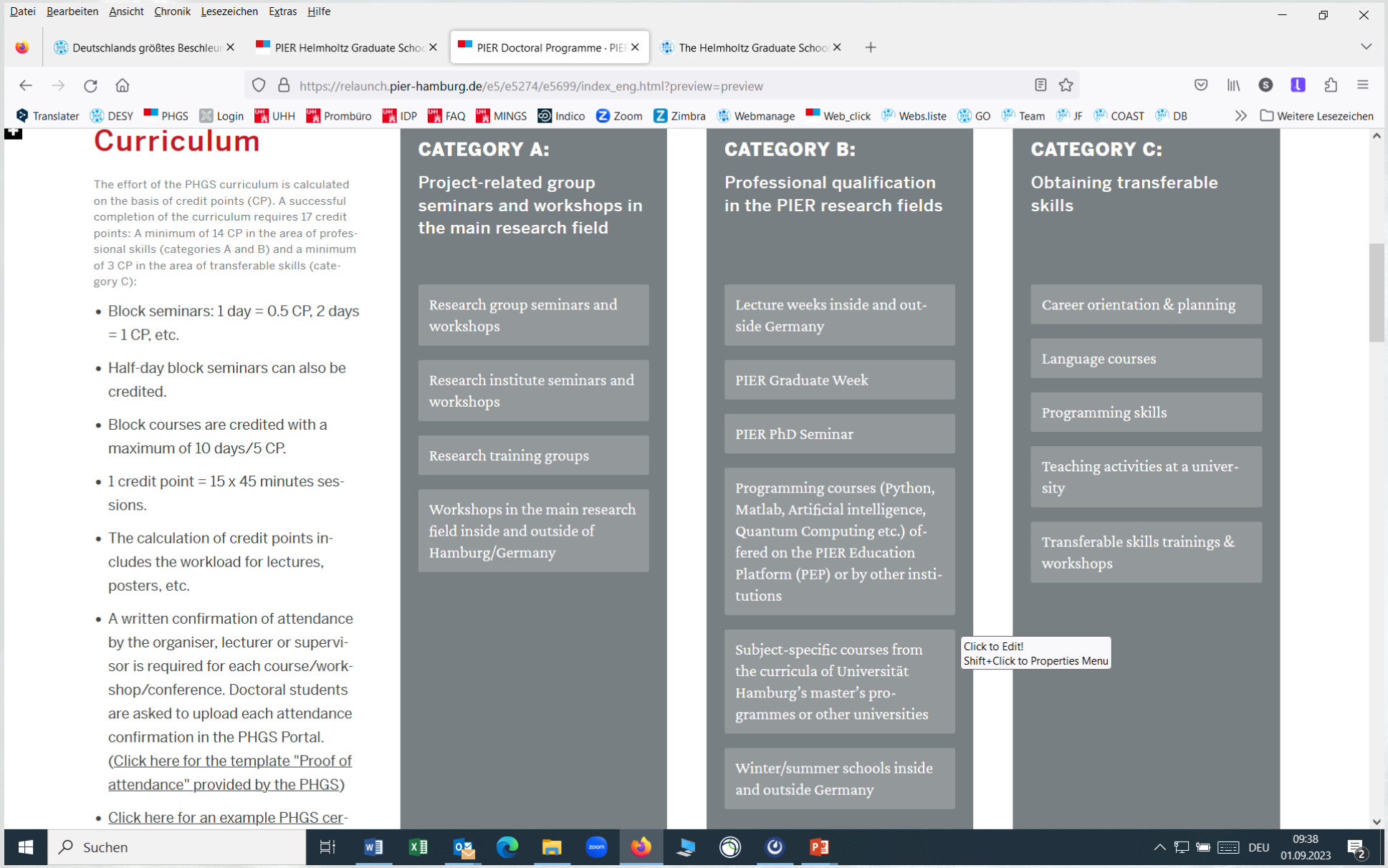
Conflict management

PHGS: doctoral programme

Doctoral programme with focus on:

- Internationally recognised structured programme in the respective research fields
- Scientific supervision on the highest level possible
- Focus on career planning and transferrable skill training
- Networking events
- Leisure activities and social events
- Buddy programme for new international doctoral students
- PHGS team which is caring about the well-being of each of its members

PHGS: Curriculum



PHGS activities: transferrable skills courses (online/onsite)

Communicating Science

- Academic Writing
- Creating comprehensible scientific figures
- PIER PhD Seminar
- Scientific Writing
- Scientific Presentations

Coordination and Management

- Competition & conflict in Academia – Empower yourself against sexual harassment
- Good Scientific Practice
- Project Management
- Supervision and Leadership
- Time- and Self-Management

Career Development

- Applications Talk
- Career Orientation for Doctoral Researchers
- Career Planning
- Individual Career Coaching

Programming

- Python Basics
- Python Data Analysis
- Python Machine Learning

PHGS activities: PIER Graduate Week

PIER Graduate Week 2023

Interdisciplinary lecture and workshop week for PhD students

16–23 OCT '23

Center for Free-Electron Laser Science, SR I-V

PIER

Partnership of Universität Hamburg and DESY

Course Overview

Programme / registration: graduateschool.pier-hamburg.de/gradweek2023

	Time	Course	Monday, 16 OCT	Tuesday, 17 OCT	Wednesday, 18 OCT	Thursday, 19 OCT
Morning sessions	09:00 – 10:30	/ Course 1: Physics and artificial intelligence SR II-III	Gregor Kasieczka, Universität Hamburg Physics & AI: Foundations and Applications of Machine Learning in Fundamental Physics Research	Gregor Kasieczka, Universität Hamburg Physics & AI: Foundations and Applications of Machine Learning in Fundamental Physics Research	Gregor Kasieczka, Universität Hamburg Physics & AI: Foundations and Applications of Machine Learning in Fundamental Physics Research	Gregor Kasieczka, Universität Hamburg Physics & AI: Foundations and Applications of Machine Learning in Fundamental Physics Research
	10:30 – 11:00		Coffee break			
	11:00 – 12:30	/ Course 1: Physics and artificial intelligence SR II-III	Gregor Kasieczka, Universität Hamburg Physics & AI: Foundations and Applications of Machine Learning in Fundamental Physics Research	Gregor Kasieczka, Universität Hamburg Physics & AI: Foundations and Applications of Machine Learning in Fundamental Physics Research	Gregor Kasieczka, Universität Hamburg Physics & AI: Foundations and Applications of Machine Learning in Fundamental Physics Research	Gregor Kasieczka, Universität Hamburg Physics & AI: Foundations and Applications of Machine Learning in Fundamental Physics Research
	12:30 – 14:00		Lunch break			
Afternoon sessions	14:00 – 15:00	/ Course 2: The physics of the life sciences: Connections of fundamental physics to modern biology & medicine SR II-III	Alessandra Picchiotti, Universität Hamburg Introduction: Spectroscopy for the life sciences	Helen Ginn, DESY Structural biology, crystallography and cryo EM	Elisabetta Gargioni, UKE Hamburg Imaging in medicine and biotechnology (t.b.c.)	Maya Topf, LVI / UKE / CSSB Hamburg Data science for the life sciences, an holistic approach, part 1 (online)
	15:00 – 15:15		Coffee break			
	15:15 – 16:15	/ Course 2: The Physics of the life sciences: Connections of fundamental physics to modern biology & medicine SR II-III	Susann Quinn, University College Dublin Time resolved spectroscopy	Pedram Mehrabi, Universität Hamburg Crystallography, from physics to proteins	Antonio Virgilio Failla, UKE Hamburg Advanced imaging techniques (t.b.c.)	N.N. Data science for the life sciences, an holistic approach, part 2 (online)
	15:15 – 16:15		Coffee break			

Mirko Siemssen | Coordinator PHGS

DESY Summer Student Programme 2023

PHGS activities: PIER Graduate Week

Two lecture series

- Advanced scientific computing: Machine learning in physics
- The physics of the life sciences: Contributions of fundamental physics to modern biology and medicine

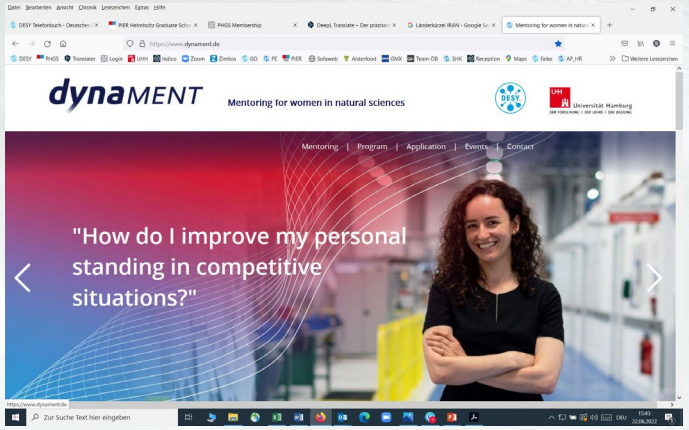
Extras

- Scientific colloquium on "Artificial intelligence in neurointensive medical care“
- Industry talk on "Flight physics at AIRBUS" with DESY alumnae Dr. Jasone Garay Garcia
- Workshops on presentation skills and academic competition, making acting methods usable for everyday work contexts
- Career planning and career counselling sessions
- Poster session

PHGS: collaborative activities for women

dynaMENT

Mentoring for women in natural sciences



dynaMENT doctorate

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dynaMENT advanced

PIER
Partnership of
Universität Hamburg and DESY

General facts on doing the doctorate at DESY

- Most doctoral positions are funded through an employment contract e.g. with DESY
- Duration employment contract at DESY: 3 - 3.5 years
- Alternatively: bring your own funding (e.g. a scholarship)
- Please note
  - In Germany, only universities can award the doctoral degree
  - Therefore, every doctoral student must be enrolled as a doctoral student at a university (e.g. University of Hamburg, Humboldt University Berlin, etc.).
  - Enrollment at the university usually takes place after conclusion of an employment contract (e.g. at DESY) - Therefore, it makes sense to first apply for the funding and the doctoral project at a DESY research group and only then to enroll at a university.
  - No tution fees at state Universities in Germany

How to apply for a doctoral position at DESY

- Use your contacts from the DESY Summer Students Programme: stay in touch!
- Look for job offers on the DESY website or the websites of your favourite research teams: https://v22.desy.de/index_eng.html
- Check the calls of the graduate schools in which DESY is directly involved and who offer paid doctoral positions. Currently these are: DASHH and International Helmholtz-Weizmann Research School.
- Look for funding in your own country (e.g. scholarships)
- General information on the German education system:
  - DAAD (German Academic exchange Service): https://www.daad.de/de/

Thank you very much for your attention!

We are looking forward to seeing you again as on of our doctoral students!

graduateschool.pier-hamburg.de
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https://www.linkedin.com/company/70375638/admin/