

PIER Day 2025

25 November 2025, 1 – 6:30 p.m.

CFEL SR I-III and foyer

12:30 – 1 p.m. Registration and snacks/ coffee
CFEL foyer

- 1 – 2 p.m. **Welcome & Highlights from PIER Seed Projects**
Francesca Calegari (Head of the PIER Executive Board)
CFEL SR I-III
- “Investigation of the valence electronic structure and dynamics of nanostructured materials via high-order harmonic generation” (Agata Azzolin/ DESY)
 - “Development of RF control for future gravitational wave detectors using SRF cavities” (Can Dokuyucu/ DESY)
 - Spotlights from recently approved PIER Seed Projects:
 - “A mass spectrometry-based screening platform to identify co-substrates of nucleotide transferases” (Michael Hecht-Bucher/ UKE)
 - “A glimpse into the hidden world of pores: in-situ TEM observation of pore wetting and dewetting in mesoporous structures” (Charlotte Ruhmlieb/ UHH)
 - “Spin-resolved dynamics induced by ultrafast rotating current in chiral molecules” (Aurelien Sanchez/ DESY)

- 2 – 2:45 p.m. **Joint research perspectives of DESY and UHH in specific fields**
Chair: Nils Huse (UHH)
CFEL SR I-III
- Nanochemistry (Alf Mews/ UHH)
 - Detector Research (Heinz Graafsma/ DESY)
 - Artefact Profiling: From PIER Emerging Topic to new PIER Competence Field (Claudia Colini/ UHH)

2:45 – 3 p.m. Coffee break
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The second part of the program is jointly presented by PIER and PIER PLUS:

- 3 – 3:45 p.m. **Welcome** (Tilo Böhmann/ UHH)
- Keynote Lecture “From Dark Matter to Dark Triad and Back: What Physics Can Teach AI — and What AI Can Teach Physics”** (Lucie Flek/ University of Bonn, with an introduction by Gregor Kasieczka/ UHH)
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Abstract of the keynote lecture:

Both particle physics and AI grapple with complexity, uncertainty, and the search for structure. Drawing on a journey from CERN to language modeling and back, this talk explores how robust data, structured reasoning, and alignment with human understanding can make AI safer — and how foundation models can, in turn, accelerate scientific discovery.

3:45 – 4:15 p.m.

AI & Data Science in Science City Hamburg Bahrenfeld: Which Initiatives and Ideas Are Out There?

- AI & Data Science Platform of UHH & DESY (Ties Behnke/ DESY)
- DASHH (Matthias Rarey / UHH)
- VISTA (Chris Biemann/ UHH)

4:15 – 5 p.m.

Coffee Break & PIER PLUS Poster Walk: “AI and Science: Unexpected Connections and Method Innovation”

CFEL foyer

5 – 5:45 p.m.

Panel Discussion: “Science City Hamburg Bahrenfeld and Beyond: Towards an Attractive Hub for AI & Data Science”

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- Moderation: Ralf Krauter
- Panelists:
 - Tilo Böhmann/ UHH
 - Martin Burger/ DESY
 - Lucie Flek/ University of Bonn
 - Beate Heinemann/ DESY
 - Luisa Lucie-Smith/ UHH

5:45 – 6:30 p.m.

Wrap-up & Mingle

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