



**HIR3X General Assembly 2024 and SLAC-
DESY-EuXFEL Directors' Meeting 2024
July 18-19, 2024. SLAC, Menlo Park, USA**

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Draft Agenda
HIR3X General Assembly 2024 and SLAC-DESY-EuXFEL Directors' Meeting 2024
July 18-19, 2024
SLAC, Menlo Park, USA

Day 1 - Thursday - July 18, 2024:

8.00 - 10.00 am Hybrid HIR3X General Assembly, room Berreyessa, SLAC

Opening: 20 mins

- Welcome 5mins: Mike Dunne (SLAC)
- Overall status and plans for HIR3X 15mins: Mei Bai (SLAC), Alke Meents (DESY)

WP1-4 report: 25mins per WP

- WP2 High throughput data handling and vetoing
 - Overview + highlight: David Pennicard (DESY) and Jana Thayer
- WP3 High throughput sample delivery systems
 - Overview + highlight: Mark Hunter (SLAC) and Alke Meents (DESY)
- WP4 X-ray optics
 - Overview + highlight: Maurizio Vannoni (EuXFEL) and Diling Zhu (SLAC)
- WP1 Machine learning to optimize performance of advanced lightsources:
 - Overview + highlight: Annika Eichler (DESY) and Daniel Ratner (SLAC)

Conclusions and Closing Remarks

Zoom dial-in

<https://desy.zoom.us/j/68901786286?pwd=Z2p0bWpiWVRZS0paWllmaGs5WWozZz09>

Meeting-ID: 689 0178 6286

Kenncode: 694123

10.00 - 10.30 am Coffee break

10.30 – 12.30 SLAC-DESY-EUXFEL High level Coordination & Cooperation Meeting

Objective: identify further topics of mutual interest in open table conversations for future collaboration between SLAC and DESY/EUXFEL

*Participants: SLAC: ALDs + Science deputies from Accelerator Directorate, LCLS directorate, SSRL directorate, and Energy Science directorate
DESY and EUXFEL delegates*

Track 1: Discussions on future perspectives in photon science (45')

Discussion leaders: M. Kling, F.X. Kärtner, K. Gaffney/D. Reise, P. McIntyle

List of Topics (not exclusive):

- DRUMSOX, quantum materials
- X-ray optics, diamond lenses; non-linear optics, XFEL
- Laser Science & Technologies
- Sample Delivery Systems, automatization, ROCK-IT
- HED – High Energy Density experiments, lasers
- Data Science, ML
- UED
- Detectors there are still lots of problems, calibration.
- Terawatts and Attoseconds how do we get there.
- CUI Cluster proposal, collaboration with Pulse Institute.
- ...

Track 2: Discussions on future perspectives in acceleration science (45')

Discussion leaders: W. Leemans, J. Schmerge

List of Topics (not exclusive):

- SRF technology, both in operation as well as fundamental R&D
 - LCLS II and – HE Upgrade: DESY accelerator staff interested in continuing to participate in operations
 - High brightness gun development – topic joint with EuXFEL
 - LLRF and control systems
- Machine learning
 - Laser Pulse shaping coupled with Machine Learning
- Synchronization:
 - Continue collaboration with Charlie Xhu. Challenges: clarify our role as being a system supplier has become very complicated under the DOE rules
- Next generation XFEL such as cavity drive XFEL
- High brightness gun
- Advanced undulator R&D
 - Largely driven by EuXFEL (Sara Casalbuoni). Test facility located at DESY.
- Advanced robotics including VR/AR capabilities for remote operations
- Next generation ring/ERL based FEL
- Plasmas based next generation light sources
 - FLASHForward and FACET II facilities: platforms for joint R&Ds
- UED:
 - Coordination between SLAC's and DESY's facility?

Track 3: Discussions on future perspectives in other areas (30')

Open Table conversations and informal exchanges on

- impact study / socioeconomics
- standardization of KPIs at FELs, benchmarking

12.30 - 1.30 pm - Lunch (host)

1.30 – 3.00 pm - SLAC tour, campus tour

(PULSE, LCLS-II, Klystron gallery, NEH/FEH) DESY delegate

3.00 - 4.30 pm - Can small be the next big thing? Plasma Accelerator R&D at DESY, the LPA injector for PETRA-IV (Wim Leemans)

3:15 = 3:30 pm: coffee and cookie, [Link to SLAC special colloquium](#)

6.00 – 8.00 pm - Dinner (host) (1:1)

Day 2 - Friday - July 19, 2024

9.00 – 10.00 am – Wrap-Up of the SLAC-DESY-EUXFEL High level Coordination & Cooperation Meeting

Objectives: conclude on main topics for collaboration; develop agile exchanges and action plans on yet to be coordinated topics; further advance the framework of HIR3X with benefits to more S&T areas; discuss strategic framework for more regular, coordinated and integrated collaboration incl. ideas of sustainable financial model

10.0 – 10:30 am - Coffee break

11.00 – 12.00 - Lab directors' meeting: SLAC lab director and DESY/XFEL Delegates

Final conclusions, Next steps

12.00 – 01.00 pm- Lunch (host)

Attendance:

DESY delegates:

Helmut Dosch – Chair of the Board of Directors
Beate Heinemann - Director in charge of Particle Physics
Franz X. Kärtner - Interim Director Photon Science Division
Wim Leemans - Director in charge of the Accelerator Division
Arik Willner - Acting Director of Administration and Delegate of the Directorate for Innovation,
CTO (not HIR3X GA)
Thomas Feurer, Director European XFEL
Frank Lehner – Head of directorates office
Jana Wolfram – international cooperation, directorates office

HIR3X General assembly from DESY only:

Alke Meents
Jan Meyer
Gesa Götzke

Note to visitors: SLAC entry form has to be filled and submitted prior to the arrival. Link is <https://vue.slac.stanford.edu/visitors>. One will need to select the plus sign on “Before You Arrive” and then scroll down to the button that reads “Launch Visitor Form”. Please also put Mei Bai as the point of contact (POC)

SLAC participants: (to be confirmed)

HIR3X WP leaders: Daniel, Diling, Jana, Mark
LCLS directorate: Robert Schoenlein, Matthias Kling (July 18 only), Mike Dunne(TBC)
Accelerator Directorate: John Schmerge, Mei Bai
Energy Science Directorate: Kelly Gaffney, David Reis
SSRL Directorate: Paul McIntyre (TBC)

Appendix Supporting documents

HIR3X: Helmholtz International Laboratory on Reliability, Repetition, Results at the most advanced X-ray sources

The main objective of this joint lab is to push the performance of advanced accelerator-based X-ray sources and their applications in specific research areas to their full capability and potential by using novel optimization and automation strategies. This, in turn, will open the use of these advanced experimental techniques to a larger number of non-expert users.

Fraunhofer Impact Study

- Background of DESY Impact study: undertaken by Fraunhofer and analyzed the socio economic impact of PETRA III (ex-post) and PETRA IV (ex-ante).
- Abstract of the project: PL: Dr. habil. Henning Kroll
Against the background of the current application for the strategic extension project PETRA IV, the Deutsche Elektronen-Synchrotron (DESY) has commissioned an impact study to estimate and evaluate the effects of the facility PETRA III, which remains in operation. The aim of this study is, on the one hand, to document the significance of PETRA III for the scientific community and, on the other hand, to estimate the effects that its operation trigger in the non-scientific domain. In particular, it will identify relevant impact channels and mechanisms and document effects in the economic, qualification and societal domains. It will consider and assess divers impact relationships based on the diffusion of scientific knowledge, network effects, the transfer of technologies, spending on salaries, material and investment as well as contributions to improved public awareness about the importance and role of research infrastructures.
- [Report booklet](#) (English and public)