

# Scientific Program

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**Monday, August 26<sup>th</sup> (Location: Lecture Hall A)**

## **Opening, Memorial Talk & First Lasing (Session MOA)**

10:00 – 11:30, Chairs: Winni Decking & Harald Sinn

- 10:00 Opening of FEL2019  
10:25 **Memorial Talk:** “Riding the @stability”, U - # o\ Q @  
**First Lasing Talks:**  
10:40 “First Lasing of a Free Electron Laser in the Soft X-Ray Spectral Range with Echo Enabled Harmonic Generation”, Enrico Allaria (Elettra-Sincrotrone Trieste)  
10:45 “First Lasing at the CAEP THz FEL Facility”, Peng Li (CAEP/IAE)  
10:50 “First Lasing at the SASE2 and SASE3 FELs of European XFEL”, Matthias Scholz (DESY)  
10:55 “First Lasing at SXFEL”, Bo Liu (SARI-CAS)  
11:00 “Commissioning of CW FEL Amplifier for Coherent Electron Cooler”, Vladimir Litvinenko (BNL)  
11:05 “Commissioning Status of FELiChEM, an IR-FEL User Facility in China”, Heting Li (USTC/NSRL)

## **Coffee Break (11:30 – 12:00)**

## **Status of Projects and Facilities 1 (Session MOB)**

12:00 – 13:00, Chair: Siegfried Schreiber

- 12:00 **Invited:** “Operation Status and Future Perspective of Warm XFEL”, Hitoshi Tanaka (RIKEN SPring-8 Center)  
12:30 **Invited:** “Overview on Future Continuous Wave X-Ray Free Electron Lasers”, Hans Weise (DESY)

## **Lunch Break (13:00 – 14:30)**

## **FEL Prize Talks (Session MOC)**

14:30 – 16:00, Chair: Dong Wang

- 14:30 “Regenerative Amplifier FEL - from IR to X-Rays”, Dinh C. Nguyen (LANL)  
14:50 “Microbunching Instability and Laser Heater Usage in Seeded Free-Electron Lasers”, Eléonore Roussel (PhLAM/CERLA)  
15:10 “Laser Heater Impact on the Performances of Seeded High Gain FELs”, Eugenio Ferrari (PSI)  
15:30 “Accelerator Challenges for XFELs with Very High X-Ray Energies”, Bruce Carlsten (LANL)

## **Coffee Break (15:50 – 16:15)**

## **FEL Theory (Session MOD)**

16:15 – 17:45, Chair: Avi Gover

- 16:15 **Invited:** “Physics of Post-Saturation Tapered FEL Towards Single-Frequency Terawatt Output Power”, Cheng-Ying Tsai (HUST, Wuhan)  
16:45 **Invited:** “Microbunch Rotation and Coherent Undulator Radiation from a Kicked Electron Beam”, James MacArthur (SLAC)  
17:15 “Hanbury Brown and Twiss Interferometry at XFEL Sources”, Ivan Vartaniants (DESY)  
17:30 “Post-Saturation Dynamics of a Superradiant Spike in a Free-Electron Laser Amplifier”, Xi Yang (BNL)

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**Tuesday, August 27<sup>th</sup> (Location: Lecture Hall A)**

## **SASE FEL (Session TUA)**

09:00 – 10:30, Chair: Eduard Prat

- 09:00 **Invited:** “Parallel Operation of SASE1 and SASE3 at European XFEL”, Shan Liu (DESY)  
09:30 **Invited:** “Two-Pulse Schemes in Soft and Hard X-Ray FELs: Robustness Analysis of State-of-the-Art Solutions”, Alberto Lutman (SLAC)  
10:00 “Generation of Sub-Femtosecond X-Ray Pulses at SwissFEL”, Alexander Malyzhenkov (PSI)  
10:15 “Harmonic Lasing Experiment at the European XFEL”, Evgeny Schneidmiller (DESY)

## **Coffee Break (10:30 – 11:00)**

## **Seeded FEL (Session TUB)**

11:00 – 12:45, Chair: Sverker Werin

- 11:00 **Invited:** “Echo-Enabled Harmonic Generation Lasing of the FERMI FEL in the Soft X-Ray Spectral Region”, Primoz Rebernik Ribič (Elettra-Sincrotrone Trieste)  
11:30 **Invited:** “Reflection Self-Seeding at SACLA”, Toru Hara (RIKEN SPring-8 Center)  
12:00 **Invited:** “Hard X-Ray Self-Seeding at PAL-XFEL”, Chang-Ki Min (PAL)  
12:30 “Generation and Measurement of Intense Few-Femtosecond Superradiant Soft X-Ray Free Electron Laser Pulses”, Simone Spampinati (Elettra-Sincrotrone Trieste)

## **Lunch Break (12:45 – 14:15)**

## **Poster Session 1 (Session TUP)**

14:15 – 15:45

**Topics: FEL Theory, SASE FEL, Seeded FEL, FEL Oscillators and Long Wavelengths FEL**

## **Coffee Break (15:45 – 16:15)**

## **FEL Oscillators and Long Wavelengths FEL (Session TUD)**

16:15 – 17:45, Chair: Oleg Shevchenko

- 16:15 **Invited:** “Generating Orbital Angular Momentum Beams in an FEL Oscillator”, Ying K. Wu (FEL/Duke University, Durham, North Carolina)  
16:45 **Invited:** “Application of Infrared FEL Oscillators for Producing Isolated Attosecond X-Ray Pulses via High-Harmonic Generation in Rare Gases”, Ryoichi Hajima (QST, Tokai)  
17:15 “Fine and Hyperfine Structure of FEL Emission Spectra”, Vitaly Kubarev (BINP SB RAS, Novosibirsk)  
17:30 “Cavity-Based Free-Electron Laser Research and Development: A Joint Argonne National Laboratory and SLAC National Laboratory Collaboration”, Gabriel Marcus (SLAC)

## **Coffee Break (17:45 – 18:00)**

## **Tutorial**

18:00 – 19:00, Chair: Siegfried Schreiber

- 18:00 “Coherent Spontaneous Superradiance and Stimulated-Superradiant Emission of Bunched Electron Beams”, Avraham Gover (University of Tel-Aviv)

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**Wednesday, August 28<sup>th</sup> (Location: Lecture Hall A)**

## **Electron Sources (Session WEA)**

09:00 – 10:30, Chair: Bruce Carlsten

- 09:00 **Invited:** “Overview on CW RF Gun Developments for Short Wavelength FELs”, Houjun Qian (DESY Zeuthen)
- 09:30 **Invited:** “State-of-the-Art Photocathodes and New Developments”, Nathan Moody (LANL)
- 10:00 “Emittance Budget in the Transition Regime Between Linear Emission and Space Charge Dominated Photoemission”, Ye Chen (DESY Zeuthen)
- 10:15 “Growing and Characterization of Cs<sub>2</sub>Te Photocathodes with Different Thicknesses at INFN LASA”, Laura Monaco (INFN/LASA)

## **Coffee Break (10:30 – 11:00)**

## **Electron Diagnostics, Timing, Synchronization, and Controls (Session WEB)**

11:00 – 12:45, Chair: Alex Lumpkin

- 11:00 **Invited:** “Identification and Mitigation of Smoke-Ring Effects in Scintillator-Based Electron Beam Images at the European XFEL”, Gero Kube (DESY)
- 11:30 **Invited:** “Wire-Scanners with Sub-Micrometer Resolution: Developments and Measurements”, Gian Luca Orlandi (PSI)
- 12:00 **Invited:** “Application of Machine Learning to Beam Diagnostics”, Elena Fol (CERN)
- 12:30 “Few-Femtosecond Facility-Wide Synchronization of the European XFEL”, Sebastian Schulz (DESY)

## **Lunch Break (12:45 – 14:15)**

## **Poster Session 2 (Session WEP)**

14:15 – 15:45

**Topics: Electron Sources, Electron Diagnostics, Timing, Synchronization, and Controls, Photon Beamline Instrumentation & Undulators, FEL Applications**

## **Coffee Break (15:45 – 16:15)**

## **Photon Beamline Instrumentation & Undulators (Session WED)**

16:15 – 17:45, Chairs: Jan Grünert and Siegfried Schreiber

- 16:15 **Invited:** “Experience with Short-Period, Small Gap Undulators at the SwissFEL Aramis Beamline”, Thomas Schmidt (PSI)
- 16:45 **Invited:** “Absorbed Radiation Doses on the European XFEL Undulator Systems During Early User Experiments”, Frederik Wolff-Fabris (EuXFEL)
- 17:15 “Pulse Resolved Photon Diagnostics at MHz Repetition Rates”, Jan Grünert (EuXFEL)
- 17:30 “Undulator Adjustment with the K-Monochromator System at the European XFEL”, Wolfgang Freund (EuXFEL)

## **Coffee Break (17:45 – 18:00)**

## **Tutorial**

18:00 – 19:00, Chair: Alex Lumpkin

- 18:00 “Photon Transport Beamline Design”, Haral Sinn (EuXFEL)

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**Thursday, August 29<sup>th</sup> (Location: Lecture Hall A)**

## **FEL Applications (Session THA)**

09:00 – 10:45, Chair: Young Uk Jeong

- 09:00 **Invited:** “Serial Femtosecond Crystallography at MHz XFELs”, Marie Luise Grünbein (Max Planck Institute for Medical Research, Heidelberg)
- 09:30 **Invited:** “Searching for the Hypothesized Liquid-Liquid Critical Point in Supercooled Water with X-Ray Free Electron Laser”, Kyung Hwan Kim (POSTECH)
- 10:15 **Invited:** “IR-FEL Project at the cERL and Future EUV-FEL Lithography”, Ryukou Kato (KEK)
- 10:30 “Ultrafast Magnetization Dynamics at the Low-Fluence Limit Supported by External Magnetic Fields”, Matthias Riepp (DESY)

## **Coffee Break (10:45 – 11:15)**

## **Electron Beam Dynamics (Session THB)**

11:15 – 12:45, Chair: Simona Bettoni

- 11:15 **Invited:** “Using an E-SASE Compression to Suppress Microbunch Instability and Resistive-Wall Wake Effects”, Petr Anisimov (LANL)
- 11:45 **Invited:** “Understanding 1-D to 3-D Coherent Synchrotron Radiation Effects”, Alexander Brynes (STFC/DL/ASTeC)
- 12:15 “Emittance Measurements and Minimization at SwissFEL”, Philipp Dijkstal (PSI)
- 12:30 “Longitudinal Phase Space Study on Injector Beam of High Repetition Rate FEL”, Qiang Gu (SSRF)

## **Lunch Break (12:45 – 14:15)**

## **Poster Session 3 (Session THP)**

14:15 – 15:45

**Topics: Electron Beam Dynamics, Novel Concepts and Techniques, Status of Projects and Facilities**

## **Coffee Break (15:45 – 16:15)**

## **Novel Concepts and Techniques (Session THD)**

16:15 – 18:00, Chair: Raffaella Geometrante

- 16:15 **Invited:** “From Femtosecond to Attosecond Coherent Undulator Pulses”, Vitaliy Goryashko (Uppsala University)
- 16:45 **Invited:** “Attosecond Pulses from Enhanced SASE at LCLS”, Agostino Marinelli (SLAC)
- 17:15 **Invited:** “FEL Optimization: From Model-Free to Model-Dependent Approaches and ML Prospects”, Sergey Tomin (EuXFEL)
- 17:30 “A Novel Optical Undulator Using Array of Pulse-Front Tilted Laser Beams”, Weihao Liu (USTC/NSRL)

## **Break (18:00 – 19:00)**

- 19:00 Conference Dinner

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**Friday, August 30<sup>th</sup> (New Location: DESY campus, main auditorium)**

## **Status of Projects and Facilities 2 (Session FRA)**

09:00 – 11:30, Chair: Luca Gianessi

- 09:00 **Invited:** “Operation at the European XFEL Facility”, Dirk Noelle (DESY)
- 09:30 **Invited:** “LCLS-II - Status and Upgrades”, Axel Brachmann (SLAC)
- 10:00 **Invited:** “FLASH - Status and Upgrades”, Juliane Roensch-Schulenburg (DESY)
- 10:30 **Invited:** “Status of SXFEL Test and User Facilities”, Zhentang Zhao (SSRF)
- 11:00 Concluding Remarks, Introduction Lab Visits

## **Coffee Break (11:30 – 12:00)**

### **Lab Visits (EuXFEL, FLASH)**

12:00 – 17:00

17:00 End of the Conference