

FELs of Europe

Topical Workshop on selected problems in FEL physics: from soft X-rays to THz

Dresden, April 25-27, 2022

Preliminary Program

*** = Online talk

Each session consists of 3 talks (17 + 3 minutes) plus 45 minutes discussion.

Monday 25.4., Hotel Inside

12:00 – 12:50 Lunch buffet

12:50 – 13:00 Welcome

13:00 – 14:45 Seeded FEL schemes / seeding sources (HGHG)

Session Chairs: Atoosa Meseck, Chao Feng

13:00 – 13:20 Chao Feng (SXFEL)***

Seeding schemes at the SXFEL

13:20 – 13:40 Giuseppe Penco (Elettra)

Fully coherent nonlinear harmonic generation in a seeded FEL

13:40 – 14:00 Georgia Paraskaki (FLASH)

FLASH2020+ and seeding developments at FLASH

14:00 – 14:45 Discussion

14:45 – 15:15 Coffee Break

15:15 – 17:00 Combined THz/short-wavelength experiments

Session Chairs: Rui Pan, Britta Redlich

15:15 – 15:35 Rui Pan (FLASH)

THz-XUV pump-probe

15:35 – 15:55 Wieland Schoellkopf (FHI)

A new two-color IR/THz FEL and its applications

15:55 – 16:15 Matthias Hoffmann (LCLS)***

THz/X-ray experiments and R&D at LCLS

16:15 – 17:00 Discussion

17:00 tentatively: brief presentations of planned projects/upgrades

Dinner: organize by yourself

Tuesday 26.4., Hotel Innside

8:30 – 10:15 **Superradiant THz sources**

Session Chairs: Pavel Evtushenko, Andrea Perucchi

08:30 – 08:50 Ulf Lehnert (HZDR)
Calculations and performance of U300 THz undulator and modeling for PoIFEL

08:50 – 09:10 Eleonore Roussel (SOLEIL/Lille)
Coherent synchrotron radiation and its metrology at SOLEIL

09:10 – 09:30 Pascale Roy (SOLEIL)
Applications of THz coherent synchrotron radiation at Soleil

09:30 – 10:15 Discussion

10:15 – 10:45 Coffee Break

10:45 – 12:30 **CW electron sources with high bunch charge and small longitudinal emittance**

Session Chair: Pavel Evtushenko

10:45 – 11:05 Houjun Qian (DESY)***
Design considerations of CW NC VHF electron gun for EU-XFEL CW operation

11:05 – 11:35 Andre Arnold (HZDR)
Overview of SRF gun developments in Germany and perspectives of high charge (1 nC) operation

11:35 – 12:20 Discussion

12:30 – 13:30 Lunch buffet

13:30 – 15:15 **Nonlinear bunch compression & phase-space manipulation**

Session Chairs: Simone DiMitri, Sara Thorin

13:30 – 13:50 Eduard Prat (SwissFEL)
Single and two color sub-femtosecond x-ray free-electron laser pulses with nonlinear compression

13:50 – 14:10 Gianluca Geloni (EuXFEL)
Frequency mixing at the European XFEL

14:10 – 14:30 Johannes Schmidt (Elettra)
CSR-enhanced nonlinear compression of an FEL-spent beam for emission of multi-THz coherent transition radiation

14:30 – 15:15 Discussion

15:15 – 15:45 Coffee Break

15:45 – 17:30 **Attosecond FEL pulses**

Session Chairs: Francesca Curbis, Gianluca Geloni

15:45 – 16:05 Primoz Rebernik (Elettra)
Generation of few fs and attosecond pulses using the chirped seed/tapered undulator scheme

16:05 – 16:25 Marc Guetg (DESY)
Future possibilities for short pulse production at SASE3 (chirp/taper and eSASE)

16:25 – 16:45 Agostino Marinelli (LCLS) ***
Attosecond pulse generation

16:45 – 17:30 Discussion

19:00 Conference Dinner at Hotel

Wednesday 27.4., HZDR

8:00 Bus to HZDR

9:00 – 10:45 Tailored pulses: phase locked, time delayed, multi-color

Session Chairs: Gianluca Geloni, Francesca Curbis

09:00 – 09:20 Svitozar Serkez (EuXFEL)***

Present two colors and short pulse capabilities at SASE3

09:20 – 09:40 Francesca Curbis (MaxIV)

Time delayed & multicolor pulses FEL in the soft X-ray range

09:40 – 10:00 Tao Liu (SXFEL)***

Towards high power and multi-color FELs at the SHINE

10:00 – 10:45 Discussion

10:45 – 11:10 Coffee Break

11:15 – 13:00 Linac stability and synchronization with external lasers

Session Chairs: Marie Kristin Czwallina, Mario Ferianis

11:15 – 11:35 Gu Duan (SXFEL)***

Beam-based feedback to improve the SXFEL stability

11:35 – 11:55 Anne-Laure Calendron (FLASH)

Development of a versatile arrival-time monitor for Laser-to-FEL stabilization in the FLASH2020+ project

11:55 – 12:15 Cezary Sydlo (SwissFEL)***

Linac stability and synchronization with external lasers

12:15 – 13:00 Discussion

13:00 – 14:00 Lunch buffet

14:00 – 15:30 optional visit of ELBE