



# Draft Agenda

(Version 13 June 2018)

## The Second China-Germany workshop on

### XFEL Science and Technology

Hamburg, Germany

21/22 June 2018

Registration via Indico: <https://indico.desy.de/indico/event/20692/>

#### **Objectives:**

- *Further identify, define and prepare concrete areas, actions and joint projects of FEL S&T cooperation – also within the framework of the DESY-SINAP joint lab*
- *Strengthen and shape the collaboration across the German-Chinese FEL communities by launching first cooperation, coordination and support activities*
- *Questions to be addressed by speakers, when relevant*
  - *How do you envisage the collaboration on the topic you will address (exchange of personnel, time line, with whom...)?*
  - *For this collaboration what kind of resources do you need?*



## Wed, 20 June 2018: Young Scientist Forum

(Location: CSSB Auditorium)

*FEL Lectures/Tutorials (45' with 15' questions) for 20-40 Chinese students and young scientists*

*Chair: Frederic Le Pimpec, European XFEL*

### **Program:**

- 13:30 Gianluca Geloni: X-ray Free-Electron Laser Sources: an Introduction
  - 14:30 Massimo Altarelli: Science at FEL
  - 15:30 Coffee Break
  - 16:00 Christian Bressler: How to do an XFEL experiment
  - 17:00 Transfer to European XFEL and Site Visit
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## Thu, 21 June 2018: FEL S&T Workshop (Location: CSSB Building, DESY)

### 9:00 Opening Session (CSSB Auditorium)

*Welcome & Goals of the Workshop (2x 15')*

*Chair: Edgar Weckert, DESY*

- Welcome Address from the German side (R. Feidenhans'l, European XFEL)
- Welcome Address from the Chinese side (Z. Zhu, ShanghaiTech)

### 9:30 Session I: Status of FEL-Facilities and future plans in China and Hamburg (CSSB Auditorium)

*Talks are 20'+10' discussions/Q&A*

*Chair: Zhi Liu, ShanghaiTech (tbc)*

- European XFEL, recent results and strategy plan (R. Feidenhans'l, European XFEL)
- SHINE: Shanghai hard x-ray facility (Z. Zhu, ShanghaiTech)

### 10:30 Coffee Break (15')

### 10:45 Session I (cont'd): Status of FEL-Facilities and future plans in China and Hamburg

*Chair: S. Molodtsov, European XFEL*

- Shanghai soft X-ray facility SXFEL (D. Wang, SINAP)
- Dalian Coherent Light Source (W. Zhang, Dalian Inst. of Chemical Physics, CAS)
- FLASH and FLASH2020 upgrade (W. Wurth, DESY)

### 12:15 Lunch Break (60')

#### INFO:

*13:15-19:10 Split in two Parallel Sessions IIa and IIb*

- *Parallel Session IIa: Accelerators, Seeding, Undulators and THz (SemR 4a/b)*
- *Parallel Session IIb: FEL Science and Methods (CSSB Auditorium)*



**13:15 Parallel Session IIa: Accelerators, Seeding, Undulators and THz**  
**(Location: SemR 4a/b)**

*All Talks are 15'+5' discussions/Q&A*

*Parallel Session IIa, Part I: Accelerators - Chair: H. Weise (DESY)*

- Experience of commissioning/operating the European XFEL (W. Decking, DESY)
- Accelerator development at SINAP (L. Yin, SINAP, CAS)
- Accelerator development at IHEP (Feisi He, IHEP, CAS)
- Accelerator development in PKU (K.X. Liu, Peking University)
- RF gun developments (Houjun Qian, DESY)
- RF gun developments (Du Yingchao, Tsinghua University)
- CTFEL and future accelerator development in CAEP (Peng Li, Institute of Applied Electronics, CAEP)

**15:35 Coffee Break (15')**

**15:50** *Parallel Session IIa, Part II: Seeding Schemes - Chair: D. Wang, SINAP*

- Advanced FEL seeding techniques at SXFEL and SHINE (B. Liu, SINAP, CAS)
- FEL seeding schemes at the European XFEL (G. Geloni / S. Serkez, XFEL)
- FEL seeding schemes at FLASH2020 and within ARD
  - FLASH2020 (B. Faatz, DESY) – 10'
  - ARD (C. Lechner, DESY) – 10'

**16:55** *Parallel Session IIa, Part III: Undulators - Chair: J. Pflüger, European XFEL*

- Undulator commissioning/running/development at European XFEL (Y. Li, European XFEL)
- Undulator development at SINAP (Wei Zhang, SINAP, CAS)
- Undulator development at IHEP (cryogenic) (S. Sun, IHEP, CAS)
- Possible FEL options for new undulator lines of the European XFEL (E. Schneidmiller, DESY)

**18:15** *Parallel Session IIa - Part IV: THz Session - Chair: J. Li, CAEP*

- Results from THz-workshop at XFEL (R. Carley/P. Zalden, European XFEL)
- Ultrafast THz source generation and application (Liguo Zhu, Institute of Fluid Physics, CAEP)
- Development for an accelerator based, tunable, high power THz source for pump-probe experiments at European XFEL (Mikhail Krasilnikov, DESY)

**19:15 End Parallel Session IIa**

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**13:15 Parallel Session IIb: FEL Science and methods (Location: CSSB Auditorium)**

*Talks are 15' + 5' discussion/Q&A*

*Parallel Session IIb, Part I: Soft x-rays – Chair: W. Wurth, DESY*

- General Topic: Overview of sample environment techniques (K. Doerner, European XFEL)
- Introduction of Shanghai Soft X-ray free electron laser: beamlines, end stations, and scientific program (Zhi Liu, ShanghaiTech)
- Soft X-ray spectroscopic research at the European XFEL (S. Molodtsov, European XFEL)

*Parallel Session IIb, Part II: Science Applications AMO – Chair: W. Wurth, DESY*

- Perspectives in AMO science at FELs (Yuhai Jiang, SARI/ShanghaiTech)
- AMO science at FLASH (Rolf Treusch, DESY)

**15:00 Coffee Break (15')**

**15:15 Parallel Session IIb, Part III: Science Applications: Spectroscopy - Chair: Shengnian Luo, The Peac Institute of Multiscale Sciences or A. Scherz, European XFEL**

- Opportunity of high repetition rate FEL in photoelectron spectroscopy (Yulin Chen, ShanghaiTech/Oxford)
- Time-resolved ARPES (Kai Rossmagel, CAU Kiel/DESY)
- RIXS in probing elementary excitations and its combination with XFEL (Xuerong Liu, ShanghaiTech)
- Applications of XFEL in chemical science (Tsu-Chien Weng, ShanghaiTech and HPSTAR)

**16:35 Parallel Session IIb, Part IV: Science Applications: Imaging – Chair: Anders Madsen, European XFEL**

- High resolution X-ray imaging at synchrotron and XFEL (Jiang Huaidong, ShanghaiTech)
- Activities of XFEL-based structural biology studies in China (Jianhua He, SINAP)
- 4D visualization of ultrafast lattice deformation in solids, (Jianbo Hu, Institute of Fluid Physics, CAEP)

**17:35 Coffee Break (15')**

**17:50 Parallel Session IIb, Part V: Science Applications: Matter under extreme conditions – Chair Tom Cowan, HZDR (tbc)**

- Probe structural dynamics at dynamic extremes with XFEL: Opportunities and challenges (Sheng-Nian Luo, The Peac Institute of Multiscale Sciences)



- Application of RIXS in high pressure condensed matter (Yang Ding, Center for High Pressure Science & Technology Advanced Research)
- Intense laser pulses with magnetized plasma, (Zhengming Sheng, Shanghai Jiao Tong University)
- WDM research (Zhang Ping, Institute of Applied Physics and Computational Mathematics)

**~19:10 End Parallel Session IIb**

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**19:30 Common Dinner / BBQ (at DESY)**

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## Fri, 22 June 2018: FEL S&T Workshop (Location: CSSB Auditorium)

### 9:00 Session IV: Detectors and Diagnostics (CSSB Auditorium)

*Talks are 15' + 5' discussion*

*Chair: J. Schneider, DESY*

- Advanced photon diagnostics developments for High-repetition rate XFELs (J. Gruenert, European XFEL)
- Detector developments at DESY (H. Graafsma, DESY)
- Detector commissioning/developments at European XFEL (M. Kuster, XFEL)
- Detector development at SINAP/SHANGHAITECH (Jiaxiang Zhang, ShanghaiTech)
- Detector development at IHEP (Jiang Xiaoyshan, Institute of High Energy Physics)
- Hard X-ray sensor design (CdZnTe) (Xu Yadong, Northwestern University)

### 11:00 Coffee Break (20')

### 11:20 Session V: Data Management Acquisition & Control (CSSB Auditorium)

*Talks are 15' + 5' discussion*

*Chair: NN, China*

- Fast Data Acquisition and Near-Real time Data Analysis at XFEL facilities (S. Brockhauser, European XFEL)
- SIMEX experiment simulations and future plans (Carsten Fortmann-Grote, European XFEL)
- DataXpress (Anton Barty, DESY)
- Theory and Data science applications in coherent X-ray source: material structural phase transition (Ping Huai ShanghaiTech/SINAP)
- IT&DM plan for SHINE (Haiwei Fan, ShanghaiTech)

### 13:00 Lunch Break

### 14:00-16:00 Poster Session & Coffee

*Poster area with maximum 10 poster stands will be available in CSSB foyer*

*Possible posters:*

- mid-term strategy of European XFEL
- European XFEL: SPB and FXE first results
- Damage and the transient heat loading of the optic elements (SINAP and XFEL)
- GaAs sensor development (CAEP)
- 3D structure sensor design (Xiangtan University)



- 3D structure – sample environment
- Data processing (BCSRC)
- Researches and experimental proposals  
Biology, physics, chemistry, material, HEDP, WDM, etc.

#### 16:00 Session VI: Summary, Discussion and Closing (CSSB Auditorium)

Chairs: R. Feidenhans'l, European XFEL + NN, China

- Summary reports from Parallel sessions IIa, IIb (60')
  - Accelerators, Undulator, THz-Source (30')
    - Here we need three rapporteurs
    - Suggest: H. Weise, J. Pflüger and J. Li
  - Science Applications (30')
    - How many rapporteurs do we need?
      - S. Molodtsov + NN/China?
- Plenary Discussions (30'): *beyond the science addressed at European XFEL and at SHINE*
  - New scientific cases and technology needed to address it (Accelerator, Detector, Undulators, Optics...)
  - Next Steps
- Closing (10')

#### 17:40 Session VII: Collaboration meeting (Location: tbd)

(CLOSED session with representatives from DESY, European XFEL, SINAP, CAEP, ShanghaiTech, IHEP, HIBEF)

- DESY-SINAP Joint lab
- Action plans for the collaboration topics beyond the Joint Lab
- PhD exchange program
- HIBEF collaboration
- Chinese FEL Hub

#### 18:40 Light Dinner for the Members of Collaboration Meeting