

5. 研究会・国際会議等

2014年度に理研およびJASRIが主催あるいは共催した、SACLAに関連した研究会・国際会議について紹介する。

1. Japanese-French Symposium on Advanced Compact Free Electron Laser (11月4日、5日)

レーザープラズマ加速の使用や先進的シーディング技術のスキームなどの新しく出現したFELのコンセプトに関する調査やその利用に関する像を描くこと、また日仏の学会と産業界との連携をさらに強化することを目的として、標題のシンポジウムを開催した。

プログラム：

November 4 (Tuesday)

Welcome and Opening session

(Chair: Marie-Emmanuelle Couprie)

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| 9:00 - 9:10 | Jacques Maleval (Counselor for Science and Technology, Embassy of France in Japan): Welcome Remarks |
| 9:10 - 9:20 | Katsuyuki Kudo (Office for Quantum and Radiation Research, MEXT) |
| 9:20 - 9:30 | Jean Daillant (Synchrotron SOLEIL Director): Introduction and workshop goals |
| 9:30 - 9:45 | Tetsuya Ishikawa (Director of RIKEN SPring-8 Center): Strategic view of RIKEN |
| 9:45 - 10:00 | Gabriele Fioni (Direction of Science Matter Division, CEA): CEA strategic vision |
| 10:00 - 10:15 | Amina Taleb-Ibrahimi (Deputy Director of the Institute of Physics, CNRS): CNRS strategic vision |

Presentation of FEL projects/ facilities

(Chair: Tetsuya Ishikawa)

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| 10:15 - 10:40 | Hitoshi Tanaka (RIKEN): Status of SACLA, Japanese XFEL facility |
| 10:40 - 11:05 | Marie-Emmanuelle Couprie (Synchrotron SOLEIL): The LUNEX5 project |

Towards a LWFA based FEL demonstration

(Chair: Serge Bielawski)

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| 11:30 - 11:55 | Victor Malka (Lab. d'Optique Appliquée): LWFA electron beam achievements towards the application to FELs |
| 11:55 - 12:20 | Tomonao Hosokai (Osaka University): Development of stable and reproducible LWFA based XFEL |
| 12:20 - 12:40 | Alexandre Loulergue (Synchrotron SOLEIL): Electron beam manipulation from LWFA to undulator |
| 12:40 - 13:00 | Mitsuhiro Yoshida (KEK): Development of LWFA based afterburner acceleration at KEK |

Advanced FEL schemes (Chair: Hiroyuki Hama)

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| 14:00 - 14:20 | Toru Hara (RIKEN): Two-color and multi-beamline operation at SACLA |
| 14:20 - 14:40 | Alban Mosnier (CEA, IRFU): High repetition rate superconducting linac issues |
| 14:40 - 15:00 | Takashi Tanaka (RIKEN): Commissioning of XFEL Self-seeding at SACLA |
| 15:00 - 15:20 | Clément Evain (PhLAM): Comparison between seeding schemes (HHG, HGHG and EEHG) |
| 15:20 - 15:40 | Marie Labat (Synchrotron SOLEIL): Pulse splitting, 2-color seeded FEL |

Specific equipment and diagnostics for Advanced FELs

(Chair: Takashi Tanaka)

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| 16:00 - 16:20 | Chamseddine Benabderrahmane (Synchrotron SOLEIL / ESRF): Cryogenic undulators |
| 16:20 - 16:40 | Shigeru Yamamoto (KEK): New type of short period undulator |
| 16:40 - 17:00 | Gaël Le Bec (ESRF): Compact magnetic elements using permanent magnet |

Optics and FEL light characterisation (Chair: David Garzella)

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| 17:00 - 17:20 | Kensuke Tono (JASRI): Nondestructive single shot XFEL characterization |
| 17:20 - 17:40 | Charles Bourassin-Bouchet (Synchrotron SOLEIL): FEL short pulse shaping and metrology |

November 5 (Wednesday)

- 9:00 - 9:20 Tetsuo Katayama (JASRI): Ultrafast X-ray spectroscopy
 9:20 - 9:40 Jan Lüning (UPMC/LCPMR): Ultrafast magnetization dynamics
 9:40 - 10:00 Hitoki Yoneda (The University of Electro-Communications): X-ray quantum optics
 10:00 - 10:20 Sylvain Ravy (Synchrotron SOLEIL): Phase transitions for TaS₂

Scientific use and vision (continued) (Chair: Makina Yabashi)

- 10:40 - 11:00 Kiyoshi Ueda (Tohoku Univ.): Deep inner-shell multiphoton multiple ionization of atoms, molecules and clusters
 11:00 - 11:20 Catalin Miron (Synchrotron SOLEIL): Probing ultrafast dynamics in dilute species using a combined approach of high-resolution electron spectroscopy and XFEL based time-resolved techniques
 11:20 - 11:50 Ryosuke Kodama (Osaka University): High energy density science with Advanced laser
 11:50 - 12:10 Marion Harmand (IMPIC, UPMC): Applications in warm dense matter

Industrial R&D of interest for the Advanced Compact FEL

(Chair: Alban Mosnier)

- 13:10 - 13:30 Masahiro Mita (Hitachi Metals, Ltd.): Fabrication of undulators and high quality Oxygen-free copper
 13:30 - 13:50 Naoaki Ikeda (Mitsubishi Heavy Industries, Ltd.): Accelerator products and related technologies at MHI
 13:50 - 14:10 Yoshihisa Okubo (Toshiba Electron Tubes & Devices, Ltd.): Present Status of Klystron Development for Big Science in TETD
 14:10 - 14:30 Jean-Luc Lancelot (Sigmaphi): Activities towards Advanced Compact FELs
 14:30 - 14:50 Gilles Riboulet (Amplitude Technologies): High power laser R&D
 14:50 - 15:10 Marc Castaing (Thalès): High power laser R&D

2. Workshop toward Innovation of Photon Science

(11月13日、14日)

放射光・XFEL施設の代表者と科学技術の最先端における日本産業界のトップが、社会における種々の課題解決に向けて積極的な議論の場を提供することを目的とし、

標題のワークショップを実施した。

プログラム :

November 13 (Thursday)

- 15:00 - 16:00 Check-in and Registration
 16:00 - 17:00 Keynote Address and Welcome Reception
 Can photon science contribute to making a more sustainable world?
 Tetsuya Ishikawa
 17:00 - 18:30 Tea Ceremony
 18:30 - 20:00 Workshop Dinner

November 14 (Friday)

- 8:00 - 10:00 Roundtable Discussion 1: Energy
 How can we address Energy Problems?
 Moderator Gerhard Materlik
 Topics Energy Production
 Energy Transfer
 Energy Storage
 Energy Saving
 10:00 - 10:30 Coffee Break
 10:30 - 12:30 Roundtable Discussion 2: Environment
 How can we address Environmental Problems?
 Moderator Dennis Mills
 Topics Carbon Dioxide
 Auto Exhaust
 Biodegradable Materials
 Saline Water Conversion
 Nuclear Decontamination
 12:30 - 14:00 Lunch
 14:00 - 16:00 Roundtable Discussion 3: Destruction
 Can we leverage the Science of Destruction using atomic level design?
 Moderator Tetsuya Ishikawa
 Topics Making Products More Indestructible
 Deterring Destruction
 Programmed Destruction
 16:30 - 17:30 Tea Ceremony
 17:30 - 20:00 Closing Remark and Workshop Dinner

3. The 1st SACLA Workshop on Femtosecond Crystallography (11月26日、27日)

Serial Femtosecond Crystallography (SFX) に関連する国内外の研究者を招待し、XFELを用いた蛋白質結晶構造解析の最新の研究成果や進捗について講演いただくとともに、活発な議論の場を設けることを目的として、標題のワークショップを開催した。

プログラム :

November 26 (Wednesday)

Chair: Makina Yabashi/ Ilme Schlichting/ Fumiaki Yumoto

13:00 - 13:10 Opening & Welcome (Tetsuya Ishikawa)

13:10 - 15:40 Talk & Discussion

Makina Yabashi (RIKEN),

Status and future of the SACLA facility

Sebastien Boutet (Linac Coherent Light Source),

An overview of XFEL-based

Macromolecular Crystallography

Uwe Weierstall (Arizona State University),

Sample injection methods for serial

femtosecond crystallography

Vadim Cherezov (The Scripps Research Institute),

Serial femtosecond crystallography of G

protein-coupled receptors

15:40 - 16:00 Coffee break

16:00 - 18:00 Talk & Discussion

Vadim Cherezov (The Scripps Research Institute),

Serial femtosecond crystallography of G

protein-coupled receptors

Eriko Nango (RIKEN),

Serial femtosecond crystallography of

bacteriorhodopsin: Toward time-resolved

structural studies at SACLA

Michihiro Suga (Okayama University),

Radiation damage free structure of

photosystem II at 1.95Å resolution

Raimund Fromme (Arizona State University),

Time-resolved serial femtosecond

crystallography: Toward molecular movies

of biomolecules at work

Chair: Masaki Yamamoto

19:00 - 21:00 Poster Session & Dinner

November 27 (Thursday)

Chair: So Iwata

9:00 - 10:20 Talk & Discussion

Aina Cohen (SLAC National Accelerator Laboratory),

Goniometer-based diffraction studies of

single crystals at LCLS

Michihiro Sugahara (RIKEN),

Grease matrix as a versatile crystal carrier

for SFX

10:20 - 10:40 Coffee break

10:40 - 12:40 Talk & Discussion

Anton Barty (Deutsches Elektronen-Synchrotron),

Taming the data deluge from free electron
lasers

Thomas White (Deutsches Elektronen-Synchrotron),

Processing SFX data and more using
CrystFEL

Nicholas Sauter (Lawrence Berkeley National Laboratory),

XFEL data: can still shots approach
rotation-data quality?

12:40 - 14:00 Lunch

14:00 - 16:00 Talk & Discussion

Thomas Barends (Max Planck Institute for Medical
Research),

Phasing with FEL data

Marco Cammarata (University Rennes 1),

Tracking local and global changes of
myoglobin by X-ray solution scattering and
absorptionIlme Schlichting (Max Planck Institute for Medical
Research),SFX - five years of great progress, what's
next?

16:00 - 16:10 Closing remarks

放射光科学研究推進室