

**International Conference on
X-ray Optics and Applications 2019**

XOPT2019

Room 313+314

Tuesday, April 23

9:00–12:00

OPIC Plenary session

Room 501+502

---- 12:00–13:30 Lunch ----

13:30–15:00

Joint session (ALPS, HEDS, XOPT)

Room 303

Chairs: Hitoki Yoneda
The University of Electro-Communications, Japan
Akifumi Yogo
Osaka University, Japan
Makina Yabashi
RIKEN SPring-8 Center, Japan

JS-2-1 13:30

(Invited) Recent advances on the BELLA PW laser for collaborative research in plasma science

Csaba Tóth
Lawrence Berkeley National Laboratory, USA

JS-2-2 14:00

(Invited) Status and Prospect of high energy density science with high power lasers at Osaka University

Ryosuke Kodama
Osaka University, Japan

JS-2-3 14:30

(Invited) Status of the EBS Programme Implementation at the ESRF

Francesco Sette
European Synchrotron Radiation Facility, France

---- 15:00–15:25 Break ----

15:25–15:30

Opening

Opening Remarks

Tetsuya Ishikawa
RIKEN SPring-8 Center, Japan

Room 313+314

15:30–16:45

XOPT-1: XPCS/XSVS

Chair: Aymeric Robert
SLAC National Accelerator Laboratory, USA

XOPT-1-1 15:30

(Invited) XPCS Extended to Microsecond Timescales: Current Progress and Future Prospects

Alec Sandy
Argonne National Laboratory, USA

XOPT-1-2 16:00

(Invited) Ultrafast XPCS of Supercooled Water and Aqueous Solutions

F. Perakis¹, G. Camisasca¹, T. J. Lane², A. Späh¹, K. T. Wikfeldt¹, J. A. Selberg³, F. Lehmkuhler^{4,5}, H. Pathak¹, K. H. Kim¹, K. Amann-Winkel¹, S. Schreck¹, S. Song², T. Sato², M. Sikorki^{2,6}, D. Zhu², A. Robert², G. Grübel^{4,5}, L. G. M. Pettersson¹ and A. Nilsson¹
¹*Stockholm University, Sweden*, ²*SLAC National Accelerator Laboratory, USA*, ³*KTH Royal Institute of Technology, Sweden*, ⁴*Deutsches Elektronen-Synchrotron, Germany*, ⁵*Hamburg Centre for Ultrafast Imaging, Germany*, ⁶*European XFEL, Germany*

XOPT-1-3 16:30

Contrast optimization for two-pulse X-ray Speckle Visibility Spectroscopy experiment

Yanwen Sun^{1,2}, Aymeric Robert¹ and Diling Zhu¹
¹*Linac Coherent Light Source, SLAC National Accelerator Laboratory, USA*, ²*Stanford University, USA*

---- 16:45–17:05 Break ----

17:05–17:50

XOPT-2: Optics I (ML/diffractive)

Chair: Hirokatsu Yumoto
Japan Synchrotron Radiation Research Institute, Japan

XOPT-2-1 17:05

(Invited) MLL-Based X-Ray Microscopy Capability at the National Synchrotron Light Source II

Yong S. Chu, Hanfei Yan, Xiaojing Huang, Evgeny Nazaretski, Nathailie Boet and Petr Ilinski
National Synchrotron Light Source II, Brookhaven National Laboratory, USA

XOPT-2-2 17:35

X-ray mirror figure correction by differential deposition

Christian Morawe, Sylvain Labouré, Jean-Christophe Peffen, François Perrin and Amparo Vivo
European Synchrotron Radiation Facility, France

---- 17:50–19:00 Group Photo/Break/Move ----

19:00–21:00

XOPT Banquet

The Japanese restaurant (“海宝”, Kaihou)

Wednesday, April 24

9:00–10:00

XOPT-3: XFEL facilities

Room 313+314

Chair: Paul Fuoss

SLAC National Accelerator Laboratory, USA

XOPT-3-1 9:00

(Invited) Recent status and future perspectives of SACLA

Ichiro Inoue

RIKEN SPring-8 Center, Japan

XOPT3-2 9:30

(Invited) Materials Imaging and Dynamics Station at the European X-Ray Free-Electron Laser Facility

Anders Madsen

European XFEL, Germany

---- 10:00–10:30 Break ----

10:30–11:15

XOPT-4: XFEL diagnostics

Chair: Diling Zhu

SLAC National Accelerator Laboratory, USA

XOPT-4-1 10:30

Characterization of single shot spectrum of LCLS by using high resolution single shot spectrometer and machine learning

Takahiro Sato^{1,2}, Hasan Yavas¹, Yanwen Sun^{1,2}, Yuichi Inubushi^{2,3}, Makina Yabashi^{2,3} and Diling Zhu^{1,2}

¹*Linac Coherent Light Source, SLAC National Accelerator Laboratory, USA*, ²*RIKEN SPring-8 Center, Japan*, ³*Japan Synchrotron Radiation Research Institute, Japan*

XOPT-4-2 10:45

Investigating FEL sources: a joint approach of Wavefront sensing, Metrology characterization, and WISER simulations

Michele Manfredda, Lorenzo Raimondi, Marco Zangrando and Nicola Mahne

Elettra – Sincrotrone Trieste, Italy

XOPT-4-3 11:00

Diffraction in strongly bent crystals: applicability of the kinematical theory

Vladimir Kaganer¹, Ilia Petrov² and Liubov Samoylova²

¹*Paul-Drude-Institut für Festkörperelektronik, Germany*,

²*European XFEL GmbH, Germany*

11:15–12:00

XOPT-5: Nonlinear optics

Chair: Diling Zhu

SLAC National Accelerator Laboratory, USA

XOPT-5-1 11:15

(Invited) X-ray nonlinear spectroscopy with two-photon absorption

Kenji Tamasaku

RIKEN SPring-8 Center, Japan

XOPT-5-2 11:45

Quantum illumination with x-rays

Sason Sofer^{1,2}, Edward Strizhevsky^{1,2}, Aviad Schori^{1,2}, Kenji Tamasaku² and Sharon Shwartz^{1,2}

¹*Bar Ilan University, Israel*, ²*RIKEN SPring-8 Center, Japan*

---- 12:00–13:00 Lunch ----

13:30–14:00

XOPT-6: Optics II (reflective)

Chair: Satoshi Matsuyama

Osaka University, Japan

XOPT-6-1 13:30

Preliminary Mechanical Test of a Capacitive Sensor Array for 300-mm Long Elliptically Bent Hard X-ray Mirror with Laminar Flexure Bending Mechanism

Deming Shu, Jayson Anton, Steven Kearney, Ross Harder, Xianbo Shi, Tim Mooney and Lahsen Assoufid

Argonne National Laboratory, USA

XOPT-6-2 13:45

Advances in the Development of Precision Wolter Mirrors for Future X-ray Observations of the Sun

Taro Sakao¹, Satoshi Matsuyama², Jumpei Yamada², Takato Inoue², Taku Hagiwara², Kentaro Hata², Hiroyuki Yamaguchi², Nami Nakamura², Kazuto Yamauchi², Yoshiki Kohmura³, Yoshinori Suematsu⁴, Noriyuki Narukage⁴ and Shin-nosuke Ishikawa⁵

¹*Japan Aerospace Exploration Agency, Japan*, ²*Osaka University, Japan*, ³*RIKEN SPring-8 Center, Japan*,

⁴*National Astronomical Observatory of Japan, Japan*,

⁵*Nagoya University, Japan*

14:00–15:00

XOPT-7: Methods I

Chair: Satoshi Matsuyama

Osaka University, Japan

XOPT-7-1 14:00

(Invited) Quasi-Linear Instrument for Coherent X-Ray Diffuse Scattering Studies

Paul H. Fuoss

Linac Coherent Light Source, SLAC National Accelerator Laboratory, USA

XOPT-7-2 14:30

Upgrade of Hard X-Ray Split-and-Delay Optical System at SACLA

Taito Osaka¹, Ichiro Inoue¹, Takashi Hirano², Yuki Morioka², Shotaro Matsumura², Yasuhisa Sano², Yuichi Inubushi^{1,3}, Kensuke Tono^{1,3}, Kazuto Yamauchi² and Makina Yabashi^{1,3}

¹RIKEN SPring-8 Center, Japan, ²Osaka University, Japan, ³Japan Synchrotron Radiation Research Institute, Japan

XOPT-7-3 14:45

A compact hard x-ray split-delay system with fly-scan capability based on variable-gap channelcuts

Yanwen Sun^{1,2}, Nan Wang^{2,1}, Sanghoon Song¹, Peihao Sun^{2,1}, Matthieu Chollet¹, Takahiro Sato¹, Tim B. van Driel¹, Silke Nelson¹, Rajan Plumley¹, Jordi Montana-Lopez², David A. Reis^{3,4,5}, Samuel W. Teitelbaum^{3,4}, Mariano Trigo^{3,4}, Johann Haber^{3,4}, Jerome B. Hastings³, Alfred Q. R. Baron⁶, Mark Sutton⁷, Paul Fuoss¹, Aymeric Robert¹ and Diling Zhu¹

¹Linac Coherent Light Source, SLAC National Accelerator Laboratory, USA, ²Physics Department, Stanford University, USA, ³Stanford PULSE Institute, SLAC National Accelerator Laboratory, USA, ⁴Stanford Institute for Materials and Energy Sciences, SLAC National Accelerator Laboratory, USA, ⁵Department of Applied Physics, Stanford University, USA, ⁶RIKEN SPring-8 Center, Japan, ⁷McGill University, Canada

---- 15:00–15:30 Break ----

15:50–17:00

XOPT-8: Imaging I

Chair: Wataru Yashiro
Tohoku University, Japan

XOPT-8-1 15:50

(Invited) Scanning three-dimensional x-ray diffraction microscopy with a high-energy microbeam

Yujiro Hayashi, Daigo Setoyama and Tomoyuki Yoshida
Toyota Central R&D Laboratories Inc.

XOPT-8-2 16:00

High Energy Resolution Bent Laue Dispersive Monochromator with Application to Selenium Speciation CT

Peng Qi¹, Nazanin Samadi¹, Mercedes Martinson¹, Bassey Bassey¹, Ingrid Pickering¹, Graham George¹ and Leroy Dean Chapman^{1,2}

¹University of Saskatchewan, Canada, ²Canadian Light Source, Canada

XOPT-8-5 16:45

X-ray Reflecto-interferometry Based on Refractive Optics for Thin Films Characterization

Irina Snigireva¹, Svetlana Lyatun², Dmitry Zverev², Petr Ershov², Ivan Lyatun², Oleg Kononov¹ and Anatoly Snigirev²

¹European Synchrotron Radiation Facility, France, ²Immanuel Kant Baltic Federal University, Russia

XOPT-8-3 16:15

X-Ray Microscopy for High Pressure Research

A. Barannikov¹, P. Ershov¹, T. Fedotenko², E. Koemets³, M. Hanfland⁴, N. Dubovinskaia³, L. Dubrovinsky², I. Snigireva⁴ and A. Snigirev¹

¹Immanuel Kant Baltic Federal University, Russia, ²Bayerisches Geoinstitut, University of Bayreuth, Russia, ³Laboratory of Crystallography, University of Bayreuth, ⁴European Synchrotron Radiation Facility, France

XOPT-8-4 16:30

The Projection and Transmission X-ray Microscopy Project at Taiwan Photon Source

Gung-Chian Yin, Yen-Fang Song, Bo-Yi Chen, Chien-Yu Lee, Ming-Ying Hsu, Cheng-Liang Liao and Huang-Yeh Chen

National Synchrotron Radiation Research Center, Taiwan

17:00–17:20

XOPT-9: Company session

Chair: Wataru Yashiro
Tohoku University, Japan

XOPT-9-1 17:00

Double Multilayer Monochromators DMM and Montel X-ray Optics for Synchrotron Beamlines

Frank Hertlein, Uwe Heidorn, Christopher Umland, Carsten Michaelsen and Jörg Wiesmann
Incoatec GmbH, Germany

XOPT-9-2 17:10

X-ray Source Technology for High Throughput in the Home-Laboratory and Tomography Applications

Emil Espes and Shiho Tanaka
Excillum AB, Sweden

---- 17:20–18:00 Break/Move ----

18:00–20:00

OPIC Reception

Thursday, April 25

9:00–10:00

Room 313+314

XOPT-10: Optics III (high-heat-load/high-brilliance)

Chair: Hidekazu Mimura
The University of Tokyo, Japan

XOPT-10-1 9:00

(Invited) X-ray FEL beam transport and focusing at high repetition rates at the European XFEL

Tommaso Mazza
European XFEL GmbH, Germany

XOPT-10-2 9:30

Diffraction limited optics – theory and tests of what you need to do to preserve the quality of the source

Daniel Cocco
Linac Coherent Light Source, SLAC National Accelerator Laboratory, USA

XOPT-10-3 9:45

Diamond Channel-Cut Crystals

Yuri Shvyd'ko¹, Tomaz Kolodziej¹, Sergey Terentev² and Vladimir Blank²
¹Argonne National Laboratory, USA, ²Technological Institute for Superhard and Novel Carbon Materials, Russia

10:00–10:30

XOPT-11: Imaging II

Chair: Hidekazu Mimura
The University of Tokyo, Japan

XOPT-11-1 10:00

Assessment of Image Contrast and Signal to Noise Ratio in Analyzer Based Imaging

Ralf Hendrik Menk^{1,2,4}, Luigi Rigon^{3,4} and Fulvia Arfelli^{3,4}
¹Elettra – Sincrotrone Trieste, Italy, ²University of Saskatchewan, Canada, ³Istituto Nazionale di Fisica Nucleare Sezione di Trieste, Italy, ⁴Università di Trieste, Italy

XOPT-11-2 10:15

Low-dose Phase CT Reconstruction using Convolutional Neural Network without Training Data Preparation

Ryosuke Ueda and Hiroyuki Kudo
The University of Tsukuba, Japan

10:30–12:00

Poster session

XOPT-P-1

Fabrication of X-ray absorption grating using ultracentrifuge

Wataru Yashiro¹, Chika Kamezawa², Kazuyuki Hyodo³ and Daisuke Hojo⁴

¹Institute of Multidisciplinary Research for Advanced Materials (IMRAM), Tohoku University, Japan, ²SOKENDAI, Japan, ³High Energy Accelerator Organization (KEK), Japan, ⁴Advanced Institute for Materials Research (AIMR), Tohoku University, Japan

XOPT-P-2

In situ Long Trace Profiler Measurement For Bendable Gratings in the High Energy Resolution Soft X-ray Beamlines

Shangwei Lin, Duan-Jen Wang, Hok-Sum Fung, Chih-Yu Hua and Gung-Chian Yin
National Synchrotron Radiation Research Center, Taiwan

XOPT-P-3

Optimization of Fresnel zone plate optics for high resolution X-ray ptychography

Michal Odstrcil, Maxime Lebugle, Manuel Guizar-Sicairos, Christian David and Mirko Holler
Paul Scherrer Institute, Switzerland

XOPT-P-4

A direct measurement method of inner diameter for mono capillary

Yajun Tong¹, Biao Deng², Fen Tao², Jiadong Fan¹, Huaidong Jiang¹ and Tixiao Xiao¹
¹ShanghaiTech University, China, ²Shanghai Synchrotron Radiation Facility, China

XOPT-P-5

Heat load Analysis of the first mirror at SHINE

Yajun Tong, Zhibin Sun, Jiadong Fan and Huaidong Jiang
ShanghaiTech University, China

XOPT-P-6

Single bounce ellipsoidal monocapillary for full-field TXM and Micro-XRF

Biao Deng¹, Fen Tao¹, Guohao Du¹, Tianxi Sun² and Tiquiao Xiao¹
¹Shanghai Synchrotron Radiation Facility, China, ²Beijing Normal University, China

XOPT-P-7

The Stability Improvements of Montel Mirror Holder for X-ray Nanoprobe

Bo-Yi Chen, Gung-Chian Yin, Ming-Ying Hsu, Chien-Yu Lee, Bi-Hsuan Lin, Shao-Chin Tseng, Xiao-Yun Li, Huang-Yeh Chen, Shih-Hung Chang, Mau-Tsu Tang and Yu-Shan Huang
National Synchrotron Radiation Research Center, Taiwan

XOPT-P-8

The study of the stitching interferometry

Dongni Zhang

Institute of High Energy Physics, Chinese Academy of Sciences, China

XOPT-P-9

Development of XFEL sub-10 nm focusing system based on Wolter III-advanced KB optics

Jumpei Yamada¹, Satoshi Matsuyama², Takato Inoue², Nami Nakamura², Taito Osaka¹, Ichiro Inoue¹, Yuichi Inubushi^{1,3}, Kensuke Tono^{1,3}, Hirokatsu Yumoto³, Takashi Koyama³, Haruhiko Ohashi³, Tetsuya Ishikawa¹, Kazuto Yamauchi² and Makina Yabashi^{1,3}

¹RIKEN SPring-8 Center, Japan, ²Osaka University, Japan, ³Japan Synchrotron Radiation Research Institute, Japan

XOPT-P-10

Development of adaptive X-ray focusing system consisting of concave mirror and convex mirror

Hiroyuki Yamaguchi¹, Satoshi Matsuyama¹, Junki Sonoyama², Kazuki Akiyama², Hiroki Nakamori³, Yasuhisa Sano¹, Yoshiki Kohmura⁴, Makina Yabashi⁴, Tetsuya Ishikawa⁴ and Kazuto Yamauchi¹

¹Osaka University, Japan, ²TOYAMA, Japan, ³JTEC Corporation, Japan, ⁴RIKEN SPring-8 Center, Japan

XOPT-P-11

A surface figuring method for fabricating ultraprecise soft x-ray ellipsoidal mirror

Yusuke Matsuzawa^{1,2}, Shunya Yokomae¹, Hirokazu Hashizume² and Hidekazu Mimura¹

¹The University of Tokyo, Japan, ²Natsume Optical Corporation, Japan

XOPT-P-12

Development of Small Kirkpatrick–Baez Mirror System for Nano-Focusing of X-Rays

Takenori Shimamura and Hidekazu Mimura

The University of Tokyo, Japan

XOPT-P-13

Soft X-ray focusing system using ellipsoidal mirror forptychographic imaging

Yoko Takeo^{1,3}, Akihiro Suzuki², Yasunori Senba³, Hikaru Kishimoto³, Haruhiko Ohashi³ and Hidekazu Mimura¹

¹The University of Tokyo, Japan, ²Hokkaido University, Japan, ³Japan Synchrotron Radiation Research Institute, Japan

XOPT-P-14

Replication Accuracy of Cu Electroforming Process for Non-magnetic Soft X-ray Mirrors

Gota Yamaguchi and Hidekazu Mimura

The University of Tokyo, Japan

XOPT-P-15

Determination of approximate functions for shape measurement of soft x-ray focusing ellipsoidal mirrors

Satsuki Shimizu, Yoko Takeo, Gota Yamaguchi and Hidekazu Mimura

The University of Tokyo, Japan

XOPT-P-16

R&D Elliptically Bent Mirrors in HEPS

Ming Li^{1,2}

¹Institute of High Energy Physics, Chinese Academy of Sciences, China, ²University of Chinese Academy of Sciences, China

XOPT-P-17

FEM-simulations for a high-heat-load mirror

Joern Seltmann¹, Kai Bagschik¹, Moritz Hoesch¹, Frank Scholz¹, Florian Trinter¹ and Jens Viehhaus²

¹Deutsches Elektronen Synchrotron, Germany, ²Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Germany

XOPT-P-18

Requirement on the mirror quality considering the partial coherence of the source

Fugui Yang, Ming Li, Quanjie Jia, Lingfei Hu and Weiwei Zhang

Beijing Synchrotron Radiation Facility, China

XOPT-P-19

Modern X-ray Optics Solutions for 4th Generation SKIF Light Source

Sergey V. Rashchenko^{1,2,3,4}, Yakov V. Rakshun^{1,2}, Anatoly A. Snigirev⁵, Andrey N. Zhuravlev¹, Vitaliy A. Shkaruba¹ and Nikolay A. Mezentsev¹

¹Budker Institute of Nuclear Physics SB RAS, Russia, ²Boreskov Institute of Catalysis SB RAS, Russia, ³Sobolev Institute of Geology and Mineralogy SB RAS, Russia, ⁴Novosibirsk State University, Russia, ⁵Immanuel Kant Baltic Federal University, Russia

XOPT-P-20

Novel UHV lens changer at the PETRA III Beamlines P22, P23 and P24

Jana Raabe, Katrin Ederer, Christoph Schlueter and Dmitri Novikov

Deutsches Elektronen Synchrotron, Germany

XOPT-P-21

Influence of the bridges on prism-array lens focusing for high energy X-rays

Weiwei Zhang, Jing Liu, Guangcai Chang and Futing Yi

Institute of High Energy Physics, Chinese Academy of Sciences, China

XOPT-P-22

Ptychographic characterization of polymer compound refractive lenses manufactured by additive technology

Mikhail Lyubomirskiy¹, Frieder Koch², Ksenia Abrashitova³, Vladimir Bessonov^{3,4}, Natalia Kokareva³, Alexander Petrov³, Frank Seiboth¹, Felix Wittwer¹, Maik Kahnt¹, Martin Seyrich¹, Andrey Fedyanin³, Christian David² and Christian Schroer^{5,1}

¹Deutsches Elektronen-Synchrotron, Germany, ²Paul Scherrer Institute, Switzerland, ³Lomonosov Moscow State University, Russia, ⁴Frumkin Institute of Physical Chemistry and Electrochemistry, Russian Academy of Sciences, Russia, ⁵Universität Hamburg, Germany

XOPT-P-23

X-ray beam-shaping refractive optics and its applications

Dmitrii Zverev¹, Alexander Barannikov¹, Victor Kohn², Vyacheslav Yunkin³, Sergey Kuznetsov³, Irina Snigireva⁴ and Anatoly Snigirev¹

¹Immanuel Kant Baltic Federal University, Russia, ²National Research Center "Kurchatov Institute", Russia, ³Institute of Microelectronics Technology RAS, Russia, ⁴European Synchrotron Radiation Facility, France

XOPT-P-24

Characterization of polymer 2D X-ray refractive lenses produced by two-photon polymerization lithography in X-ray full-field microscopy mode

Aleksandr Barannikov¹, Maxim Polikarpov², Petr Ershov¹, Vladimir Bessonov^{3,4}, Ksenia Abrashitova^{1,3}, Irina Snigireva⁵, Vyacheslav Yunkin⁶, Gleb Bourenkov², Andrey Fedyanin³ and Anatoly Snigirev¹

¹Immanuel Kant Baltic Federal University, Russia, ²European Molecular Biology Laboratory, Germany, ³Lomonosov Moscow State University, Russia, ⁴Frumkin Institute of Physical Chemistry and Electrochemistry, Russian Academy of Science, Russia, ⁵European Synchrotron Radiation Facility, France, ⁶Institute of Microelectronics Technology RAS, Russia

XOPT-P-25

Mini-Transfocator for X-ray focusing techniques and applications

Anton Narikovich¹, Petr Ershov¹, Anatoly Lushnikov¹, Alexander Barannikov¹, Ivan Lyatun¹, Maxim Polikarpov², Natalia Klimova¹, Igor Panormov¹, Alexander Sinitsyn¹, Dmitry Zverev¹, Irina Snigireva³ and Anatoly Snigirev¹

¹Immanuel Kant Baltic Federal University, Russia, ²European Molecular Biology Laboratory, Germany, ³European Synchrotron Radiation Facility, France

XOPT-P-26

Monochromatic X-ray radiography based on logarithmic spiral laue crystals

Dongbing Liu¹, Qingguo Yang¹, Bozhong Tan¹, Qixian Peng¹, Yan Ye¹ and Shali Xiao²

¹Institute of Fluid Physics, Chinese Academy of Engineering Physics, China, ²Chongqing University, China

XOPT-P-27

Semianalytical approach to solve reflectivity curves of large spherically bent crystal analyzers with an arbitrary wafer shape in the isotropic case

Ari-Pekka Honkanen and Simo Huotari
University of Helsinki, Finland

XOPT-P-28

The Ultimate Energy Dispersion Condition of A Cylindrical Bent Asymmetric Laue Crystal

Peng Qi¹ and Dean Chapman^{2,1}
¹University of Saskatchewan, Canada, ²Canadian Light Source, Canada

XOPT-P-29

Development of high-quality μ -channel-cut crystal monochromator for reflection self-seeding of hard X-ray free-electron laser

Shotaro Matsumura¹, Takashi Hirano¹, Yuki Morioka¹, Yasuhisa Sano¹, Taito Osaka^{1,2}, Ichiro Inoue², Satoshi Matsuyama¹, Makina Yabashi² and Kazuto Yamauchi¹
¹Osaka University, Japan, ²RIKEN SPring-8 Center, Japan

XOPT-P-30

An in-line bent-crystal spectrometer for MID diagnostic end-station at European XFEL

Ulrike Boesenberg¹, Lewis Batchelor¹, Birthe Kist¹, Ilia Petrov¹, Liubov Samoylova¹, Sergei Terentiev², Maurizio Vannoni¹, Harald Sinn¹ and Anders Madsen¹
¹European XFEL GmbH, Germany, ²Technological Institute for Superhard and Novel Carbon Materials, Russia

XOPT-P-31

Phase-contrast X-ray imaging, microscopy and tomography on EMBL beamline P14 at PETRA III

Maxim Polikarpov¹, Gleb Bourenkov¹, Anatoly Snigirev¹ and Thomas Schneider¹
¹European Molecular Biology Laboratory, Germany, ²Immanuel Kant Baltic Federal University, Russia

XOPT-P-32

X-ray stroboscopic phase tomography with grating interferometer

Yanlin Wu, Hidekazu Takano and Atsushi Momose
Tohoku University, Japan

XOPT-P-33

Improved reconstruction method of fringe scanning interferometric imaging

Koh Hashimoto, Hidekazu Takano and Atsushi Momose
Tohoku University, Japan

XOPT-P-34

Comparison Between Grating-Based Phase Contrast and Zernike Phase Contrast on Laboratory X-Ray Microscope System

Hidekazu Takano¹, Koh Hashimoto¹, Yukinori Nagatani², Jeff Irwin³, Stan Maderych³, Andrei Tkachuk³, Arjun Kumar³, Benjamin Hornberger³, Yanlin Wu¹ and Atsushi Momose¹

¹*Tohoku University, Japan*, ²*National Institute for Physiological Sciences, Japan*, ³*Carl Zeiss X-ray Microscopy Inc., USA*

XOPT-P-35

Development of measuring method of a sample elasticity by x-ray imaging

Chika Kamezawa^{1,2,3}, Kazuyuki Hyodo^{1,2}, Akio Yoneyama⁴ and Wataru Yashiro³

¹*SOKENDAI, Japan*, ²*Photon Factory, Institute of Materials Structure Science/KEK, Japan*, ³*Tohoku University, Japan*, ⁴*SAGA Light Source, Japan*

XOPT-P-36

Using nanofocused X-rays to map carrier collection in single nanowire solar cells

Lert Chayanun¹, Gaute Otnes², Vilgaile Dageyte², Andrea Troian¹, Susanna Hammarberg¹, Damien Salomon³, Magnus Borgström² and Jesper Wallentin¹

¹*Synchrotron Radiation Research and NanoLund, Lund University, Sweden*, ²*Solid State Physics and NanoLund, Lund University, Sweden*, ³*European Synchrotron Radiation Facility, France*

XOPT-P-37

Scanning X-ray Microscope using White Synchrotron Radiation at Saga Light Source

Akio Yoneyama and Masahide Kawamoto
Saga light source, Japan

XOPT-P-38

Reflective imaging device using concave-convex mirrors for compact full-field X-ray microscope

Taku Hagiwara¹, Jumpei Yamada^{1,2}, Satoshi Matsuyama¹, Yasuhisa Sano¹, Raita Hirose³, Yoshihiko Takeda³, Yoshiki Kohmura², Makina Yabashi², Kazuhiko Omote³, Tetsuya Ishikawa² and Kazuto Yamauchi¹

¹*Osaka University, Japan*, ²*RIKEN SPring-8 Center, Japan*, ³*Rigaku Corporation, Japan*

XOPT-P-39

Study on Chemical Reactivity of Organic Materials and Glass

Jianli Guo, Yusuke Matsuzawa and Hidekazu Mimura
The University of Tokyo, Japan

XOPT-P-40

New Developments in Microfocus Sources for X-ray Diffractometry

Frank Hertlein, Uwe Heidorn, Jörg Wiesmann, Jürgen Graf, Jens Schmidt-May and Carsten Michaelsen
Incoatec GmbH, Germany

XOPT-P-41

Nanobeam diagnosis for XFEL sub-10nm focusing system

Nami Nakamura¹, Satoshi Matsuyama¹, Takato Inoue¹, Hirokatsu Yumoto², Yuichi Inubushi^{2,3}, Takahisa Koyama², Taito Osaka³, Ichiro Inoue³, Kensuke Tono^{2,3}, Haruhiko Ohashi², Makina Yabashi^{2,3}, Tetsuya Ishikawa³ and Kazuto Yamauchi¹

¹*Osaka University, Japan*, ²*Japan Synchrotron Radiation Research Institute, Japan*, ³*RIKEN SPring-8 Center, Japan*

XOPT-P-42

Compact diagnostic for spatial and temporal overlap determination of XFEL and optical laser pulses using diffusing material

Takahiro Sato¹, James M. Glowina¹, Matthew R. Ware², Matthieu Chollet¹ and Diling Zhu¹

¹*Linac Coherent Light Source, SLAC National Accelerator Laboratory, USA*, ²*PULSE Institute, SLAC National Accelerator Laboratory, USA*

---- 12:00–13:30 Lunch ----

13:30–15:00

XOPT-12: Imaging III

Chair: Christian Morawe

European Synchrotron Radiation Facility, France

XOPT-12-1 13:30

(Invited) High-Resolution Full-Field X-Ray Microscope Based on Multilayer Advanced Kirkpatrick–Baez Mirror Optics

Satoshi Matsuyama
Osaka University, Japan

XOPT-12-2 14:00

Femtosecond soft x-ray imaging based on grazing incidence objective mirrors

Satoru Egawa¹, Hiroto Motoyama², Gota Yamaguchi¹, Shigeki Owada³, Yuya Kubota³, Yusuke Matsuzawa¹, Takehiro Kume¹, Makina Yabashi⁴ and Hidekazu Mimura¹
¹*Department of Precision Engineering, The University of Tokyo, Japan*, ²*Department of Chemistry, The University of Tokyo, Japan*, ³*Japan Synchrotron Radiation Research Institute, Japan*, ⁴*RIKEN SPring-8 Center, Japan*

XOPT-12-3 14:15

3D nanoscale chemical state speciation with X-ray ptychographic spectroscopy

Zirui Gao¹, Johannes Ihli¹, Michal Odstreil¹, Mirko Holler¹, Jeroen Anton van Bokhoven¹, Sebastian Böcklein², Gerhard Mestl², Manuel Guizar-Sicairos¹
¹Paul Scherrer Institute, Switzerland, ²Clariant SE, Switzerland

XOPT-12-4 14:30

High-resolution coherent diffraction imaging with synchrotron radiation and XFELs

Huaidong Jiang, Jiadong Fan, Zhibin Sun, Shengkun Yao and Yajun Tong
ShanghaiTech University, China

XOPT-12-5 14:45

Hartmann wavefront sensors and adaptive optics for EUV and X-rays

Rakchanok Rungsawang¹, Ombeline de La Rochefoucauld¹, Guillaume Dovillaire¹, Fabrice Harms¹, Mourad Idir², Dietmar Korn¹, Xavier Levecq¹, Martin Piponnier¹ and Philippe Zeitoun³
¹Imagine Optic, France, ²National Synchrotron Light Source II, Brookhaven National Laboratory, USA, ³Laboratoire d'Optique Appliquée, France

---- 15:00–15:30 Break ----

15:30–16:15

XOPT-13: Optics IV (refractive)

Chair: Takahiro Sato

SLAC National Accelerator Laboratory, USA

XOPT-13-1 15:30

(Invited) Status of refractive optics development for diffraction-limited X-ray sources

Anatoly Snigirev
Immanuel Kant Baltic Federal University, Russia

XOPT-13-2 16:00

Planar refractive nanofocusing lenses made of SiC for Free Electron Laser sources

Mikhail Lyubomirskiy¹, Bart Schurink², Igor Makhotkin², Felix Wittwer¹, Maik Kahnt¹, Martin Seyrich¹, Dennis Brueckner^{1,3}, Fred Bijkerk² and Christian Schroer^{1,4}
¹Deutsches Elektronen-Synchrotron, Germany, ²University of Twente, The Netherlands, ³Ruhr-University Bochum, Germany, ⁴Universität Hamburg, Germany

16:15–16:45

XOPT-14: Methods II

Chair: Takahiro Sato

SLAC National Accelerator Laboratory, USA

XOPT-14-1 16:15

Precision KB mirror alignment using new nanobeam diagnosis

Takato Inoue¹, Satoshi Matsuyama¹, Nami Nakamura¹, Hirokatsu Yumoto², Yuichi Inubushi^{2,3}, Takahisa Koyama², Taito Osaka³, Ichiro Inoue³, Kensuke Tono^{2,3}, Haruhiko Ohashi², Makina Yabashi^{2,3}, Tetsuya Ishikawa³ and Kazuto Yamauchi¹
¹Osaka University, Japan, ²Japan Synchrotron Radiation Research Institute, Japan, ³RIKEN SPring-8 Center, Japan

XOPT-14-2 16:30

Fluctuation x-ray scattering with next-generation x-ray sources

Ruslan Kurta, Anders Madsen and Adrian Mancuso
European XFEL, Germany