

## Adaptive X-Ray Optics V

Tuesday 21 August 2018

### Conference Sessions At A Glance

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- 1:** FEL Applications  
**2:** Metrology and Optical Simulations  
**3:** New Device Development  
**4:** At-Wavelength Metrology  
 Workshop on X-Ray Optics

### Important Dates

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Abstract Due:  
7 February 2018

Author Notification:  
16 April 2018

Manuscript Due Date:  
25 July 2018

### Conference Committee

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#### Conference Chairs

[Daniele Spiga](#), SLAC National Accelerator Lab. (United States), INAF - Osservatorio Astronomico di Brera (Italy)  
[Hidekazu Mimura](#), The Univ. of Tokyo (Japan)

#### Conference Co-Chairs

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[Kawal Sawhney](#), Diamond Light Source Ltd. (United Kingdom)  
[Maurizio Vannoni](#), European XFEL GmbH (Germany)

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[Daniele Cocco](#), SLAC National Accelerator Lab. (United States)  
[Vincenzo Cotroneo](#), Harvard-Smithsonian Ctr. for Astrophysics (United States)  
 Ombeline de La Rochefoucauld, Imagine Optic SA (France)  
 Guillaume Dovillaire, Imagine Optic SA (France)  
[René Hudec](#), Astronomical Institute of the CAS, v.v.i. (Czech Republic)  
[Ali M. Khounsary](#), Illinois Institute of Technology (United States)  
[Michele Manfreda](#), Elettra-Sincrotrone Trieste S.C.p.A. (Italy)

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[Roberto Ragazzoni](#), INAF - Osservatorio Astronomico di Padova (Italy)  
[Daniel A. Schwartz](#), Harvard-Smithsonian Ctr. for Astrophysics (United States)  
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 Hisataka Takenaka, TOYAMA Co., Ltd. (Japan)  
[Melville P. Ulmer](#), Northwestern Univ. (United States)  
 Valentina Viotto, INAF - Osservatorio Astronomico di Padova (Italy)  
[Kazuto Yamauchi](#), Osaka Univ. (Japan)  
[Philippe Zeitoun](#), ENSTA Paristech (France)

**TUESDAY 21 AUGUST**[Show All Abstracts](#)

## Welcome and Opening Remarks

Tuesday 21 August 2018  
 8:50 AM - 9:00 AM  
 Location: Conv. Ctr. Room 24A

**Daniele Spiga**, SLAC National Accelerator Lab. (USA) and INAF - Osservatorio Astronomico di Brera (Italy); **Hidekazu Mimura**, The Univ. of Tokyo (Japan)

## Session 1: FEL Applications

Tuesday 21 August 2018  
 9:00 AM - 10:30 AM  
 Location: Conv. Ctr. Room 24A


Session Chair: [Hiroki Nakamori](#), JTEC Corp. (Japan)

#### Metrology of micron focusing KB mirrors for SPB/SFX instrument and preliminary commissioning results at European XFEL (*Invited Paper*)

Paper 10761-1

Time: 9:00 AM - 9:30 AM

Author(s): Idoia Freijo-Martín, Richard Bean, Maurizio Vannoni, Harald Sinn, European XFEL GmbH (Germany)


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#### The transform limited SXR monochromator with ultra-high-resolution option to open up new scientific capabilities at LCLS II

Paper 10761-2

Time: 9:30 AM - 9:50 AM

Author(s): Daniele Cocco, Georgi L. Dakovski, Serge Guillet, Corey L. Hardin, Daniel S. Morton, SLAC National Accelerator Lab. (United States); Josep Nicolas, ALBA Synchrotron (Spain); Frank P. O'Dowd, David Rich, Joseph A. Stieber, Randy A. Whitney, SLAC National Accelerator Lab. (United States)


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#### Shaping the mirror profile by using a novel cooling scheme to increase optical design flexibility in high power XFELs

Paper 10761-3

Time: 9:50 AM - 10:10 AM

Author(s): Corey L. Hardin, May Ling Ng, Daniel S. Morton, Lance Lee, Lin Zhang, Daniele Cocco, SLAC National Accelerator Lab. (United States)


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#### Focusing optics system for the Time-resolved Molecular Optics (TMO) beamline at LCLS

Paper 10761-4

Time: 10:10 AM - 10:30 AM

Author(s): Lance Lee, Jean-Charles Castagna, Matthew Church, Daniele Cocco, Corey L. Hardin, Michael R. Holmes, Daniel S. Morton, May Ling Ng, Timur Osipov, Peter Walter, Randy A. Whitney, Lin Zhang, SLAC National Accelerator Lab. (United States)

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### Coffee Break 10:30 AM - 11:00 AM

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## Session 2: Metrology and Optical Simulations

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Tuesday 21 August 2018

11:00 AM - 12:10 PM

Location: Conv. Ctr. Room 24A

Session Chair: [Vincenzo Cotroneo](#), Harvard-Smithsonian Ctr. for Astrophysics (United States)

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#### Ex-situ metrology and data processing techniques developed at the ALS for optimization of beamline performance of bendable x-ray mirrors

*(Invited Paper)*

Paper 10761-5

Time: 11:00 AM - 11:30 AM

Author(s): Valeriy V. Yashchuk, Ian Lacey, Wayne R. McKinney, Lawrence Berkeley National Lab. (United States)


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#### Development of the new Long Trace Profilometer at LCLS for bendable x-ray mirror metrology

Paper 10761-6

Time: 11:30 AM - 11:50 AM

Author(s): May Ling Ng, SLAC National Accelerator Lab. (United States); Josep Nicolas, ALBA Synchrotron (Spain); Daniele Spiga, Corey L. Hardin, Daniel S. Morton, Daniele Cocco, SLAC National Accelerator Lab. (United States)


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#### Simulating the optical performances of the LCLS bendable mirrors using a 2D physical optics approach

Paper 10761-7

Time: 11:50 AM - 12:10 PM

Author(s): Daniele Spiga, Daniele Cocco, Corey L. Hardin, Daniel S. Morton, May Ling Ng, SLAC National Accelerator Lab. (United States)

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### Lunch/Exhibition Break 12:10 PM - 1:40 PM

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## Session 3: New Device Development

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Tuesday 21 August 2018

1:40 PM - 3:00 PM

Location: Conv. Ctr. Room 24A

Session Chair: Ombeline de La Rochefoucauld, Imagine Optic SA (France)

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#### Progress in development of adjustable optics for x-ray astronomy

Paper 10761-9

Time: 1:40 PM - 2:00 PM

Author(s): Vincenzo Cotroneo, Paul B. Reid, Casey T. DeRoo, Vanessa Marquez, Eric D. Schwartz, Alexey Vikhlinin, Daniel A. Schwartz, Vladimir Kradinov, Harvard-Smithsonian Ctr. for Astrophysics (United States); Susan Trolier-McKinstry, Julian Walker, Thomas N. Jackson, Tianning Liu, Mohit Tendulkar, The Pennsylvania State Univ. (United States)

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#### Development of adaptive Kirkpatrick-Baez mirrors based on mechanical and piezoelectric bending

Paper 10761-10

Time: 2:00 PM - 2:20 PM

Author(s): Hiroki Nakamori, JTEC Corp. (Japan), Osaka Univ. (Japan); Takumi Goto, Satoshi Matsuyama, Hiroki Hayashi, Hiroyuki Yamaguchi, Osaka Univ.

(Japan); Junki Sonoyama, Kazuteru Akiyama, TOYAMA Co., Ltd. (Japan); Yasuhisa Sano, Osaka Univ. (Japan); Yoshiki Kohmura, RIKEN Harima Branch (Japan); Makina Yabashi, RIKEN Spring 8 Ctr. (Japan); Tetsuya Ishikawa, RIKEN SPring-8 Ctr. (Japan); Hiromi Okada, JTEC Corp. (Japan); Kazuto Yamauchi, Osaka Univ. (Japan)


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#### **Magnetostrictively deforming the surface of a Silicon wafer at two locations}**

Paper 10761-11

Time: 2:20 PM - 2:40 PM

Author(s): Melville P. Ulmer, Rocco Coppejans, Northwestern Univ. (United States); Manal Khreishi, NASA Goddard Space Flight Ctr. (United States); D. B. Buchholz, Northwestern Univ. (United States); Ron Shiri, NASA Goddard Space Flight Ctr. (United States); Allison O'Donnell, Northwestern Univ. (United States); Turgut Baturalp, Texas Tech University (United States), Texas Tech University (United States); Jian Cao, Northwestern Univ. (United States)

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#### **WB<sub>4</sub>C multilayer for soft gamma-rays**

**(Canceled)**

Paper 10761-12

Time: 2:40 PM - 3:00 PM

Author(s):

### **Coffee Break 3:00 PM - 3:30 PM**

## **Session 4: At-Wavelength Metrology**

Tuesday 21 August 2018

3:30 PM - 5:30 PM

Location: Conv. Ctr. Room 24A

Session Chairs: [Melville P. Ulmer](#), Northwestern Univ. (United States) ; [Hidekazu Mimura](#), The Univ. of Tokyo (Japan)

#### **Inspecting adaptive x-ray optics with at-wavelength wavefront metrology**

Paper 10761-13

Time: 3:30 PM - 3:50 PM

Author(s): Juraj Krempasky Jura, Uwe Flechsig, Paul Scherrer Institut (Switzerland); Patrik Vagovic, Ctr. for Free-Electron Laser Science (Germany); Christian David, Paul Scherrer Institut (Switzerland); Frieder Koch, Paul Scherrer Institut (Switzerland), Paul Scherrer Institut (Switzerland); Cristian Svetina, Paul Scherrer Institut (Switzerland); Shashidhara Marathe, Darren Batey, Silvia Cipiccia, Christoph Rau, Diamond Light Source (United Kingdom); Frank Seiboth, DESY (Germany); Matt Seaberg, SLAC (United States)


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#### **Developments of EUV/x-ray wavefront sensors and adaptive optics at Imagine Optic**

Paper 10761-14

Time: 3:50 PM - 4:10 PM

Author(s): Ombeline de La Rochefoucauld, Imagine Optic SA (France); Hugo Dacasa, Lab. d'Optique Appliquée (France); Guillaume Dovillaire, Imagine Optic SA (France); Marta Fajardo, Instituto Superior Técnico (Portugal); Fabrice Harms, Charlotte Herzog, Imagine Optic SA (France); Mourad Idir, Brookhaven National Lab. (United States); Jayanath Kolyadu, Instituto Superior Técnico (Portugal); Dietmar Korn, Xavier Levecq, Lionel Nicolas, Martin Piponnier, Imagine Optic SA (France); Philippe Zeitoun, Lab. d'Optique Appliquée (France)


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#### **Ptychography simulations for precisely measuring wavefront profiles in soft x-ray focusing system based on ellipsoidal mirror**

Paper 10761-15

Time: 4:10 PM - 4:30 PM

Author(s): Yoko Takeo, The Univ. of Tokyo (Japan); Yasunori Senba, Hikaru Kishimoto, Haruhiko Ohashi, Japan Synchrotron Radiation Research Institute (JASRI) (Japan); Hidekazu Mimura, The Univ. of Tokyo (Japan)


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#### **Compact metrology beamline for EUV optic and adaptive optic tests**

Paper 10761-16

Time: 4:30 PM - 4:50 PM

Author(s): Philippe Zeitoun, Domenico Alj, Hugo Dacasa, Lab. d'Optique Appliquée (France); Ombeline de La Rochefoucauld, Imagine Optic SA (France)


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#### **Real-time feedback for x-ray adaptive optics with an interferometric absolute distance sensor array**

Paper 10761-17

Time: 4:50 PM - 5:10 PM

Author(s): Ernesto Abruña, Vivek G. Badami, Zygo Corporation (United States); Lei Huang, Mourad Idir, Brookhaven National Lab. (United States)


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#### **Micro-focusing of broadband high-order harmonic radiation by a double toroidal mirror**

Paper 10761-18

Time: 5:10 PM - 5:30 PM

Author(s): Philippe Zeitoun, Lab. d'Optique Appliquée (France); Hélène Couderc-Alteirac, Anne l'Huillier, Piotr Rudawski, Lund Univ. (Sweden); Hugo Dacasa, Lab. d'Optique Appliquée (France)

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## Closing Remarks

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Tuesday 21 August 2018  
5:30 PM - 5:40 PM  
Location: Conv. Ctr. Room 24A

**Daniele Spiga**, SLAC National Accelerator Lab. (USA) and INAF - Osservatorio Astronomico di Brera (Italy); **Hidekazu Mimura**, The Univ. of Tokyo (Japan)

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## Workshop on X-Ray Optics

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Tuesday 21 August 2018  
8:00 PM - 10:00 PM  
Location: Marriott Marquis, Mission Hills

Chairs: **Ali M. Khounsary**, Illinois Institute of Technology (USA); **Ladislav Pina**, Czech Technical Univ. in Prague (Czech Republic)

The X-Ray Optics Working Group provides an informal setting for the interested engineers and scientists to meet and discuss issues related to the design, analysis, cooling, fabrication, and metrology of x-ray optics. Topics for discussion can be e-mailed to the organizer, Dr. Ali Khounsary (amk@iit.edu), prior to the meeting.

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