2012 International Workshop on EUV and Soft X-Ray Sources

October 8-11, 2012

Dublin ▪ Ireland

Workshop Agenda

EUV LITHO, INC.

Workshop Agenda

Agenda Outline

Monday, October 8, 2012

Location: Newman House, Stephen's Green, Dublin

6:00 - 7:00 PM	Reception and Speaker Prep

Tuesday, October 9, 2012

Location: Clinton Auditorium,
UCD Campus, Dublin

7:45 AM	Pickup at the Hotel (Stephen's Green and Burlington Hotel)
8:30 AM – 11:30 AM	Workshop Presentations
11:40 AM -12:40 PM	Lunch
12:40 PM – 5:30 PM	Workshop Presentations
5:30 PM – 6:30 PM	Poster Session and Reception
6:30 PM	Depart for Off-Site Dinner (Pickup at Clinton Auditorium)

Wednesday, October 10, 2012

Location: Clinton Auditorium
UCD Campus, Dublin

7:45 AM	Pickup at the Hotel (Stephen's Green and Burlington)
8:30 AM – 1:00 PM	Workshop Presentations
1:00 PM - 2:00 PM	Lunch
2:00 PM	Depart for tour of Trim Castle (Pickup at Clinton Auditorium)

Thursday, October 11, 2012

Location: Newman House, Stephen's Green, Dublin

Technical Working Group (TWG) Meeting

8:30 AM	Continental Breakfast
9:00 AM – 10:00 AM	TWG Meeting

WORKSHOP AGENDA

2012 International Workshop on EUV and Soft X-Ray Sources

October 8-11, 2012, Dublin, Ireland

Monday, October 8, 2012 (Newman House)

6:00 PM – 7:00 PM Reception and Registration

Tuesday, October 9, 2012 (Clinton Auditorium)

8:30 AM Session 1 : Welcome and Announcements

Introduction and Announcements (Intro-1)
Vivek Bakshi, EUV Litho, Inc., USA
Des Fitzgerald, VP, UCD

8:40 AM Session 2: Keynote-1

Session Chair: Vadim Banine (ASML)

High Repetition Rate Table-top Soft X-Ray Lasers (S1)
J. J. Rocca[1,2,3], B. Reagan [1,2], Y. Wang,[1,2] , D. Alessi, B. M. Luther[1,2], K. Wernsing[1,2], L. Yin [1,2], M. A. Curtis [1,2], M. Berrill[1,2], D. Martz [1,2], V.N. Shlyaptsev[1,2] , S. Wang [1,2] , F. Furch [1,3], M. Woolston [1,2], D. Patel [1,2], C.S. Menoni [1,2]
[1] *National Science Foundation ERC for Extreme Ultraviolet Science and Technology*
[2] *Electrical and Computer Engineering Department, Colorado State University, Fort Collins, CO 80523*
[3] *Physics Department, Colorado State University, Fort Collins, CO 80523*

Extendibility of LPP EUV Source Technology in Higher Power (kW) and Shorter Wavelength (6.x nm) Operation (S2)
Akira Endo
Waseda University, Tokyo, Japan
HiLASE Project, Prague, Czech Republic

Awards and Announcements – Padraig Dunne (UCD)

Break 10:00 AM

10:20 AM Session 3: HVM EUV Sources

Session Chair: Katsuhiko Murakami (NIKON)

EUV Lithography: Today and Tomorrow? (S10) (Invited Paper)
Vadim Banine
ASML, The Netherlands

EUVL - A Reality in the Making
The Reality of Laser Assisted Discharge Plasma EUV Light Sources (S49)
(Invited Paper)
Jeroen Jonkers
XTREME technologies, GmbH, Steinbachstrasse 15, 52074 Aachen, Germany

New type of DPP source with liquid tin jets electrode - recent progress (S61)
V.Krivtsun *, O.Yakushev *, A.Vinohodov*, ** , V.Borisov** , V.Ivanov* and K.Koshelev*.
** RnD-ISAN / EUVLabs, ** TRINITI*

High Brightness, High-average Power Picosecond Thin Disc Laser Program to Specific Requirements from Short Wavelength Light Sources (S28)
Taisuke Miura, Michal Chyla, Martin Smrž, Patricie Severová, Ondřej Novák, Akira Endo, and Tomáš Mocek
HiLASE Project, Institute of Physics AS, CR, Na Slovance 2, 182 21 Prague 8, Czech Republic

Lunch 11:40 AM

12:40 PM Session 4: EUV Sources for Mask Metrology

Session Co-Chairs: Klaus Bergman (ILT-Fraunhofer) and Larissa Juschkin (RWTH – Aachen)

EUV Source For Metrology of EUV Masks *(Tentative title)* **(S51)** (Invited Paper)
Heiko Feldmann
Carl Zeiss, 73447 Oberkochen, Germany

Discharge based EUV Source for Metrology (S58) (Invited Paper)
Klaus Bergmann
Fraunhofer Institute for Laser Technology, Steinbachstr. Aachen, Germany

Electrodeless Z-Pinch™ EUV Source for Next Generation EUV Metrology (S36) (Invited Paper)
Deborah Gustafson, Stephen F. Horne, Matthew M. Besen, Donald K. Smith, Matthew J. Partlow, Paul A. Blackborow
Energetiq Technology, Inc., 7 Constitution Way, Woburn, MA, USA 01801

Recent Progress on High Brightness Source Collector Module for EUV Mask Metrology (S31)
Paul Sheridan[1], Kenneth Fahy[1], Padraig Dunne[2], and Fergal O'Reilly[2]
[1]NewLambda Technologies Ltd, Science Center North, Belfield, Dublin 4, Ireland
[2] UCD School of Physics, UCD, Stillorgan Rd, Dublin 4, Ireland

Source Brightness Requirements for EUV Microscopes (S39)
(Invited Paper)
Larissa Juschkin[1], Fergal O'Reilly[2]
[1]RWTH Aachen University, Experimental Physics of EUV, Steinbachstr. 15, 52074 Aachen, Germany
and JARA - Fundamentals of Future Information Technology (FIT), 52425 Jülich, Germany
[2]School of Physics, University College Dublin, Belfield, Dublin 4, Ireland

Break 2:00 PM (20 Minutes)

2:20 PM Session 5: Modeling

Session Co-Chairs: Gerry O'Sullivan (UCD) and Sergey Sergey V. Zakharov (EPPRA)

Modeling and Optimization of Pre-conditioned LPP targets (S52) (Invited Paper)
K. N. Koshelev[1,2], V. V. Ivanov[1,2], V. G. Novikov[1,3], V. M. Krivtsun[1,2], A. S. Grushin[1,3] , V. Medvedev[4]
[1]RnD-ISAN, Troitsk, 142090 Russia
[2]Institute of Spectroscopy RAS, Troitsk, 142090 Russia
[3]Keldysh Institute of Applied Mathematics RAS, Moscow, 125047 Russia
[4]Dutch Institute for Fundamental Energy Research, Nieuwegein, The Netherlands

Unresolved Transition Arrays and their role in EUV and Soft X-ray Source Development (S56)
Gerry O'Sullivan[1], John Costello[2], Thomas Cummins[1], Rebekah D'Arcy[1], Padraig Dunne[1], Akira Endo[3], Paddy Hayden[2], Takeshi Higashiguchi[4], Imam Kambali[1], Deirdre Kilbane[1], Bowen Li[1], Colm O'Gorman[1], Takamitsu Otsuka[4], Emma Sokell[1] and Noboru Yugami[4]
[1]*School of Physics, University College Dublin, Belfield, Dublin 4, Ireland.*
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[3]*HiLASE Project, Institute of Physics AS, CR, Na Slovance 2, 18221 Prague 8, Czech Republic*
[4]*Department of Advanced Interdisciplinary Sciences, Utsunomiya University, Yoto 7-1-2, Utsunomiya, Tochigi 321-8585 Japan.*

Properties of High-intensity EUV & Soft-X Radiation Plasma Sources (S25)
(Invited Paper)
Vasily S. Zakharov[1,2], Sergey V. Zakharov [1,2,3], Peter Choi[1]
[1]*EPPRA sas, Villebon sur Yvette, France in collaboration with* KIAM RAS, Moscow, Russia [2]*NRC Kurchatov Institute, Moscow, Russia*
[3]*JIHT RAS and SRC RF TRINITI, Moscow, Russia*

4:00 PM Session 6: EUV/ BEUV/ XUV Optics

Session Co-Chairs: Eric Louis (DIFFER) and Yuriy Platonov (RIT)

Multilayers for 6.8 nm Wavelength (S50) (Invited Paper)
I.A. Makhotkin[1], E. Louis[1] ,E. Zoethout[1], R.W.E. van de Kruijs[1], Andrei M. Yakunin[2], Stephan Müllender[3] and F. Bijkerk[1,4]
[1] *FOM Institute DIFFER - Dutch Institute for Fundamental Energy Research, Nieuwegein, the Netherlands*
[2] *ASML, Veldhoven, the Netherlands*
[3] *Carl Zeiss SMT GmbH, Oberkochen, Germany*
[4] *MESA+ Institute for Nanotechnology, University of Twente, Enschede, the Netherlands*

New High Reflective Multilayer Designs for the EUV and Soft X-ray Range (S57) (Invited paper)
Marco Perske, Hagen Pauer, Tobias Fiedler, Sergiy Yulin, Viatcheslav Nesterenko, Mark Schürmann, Torsten Feigl, Norbert Kaiser
Fraunhofer-Institut für Angewandte Optik und Feinmechanik, Albert-Einstein-Str. 7, 07745 Jena, Germany

Optics for EUV/XUV/XR Sources and Laboratory Submicron Microscopy (S55) (Invited Paper)
Ladislav Pina[1], Veronika Pickova[1], Radka Havlikova[1], Hana Zakova[2], Alexandr Jancarek[1], Adolf Inneman[3], Martin Horvath[3], Jiri Marsik[3], Peter Oberta[3], Henryk Fiedorowicz[4], Andrzej Bartnik[4]
[1] Czech Technical University in Prague, Faculty of Nuclear Sciences and Phys. Engineering, 115 19 Prague 1, Czech Republic
[2]Czech Technical University in Prague, Faculty of Biomedical Engineering, 272 01 Kladno, Czech Republic
[3]Rigaku Innovative Technologies Europe, 142 21 Prague 4, Czech Republic
[4]Military University of Technology, Institute of Optoelectronics, 00-908 Warszawa 49, Poland

Corrosion-resistant, Triple-wavelength Mg/SiC Multilayer Coatings for the 25-80 nm Wavelength Region (S45) (Invited Paper)
Regina Soufli[1], Mónica Fernández-Perea[1], Jeff C. Robinson[1], Sherry L. Baker[1], Jennifer Alameda[1], Christopher C. Walton[1], Luis Rodríguez-De Marcos[2], Jose A. Méndez[2], Juan I. Larruquert[2], Eric M. Gullikson[3]
[1]Lawrence Livermore National Laboratory, Livermore, California, US
[2]Instituto de Óptica, Consejo Superior de Investigaciones Científicas, Madrid, Spain
[3]Lawrence Berkeley National Laboratory, Berkeley, California, US

Nanoscale Multilayer Membranes as Optical Elements for EUVL (S59)
Nikolay Chkhalo[1], Mikhail Drozdov[1], Evgeny Kluenkov[1], Aleksei Lopatin[1], Valerii Luchin[1], Nikolay Salashchenko[1], Nikolay Tsybin[1], Leonid Sjmaenok[2] ,Vadim Banine[3], Luigi Scaccabarozzi[3], Andrei Yakunin[3]
[1]Institute for Physics of Microstructures RAS,Ulyanova 46, 603155 Nizhniy, Novgorod, Russia
[2]PhysTeX, Jos Francotteweg 6b, 6291 GP Vaals, Netherlands
[3]ASML Netherlands, De Run 6501, 5504 DR Veldhoven, Netherlands

5:30 PM – 6:30 PM Session 7: Poster Session

7:00 PM Depart for Off-site Dinner (Royal Dublin Society)

End of Day 2

5:30 PM Session 7: Poster Session

Topic: HVM Sources

Next Generation of EUV Lithography: Challenges and Opportunities (S47)
Andrei M. Yakunin, Vadim Banine
ASML, Veldhoven, The Netherlands

Direct Diagnostics Concept for High Power CO_2 Laser at the LPP Focus Spot (S20)
Kazuyuki Sakaue, Yasufumi Yoshida, Ryo Sato, Masakazu Washio, Akira Endo
Research Institute for Science and Engineering, Waseda university, 3-4-1 Okubo, Shinjuku, Tokyo 169-855 Japan

Research of the CO_2 Laser MOPA System (S44)
Wang Xinbing[1*], Zuo DuLuo[1], Lu Peixiang[2]
[1]Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan 430074, China
[2] School of Physics, Huazhong University of Science and Technology, Wuhan 430074, China

2D PIC Modeling of the EUV Induced Hydrogen Plasma and Comparison to the Observed Carbon Etching Rate (S27)
D.I. Astakhov[1,3*], W.J. Goedheer[1], D.V. Lopaev[2], V.V. Ivanov[3], V.M. Krivtsun[3], O. Yakushev[3], K.N. Koshelev[3], and F. Bijkerk[1,4]
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[2] Institute of Nuclear Physics, Moscow State University, Russia
[3] Institute for Spectroscopy, Russian Academy of Sciences, Troitsk, Russia
[4] MESA+ Institute for Nanotechnology, University of Twente, P.O. Box 217, 7500 AE Enschede, The Netherlands

Topic: EUV Sources for Mask Metrology

Feasibility Study of Microplasma High-brightness EUV Source at 13.5 nm (S13)
Takeshi Higashiguchi[1], Yoichi Hirose[1], Yuhei Suzuki[1], Takamitsu Otsuka[1], Jun-ichiro Sugisaka[1], Akira Endo[2], Padraig Dunne[3], and Gerry O'Sullivan[3]
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[2]HiLASE Project, Institute of Physics AS, CR, Na Slovance 2, 18221 Prague 8, Czech Republic
[3]School of Physics, University College Dublin, Belfield, Dublin 4, Ireland

Diagnostics and Modeling of Gas Puff Target Laser Plasma Radiation Source (S18)

Sarka Vondrova[1], Dalibor Panek[1], Petr Bruza[1], Miroslava Vrbova[1], Pavel Vrba[2], Przemyslaw Wachulak[3],Frantisek Krejci[1, 4], Jan Jakůbek[4]
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[4] *Czech Technical University in Prague, Institute of Experimental and Applied Physics, 128 00 Prague 2, Czech Republic*

In-situ Diagnostics for Plasma based Extreme Ultraviolet Sources (S22)

T. W. Versloot, F.T. Molkenboer, H.H.P.Th. Bekman, N.B. Koster, E. te Sligte, R. Verberk, R.C.M. Pohlmann, F.H. Elferink
TNO Delft, Stieltjesweg 1, 2628 CK, Delft, the Netherlands

Laser-initiated Discharge-produced Plasma Ablated from Liquid Metal Electrodes (S26)

Vasily S. Zakharov[1*], Larissa Juschkin[2], Sergey V. Zakharov[1*+], Gerry O'Sullivan[3], Emma Sokel[3], Isaac Tobin[4]
[1] *EPPRA sas, Villebon sur Yvette, France*
in collaboration with KIAM RAS, Moscow, Russia
[2] *RWTH Experimental Physics, Aachen, Germany*
[3] *University College Dublin, Ireland*
[4] *Trinity College Dublin, Ireland*
* *also with NRC Kurchatov Institute, Moscow, Russia*
[+] *also with JIHT RAS and SRC RF TRINITI, Moscow, Russia*

EUV Emission from Laser-triggered Z-pinch Discharge (S30)

Isaac Tobin[1], Larissa Juschkin[2,3], Fergal O'Reilly[2],
Paul Sheridan[4], Emma Sokel[2], James G. Lunney[1]
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[2]*School of Physics, University College Dublin, Belfield, Dublin 4, Ireland.*
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[4]*Newlambda Technologies, UCD Science Centre North, Belfield, Dublin 4, Ireland.*

Topic: Applications of EUV Sources

R&D Actinic Blank Inspection Microscope (S40)

Larissa Juschkin[1], Stefan Herbert[2], Aleksey Maryasov[2], Serhiy Danylyuk[2], Rainer Lebert[3]
[1]RWTH Aachen University, Experimental Physics of EUV, Steinbachstr. 15, 52074 Aachen, Germany
[2]RWTH Aachen University, Chair for Technology of Optical Systems, 52074 Aachen, Germany
[3]Bruker Advanced Supercon GmbH, Waltherstrasse 49-51, 51069 Köln, German

Exploring the Resolution Limit of the Talbot lithography with EUV Light (S41)

Hyun-su Kim[1], Serhiy Danylyuk[2], Sascha Brose[2], Klaus Bergmann[3], Detlev Grützmacher[4], Larissa Juschkin[1]
[1]RWTH Aachen University, Experimental Physics of EUV, Steinbachstr. 15, 52074 Aachen, Germany
[2]RWTH Aachen University, Chair for Technology of Optical Systems, 52074 Aachen, Germany
[3]Fraunhofer Institute for Laser Technology, Steinbachstr. 15, Aachen, Germany
[4]Peter Grünberg Institute 9 (PGI-9): Semiconductor Nanoelectronics, Research Center Jülich
and JARA - Fundamentals of Future Information Technology (FIT), 52425 Jülich, Germany

Topic: Modeling

Modeling of Absorption and Scattering of IR laser Radiation by LPP Targets (S53)

A. S. Grushin[1,2], I. P. Tsygvintsev[1,2], V. G. Novikov[1,2], V. V. Ivanov[1,3]
[1]RnD-ISAN, Troitsk, 142090 Russia
[2]Keldysh Institute of Applied Mathematics RAS, Moscow, 125047 Russia
[3]Institute for Spectroscopy RAS, Troitsk, 142090 Russia

Modeling of Plasma Dynamics and EUV Generation for Distributed Sn Targets Irradiated with Short Laser Pulses (S54)

V. Ivanov[1], A. Grushin[2], V. Novikov[2], V. Medvedev[3], V. Krivtsun[1], A. Yakunin4, and K. Koshelev[1]
[1]Institute for Spectroscopy RAS, Troitsk, Russia
[2]Keldysh Institute of Applied Mathematics, Moscow, Russia
[3]Dutch Institute for Fundamental Energy Research, Nieuwegein, The Netherlands
[4]ASML, The Netherlands

Topic: BEUV

Alternative Future 6.x nm EUV Sources from Strong In-band Line Emission (S29)

Thomas Cummins[1], Takamitsu Otsuka[2], Tony Donnelly[1], Weihua Jiang[3], Akira Endo[4], Padraig Dunne[1], Gerry O'Sullivan[1] and Takeshi Higashiguchi[2]
[1]School of Physics, University College Dublin, Belfield, Dublin 4, Ireland
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[3]Department of Electrical Engineering, Nagaoka University of Technology, Kami-tomiokamachi 1603-1, Nagaoka, Niigata 940-2188 Japan
[4] HiLASE Project, Institute of Physics AS, CR, Na Slovance 2, 182 21 Prague 8, Czech Republic

A Tunable Beyond Extreme Ultraviolet Source at 6.x nm based on a Laser-produced Plasma from a High-*Z* Target Mix (S32)

Colm O'Gorman[1], Takamitsu Otsuka[2], Weihua Jiang[3], Akira Endo[4], Bowen Li[1], Thomas Cummins[1], Padraig Dunne[1], Emma Sokell[1], Gerry O'Sullivan[1], and Takeshi Higashiguchi[2]
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[4] HiLASE Project, Institute of Physics AS, CR, Na Slovance 2, 182 21 Prague 8, Czech Republic

Identification of Atomic Resonances for Enhancement of High Harmonic Generation in Laser-produced Plasmas (S35)

R. Stefanuik[a], N. Krstulovic[a], M. Mahmoad[b], P. Dunne[a], G. O'Sullivan[a]
a:School of Physic, University college Dublin, Ireland
b: Institute Of Lasers for postgraduate studies, University of Baghdad, Iraq

EUV Spectra of Highly Charged Heavy Ions in the NIST EBIT (S60)

D. Kilbane[a], J. D. Gillaspy[b], Yu. Ralchenko[b], J. Reader[b], G. O'Sullivan[a]
[a] School of Physics, University College Dublin, Belfield, Dublin 4, Ireland
[b] National Institute of Standards and Technology, Gaithersburg, MD 20899, USA

Topic: XUV

Possibility of High-*Z* Plasma Water Window Sources (S14)

Takeshi Higashiguchi[1], Takamitsu Otsuka[1], Weihua Jiang[2], Akira Endo[3], Bowen Li[4], Deirdre Kilbane[4], Padraig Dunne[4], and Gerry O'Sullivan[4]
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[4]*School of Physics, University College Dublin, Belfield, Dublin 4, Ireland*

A Capillary Discharge-preformed Argon Plasma Waveguide for a Coherent Soft X-ray Source (S15)

Shohei Sakai[1], Takeshi Higashiguchi[1], Nadezhda Bobrova[2], Pavel Sasorov[2], and Noboru Yugami[1]
[1]*Department of Advanced Interdisciplinary Sciences, Center for Optical Research & Education (CORE), and Optical Technology Innovation Center (OpTIC), Utsunomiya University, Yoto 7-1-2, Utsunomiya, Tochigi 321-8585 Japan*
[2]*Institude for Theoretical and Experimental Physics, B. Cheremushkinskaya str. 25, 117218 Moscow, Russia*

Measurement of Spectra in Water- window Wavelength Region (S23)

J. Novak[1], M. Nevrkla[1], A. Jancarek[1], M. Vrbova[2], P. Vrba[3]
[1]*Czech Technical University, Faculty of Nuclear Sciences and Physical Engineering, 115 19 Prague 1, Czech Republic*
[2]*Czech Technical University, Faculty of Biomedical Engineering, 272 01 Kladno, Czech Republic*
[3]*Institute of Plasma Physics, Academy of Sciences, 182 00 Prague 8, Czech Republic*

Characterization of Capillary Discharge Water-Window Radiation Source (S24)

Michal Nevrkla[1], Jan Novak[1], Alexandr Jancarek[1], Pavel Vrba[2], Miroslava Vrbova[3]
[1] *Czech Technical University in Prague, Faculty of Nuclear Sciences and Phys. Engineering, 115 19 Prague 1, Czech Republic*
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[3]*Czech Technical University in Prague, Faculty of Biomedical Engineering, 272 01 Kladno, Czech Republic*

Emission Properties of Non-equilibrium Zirconium Plasma in Soft X-ray Region (S33)

Vasily S. Zakharov*, Sergey V. Zakharov *+
EPPRA sas, Villebon sur Yvette, France
in collaboration with KIAM RAS, Moscow, Russia
** also with NRC Kurchatov Institute, Moscow, Russia*
+ also with JIHT RAS and SRC RF TRINITI, Moscow, Russia

A Commercial Laboratory Soft-X-ray Source for Water Window Microscopy (S37)

Stephen F. Horne, Matthew M. Besen, Donald. K Smith
Energetiq Technology, Inc., 7 Constitution Way, Woburn, MA, USA 01801

Spectral Characterization of XUV Sources based on Plasmas Induced by Laser and Capillary Discharge (S38)

P. Kolar[1], D. Panek[1], M. Vrbova[1], M. Nevrkla[2], P. Vrba[3], and A. Jancarek [2]
[1]*Czech Technical University in Prague, Faculty of Biomedical Engineering, Nam. Sitna 3105, 272 01 Kladno, Czech Republic*
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[3]*Institute of Plasma Physics, The Academy of Sciences of the Czech Republic, Za Slovankou 1782/3, 182 00 Prague, Czech Republic*

XUV Spectroscopy of the Interaction of Laser-produced Plasma with Solid Surfaces (S42)

A S Kuznetsov[1], R Stuik[2], F Bijkerk[1,3], Eric Louis and A P Shevelko[4].
[1] *FOM Institute DIFFER – Dutch Institute for Fundamental Energy Research, Postbus 1207, 3430 BE Nieuwegein, The Netherlands (www.differ.nl)*
[2] *Leiden Observatory, Universiteit Leiden, Postbus 9513,2300 RA Leiden, The Netherlands*
[3] *MESA+ Institute for Nanotechnology, University of Twente, Postbus 217, 7500 AE Enschede, The Netherlands*
[4] *P.N. Lebedev Physical Institute of the Russian Academy of Sciences, 117924 Moscow, Russia*

Wednesday, October 10, 2012

8:30 AM Announcements

Introduction and Announcements (Intro-2)
Vivek Bakshi, EUV Litho, Inc.

Poster Session Awards and Announcements
Padraig Dunne (UCD)

8:40 AM Session 9: Keynote-2

Session Chair: Padraig Dunne (UCD)

Microfocus Sources for EUV and X-ray Applications (S3)
Alan Michette
Department of Physics, King's College London, Strand, London WC2R 2LS, UK

9:35 AM Session 10: Business Presentations

Session Chair: Padraig Dunne (UCD)

Erasmus Mundus Joint Doctorate Programme EXTATIC (*EUV and X-Ray Training in Advanced Technologies for Interdisciplinary Cooperation*) - Program Review (S48)
Paul van Kampen
School of Physical Sciences, Dublin City University, Dublin, Ireland

10:05 AM Break (20 Minutes)

10:20 AM Session 11: BEUV

Session Co-Chairs: Udo Dinger (Carl Zeiss) and Takeshi Higashiguchi (Utsunomia University)

Plasma-based UTA Emission in BEUV & Water Window Spectral Regions (S11) (Invited Paper)
Takeshi Higashiguchi[1], Takamitsu Otsuka[1], Weihua Jiang[2], Akira Endo[3], Thomas Cummins[4], Colm O'Gorman[4], Bowen Li[4], Deirdre Kilbane[4], Padraig Dunne[4], and Gerry O'Sullivan[4]
[1]Department of Advanced Interdisciplinary Sciences, Center for Optical Research & Education (CORE), and Optical Technology Innovation Center (OpTIC), Utsunomiya University, Yoto 7-1-2, Utsunomiya, Tochigi 321-8585 Japan
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[4]School of Physics, University College Dublin, Belfield, Dublin 4, Ireland

Dual Laser Plasma Photoabsorption Studies Of Gadolinium In The Extreme Ultraviolet Region (S34) (Invited Paper)
Paddy Hayden, C. Fallon, T. J. Kelly and J. T. Costello
School of Physical Sciences/National Centre for Plasma Science and Technology, Dublin City University, Glasnevin, Dublin 9, Ireland

Highlights from a Recent BEUV Source Workshop (September 26, 2012, Japan) (S12)
Takeshi Higashiguchi
Utsunomiya University

Concept Study on an Accelerator based Source for 6.x nm Lithography (S16)
Udo Dinger[1], Diana Tuerke[1], Atoosa Meseck[2], Michael Patra[1], Erik Sohmen[1], Andreas Jankowiak[2]
[1] Carl Zeiss SMT GmbH, Rudolf – Eber - Straße 2, 73447 Oberkochen
[2] Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Hahn-Meitner-Platz 1, 14109 Berlin

Session 12: XUV and Applications

Session Co-Chairs: Ladislav Pina (RIT-Europe) and Rainer Lebert (Bruker)

High-brightness Liquid-jet Laser-plasma Enabling 10-second-exposure Water-window Cryo Microscopy (S43) (Invited Paper)
M. Selin[1], D. H. Martz[1], O. von Hofsten[1], E. Fogelquist[1], A. Holmberg[1], U. Vogt[1], H. Legall[2], G. Blobel[2], C. Seim[3], H.Stiel[2], and H. M. Hertz[1]
[1]Biomedical and X-Ray Physics, Dept. of Applied Physics, KTH Royal Inst. of Technology/Albanova, 10691 Stockholm, Sweden
[2]Max-Born-Institut, Max-Born-Straße 2A, 12489 Berlin, Germany
[3]Institute of Optics and Atomic Physics - Analytical X-ray physics, Technische Universität Berlin, 10623 Berlin, Germany

Whole Cell Cryogenic Soft X-ray Tomography with a Laboratory Light Source (S21) (Invited Paper)
D.B. Carlson[1], J. Gelb[2], V. Palshin[2] and J.E. Evans[1,3,*]
[1]Dept. of Molecular and Cellular Biology, University of California at Davis, Davis, CA, USA
[2]Xradia, Inc., Pleasanton, CA, USA
[3]Pacific Northwest National Lab, Environmental Molecular Sciences Lab, Richland, WA, USA

Capillary Plasma Radiation Source in the Soft X-Ray Region (S17)
Pavel Vrba[1], Miroslava Vrbova[2], Sergey V. Zakharov[3], Vasiliy S. Zakharov[3,4]
Alexandr Jancarek[5], Michal Nevrkla[5]
[1] Institute of Plasma Physics, Academy of Sciences, 182 00 Prague 8, Czech Republic
[2] Czech Technical University, Faculty of Biomedical Engineering, 272 01 Kladno, Czech Republic
[3]EPPRA sas, Villebon / Yvette, France
[4] KIAM RAS, Moscow, Russia
[5] Czech Technical University, Faculty of Nuclear Sci. and Phys. Engineering, 115 19 Prague 1, Czech Republic

XUV and EUV Applications with EUV Sources for Metrology (S46) (Invited Paper)
Rainer Lebert, Thomas Mißalla, Azadeh Farahzadi, Christoph Phiesel,
Urs Wiesemann, and Wolfgang Diete
Bruker Advanced Supercon GmbH, Waltherstrasse 49-51, 51069 Köln-Dellbrück, Germany

12:40 PM Workshop Summary and Announcements

Workshop Summary and Announcements (Summary-Source Workshop)
Vivek Bakshi, EUV Litho, Inc.

1:00 PM Workshop Adjourned

1:00 Leave for Lunch and Tour (Wicklow Historic Gaol and area)

Thursday, October 11, 2012

Location: Newman House, Stephen's Green, Dublin

Technical Working Group (TWG) Meeting

8:30 AM	Breakfast
9:00 AM – 10:00 AM	TWG Meeting


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