SCANNING MICROSCOPIES 2015

WWW.SPIE.ORG/SG

Conferences: 29 September–1 October 2015
Exhibition: 29–30 September 2015
Monterey Conference Center and Monterey Marriott
Monterey, California, USA

CO-LOCATED WITH SPIE PHOTOMASK TECHNOLOGY 2015.
SPIE. SCANNING MICROSCOPIES

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Keynote Presentation

Tuesday 29 September 2015 · 8:20 to 9:00 am
Location: Steinbeck Forum

Lithography and Mask Challenges at the Leading Edge

Harry J. Levinson
Senior Director, GLOBALFOUNDRIES Inc.

Continued scaling using multiple patterning is resulting in large increases in mask counts. Mask defect inspection times are increasing much faster than write times. Pushing optical lithography to its limits necessitates exceedingly tight mask-making process control. The use of EUV lithography introduces many new technical challenges associated with a mask architecture very different from optical masks. Because of higher resolution, smaller defects and LER at higher spatial frequencies print with EUV lithography than with optical lithography.

Dr. Levinson spent most of his career working in the field of lithography, starting at AMD. He then spent some time at Sierra Semiconductor and IBM before returning to AMD – now GLOBALFOUNDRIES – in 1994. During the course of his career, Dr. Levinson has applied lithography to many different technologies, including bipolar memories, 64Mb and 256Mb DRAM development, the manufacturing of applications-specific integrated circuits, thin film heads for magnetic recording, flash memories and advanced logic. He was one of the first users of 5× steppers in Silicon Valley and was an early participant in 248 nm and 193 nm lithography.
Tuesday Lunch
12:30 to 2:00 pm · Location: Marriott, San Carlos Ballroom

Buffet lunches are served Tuesday, Wednesday, and Thursday.
*Tickets are NOT included with Scanning registration but can be purchased onsite at the registration desk.*

Poster Viewing
10:00 am to 4:00 pm and 6:00 to 7:30 pm
Location: Exhibition Hall, Serra Grand Ballroom

Poster authors may set up their poster papers between 10:00 am and 4:00 pm on Tuesday and will leave them up until Wednesday afternoon. Authors will be present during the Poster Reception 6:00 to 7:30 pm Tuesday to answer questions and provide in-depth discussion regarding their papers.

Poster/Exhibition Reception
6:00 to 7:30 pm · Location: Exhibition Hall, Serra Grand Ballroom

Symposium attendees are invited to attend the Poster/Exhibition Reception on Tuesday evening in the Serra Grand Ballroom. The reception provides an opportunity for attendees to meet with colleagues, network, view poster papers and interact with the authors, and visit the exhibition. Refreshments will be served.

Attendees are requested to wear their conference registration badges.
SPECIAL EVENTS

Wednesday
30 September.

Poster Viewing
10:00 am to 3:00 pm
Location: Exhibition Hall, Serra Grand Ballroom

Poster authors may set up their poster papers between 10:00 am and 4:00 pm on Tuesday and will leave them up until Wednesday afternoon. Authors will be present during the Poster Reception 6:00 to 7:30 pm Tuesday to answer questions and provide in-depth discussion regarding their papers.

Wednesday Lunch
12:00 to 1:30 pm · Location: Marriott, San Carlos Ballroom

Buffet lunches are served Tuesday, Wednesday, and Thursday.  
*Tickets are NOT included with Scanning registration but can be purchased onsite at the registration desk.*

STEM WORKSHOP

Science, Technology, Engineering, and Mathematics (STEM) Open Laboratory
4:30 pm to 5:30 pm · Location: Conv. Ctr. Colton

Workshop Chairs: Michael T. Postek, National Institute of Standards and Technology; Robert J. Gordon, Hayashi High Technologies America, Inc.
Photomask Reception

Don’t Miss the Photomask Reception
6:00 to 8:00 pm · Marriott, San Carlos Ballroom

*Tickets may be purchased onsite (we highly recommend purchasing in advance to assure your reservation).*

Make plans to join your colleagues and friends at the annual Photomask Reception. This year’s event focuses on good food, beverages, and plenty of time to socialize or talk business with fellow conference attendees. Awards, entertainment, and other presentations will be included in the evening.

BEER/WINE SPONSOR

Thursday 1 October.

Thursday Lunch
12:30 to 2:00 pm · Location: Marriott, San Carlos Ballroom

Buffet lunches are served Tuesday, Wednesday, and Thursday.

*Tickets are NOT included with Scanning registration but can be purchased onsite at the registration desk.*
Light-based technologies respond to the needs of humankind

Join us in celebrating the International Year of Light

The International Year of Light is a global initiative highlighting to the citizens of the world the importance of light and light-based technologies in their lives, for their futures, and for the development of society.

We hope that the International Year of Light will increase global awareness of the central role of light in human activities and that the brightest young minds continue to be attracted to careers in this field.

For more information on how you and your organization can participate, visit www.spie.org/IYL
The SPIE Photomask Technology Exhibition, the mask-making industry’s premier event.

**Tuesday 29 September**  
10:00 am to 4:00 pm

**Wednesday 30 September**  
10:00 am to 4:00 pm

WALK THE FLOOR TO MEET KEY SUPPLIERS.

**STAY UP TO DATE ON INDUSTRY TRENDS. SEE THE LATEST IN:**

- Mask Making
- Mask Application
- Emerging Mask Technologies
- Mask Business
THANKS TO THIS YEAR’S CONTRIBUTING SPONSORS

ADVANTEST®

APPLIED MATERIALS®

ASML

CYBEROPTICS®

dBeam Initiative

DNP

HOYA

intel

JEOL Solutions for Innovation

KLA Tencor

Mentor Graphics

MLI MICRO LITHOGRAPHY INC.

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Solid State Technology
## SCANNING MICROSCOPIES DAILY EVENT SCHEDULE

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<td><strong>MORNING SESSIONS</strong></td>
<td><strong>KEYNOTE SESSION</strong></td>
<td><strong>SESSION 8:</strong> Advancements in Atomic Force Microscopy I, 8:30 to 10:00 am (Session Chairs: Ronald G. Dixson, Lynne Gignac)</td>
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<td>Opening Remarks and Award Presentation, Session Chairs: Naoya Hayashi, Bryan S. Kasprowicz, Michael T. Postek, 8:15 to 8:20 am</td>
<td>KEYNOTE PRESENTATION Lithography and Mask Challenges at the Leading Edge, Harry J. Levinson</td>
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<td><strong>SESSION 1:</strong> Invited Session: Joint Session with Photomask and Scanning Microscopies, 9:00 to 10:30 am</td>
<td><strong>SESSION 5:</strong> Scanning Beam Technologies and Applications: Joint Session with Photomask and Scanning Microscopies 8:30 to 10:10 am, (Session Chairs: Michael T. Postek, Jan Hendrik Peters)</td>
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<td>COFFEE BREAK, 10:30 to 11:00 am</td>
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<td>COFFEE BREAK, 10:00 to 10:30 am</td>
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<td><strong>SESSION 2:</strong> Advances in Optical and Particle Beam Microscopies I, 11:00 am to 12:00 pm (Session Chairs: Dale E. Newbury, Lucille A. Giannuzz)</td>
<td><strong>SESSION 6:</strong> Advancements in Microscopy for Forensic Science, 10:40 am to 12:30 pm (Session Chairs: S. Frank Platek, Michael C. McVicker)</td>
<td><strong>SESSION 9:</strong> Advancements in Atomic Force Microscopy II, 10:30 to 11:20 am (Session Chairs: Lynne Gignac, Ronald G. Dixson)</td>
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<tr>
<td><strong>SESSION 10:</strong> Advancements in X-Ray Microanalysis, 11:20 am to 12:10 pm (Session Chairs: Dale E. Newbury, S. Frank Platek)</td>
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= Co-located Sessions with SPIE Photomask 2015.
### SCANNING MICROSCOPES DAILY EVENT SCHEDULE

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<td><strong>LUNCH</strong></td>
<td>Buffet lunches are served Tuesday - 12:00 to 1:30 pm, Thursday - 12:30 to 2:00 pm, and Wednesday - 12:00 to 1:30 pm. Tickets may be purchased at the SPIE registration desk onsite.</td>
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#### AFTERNOON SESSIONS

**SESSION 3:** Advancements in Optical and Particle Beam Microscopies II, 1:30 to 3:20 pm  
(Session Chairs: Lucille A. Giannuzzi, András E. Vladár)

**SESSION 7:** Microscopy for Science, Technology, Engineering, and Mathematics (STEM), 2:00 to 4:30 pm  
(Session Chairs: Robert Gordon, Michael T. Postek)

**COFFEE BREAK, 3:20 to 3:50 pm**

**COFFEE BREAK, 3:00 to 3:30 pm**

**SESSION 4:** Advancements in Optical and Particle Beam Microscopies III, 3:50 to 5:10 pm  
(Session Chairs: András E. Vladár, Lucille A. Giannuzzi)

**STEM WORKSHOP:** Science, Technology, Engineering, and Mathematics (STEM) Open Laboratory, 4:30 to 5:30 pm  
(Workshop Chairs: Michael T. Postek, Robert J. Gordon)

**EXHIBITION • 10:00 am TO 4:00 pm**

**POSTER/EXHIBITION RECEPTION**  
6:00 to 7:30 pm

**PHOTOMASK RECEPTION**  
6:00 to 8:00 pm

*Tickets are not included with Scanning registration. Tickets can be purchased onsite.*

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CONFERENCE 9636

Tuesday–Thursday 29 September–1 October 2015
Proceedings of SPIE Vol. 9636

Scanning Microscopies 2015

Conference Chairs: Michael T. Postek, National Institute of Standards and Technology (USA); Dale E. Newbury, National Institute of Standards and Technology (USA); S. Frank Platek, U.S. Food and Drug Administration (USA); Tim K. Maugel, Univ. of Maryland, College Park (USA)

Program Committee: Eva M. Campo, Bangor Univ. (United Kingdom); Petr Cizmar, Physikalisch-Technische Bundesanstalt (Germany); Ronald G. Dixson, National Institute of Standards and Technology (USA); Raynald Gauvin, McGill Univ. (Canada); Lynne M. Gignac, IBM Thomas J. Watson Research Ctr. (USA); Robert Gordon, Hitachi High Technologies America, Inc. (USA); Michael J. McVicar, Ctr. of Forensic Sciences (Canada); John S. Villarrubia, National Institute of Standards and Technology (USA); András E. Vladár, National Institute of Standards and Technology (USA); Lucille A. Giannuzzi, L.A. Giannuzzi & Associates LLC (USA)
TUESDAY 29 SEPTEMBER

OPENING REMARKS AND AWARD PRESENTATION
Location: Steinbeck Forum ........... 8:15 am to 8:20 am

Session Chairs: Naoya Hayashi, Dai Nippon Printing Co., Ltd. (Japan); Bryan S. Kasprowicz, Photronics, Inc. (USA)

2015 BACUS Scholarship Award
Presented to
Yow-Gwo (Henry) Wang
Univ. of California at Berkeley

KEYNOTE SESSION
Location: Steinbeck Forum ........ Tue 8:20 am to 9:00 am

Session Chairs: Naoya Hayashi, Dai Nippon Printing Co., Ltd. (Japan); Bryan S. Kasprowicz, Photronics, Inc. (USA)

Lithography and Mask Challenges at the Leading Edge
Harry J. Levinson, Senior Director
GLOBALFOUNDRIES Inc.
SESSION 1
Location: Steinbeck Forum .......... Tue 9:00 am to 10:30 am

Invited Session

Joint with Photomask and Scanning Microscopies

Session Chairs: Naoya Hayashi, Dai Nippon Printing Co., Ltd. (Japan); Bryan S. Kasprowicz, Photronics, Inc. (USA); Michael T. Postek, National Institute of Standards and Technology (USA)

9:00 am: EUV lithography scanner and mask optimization for sub-8nm resolution (Invited Paper), Jan van Schoot, Koen van Ingen Schenau, Kars Troost, ASML Netherlands B.V. (Netherlands); John D. Zimmerman, ASML (USA); Sascha Migura, Jens Timo Neumann, Bernhard Kneer, Winfried Kaiser, Carl Zeiss SMT GmbH (Germany). ......................... [9635-2]

9:30 am: Advances in FIB ex situ lift out specimen preparation (Invited Paper), Lucille A. Giannuzzi, EXpressLO LLC (USA) ........ [9636-2]

10:00 am: How to make EUV work! (Invited Paper), Hermann Gerlinger, Carl Zeiss SMT GmbH (Germany) ......................... [9635-3]

Coffee Break ............................. Tue 10:30 am to 11:00 am

SESSION 2
Room: Colton ...................... Tue 11:00 am to 12:00 pm

Advances in Optical and Particle Beam Microscopies I

Session Chairs: Dale E. Newbury, National Institute of Standards and Technology (USA); Lucille A. Giannuzzi, L.A. Giannuzzi & Associates LLC (USA)

11:00 am: Fundamental comparison of electron imaging modes for dimensional metrology (Invited Paper), Michael T. Postek, John S. Villarrubia, András E. Vladár, National Institute of Standards and Technology (USA); Atsushi Muto, Hitachi High Technologies America, Inc. (USA) ........ [9636-32]

11:30 am: Status of accurate three-dimensional SEM measurements at the nanometer scale (Invited Paper), András E. Vladár, Vipin Tondare, John S. Villarrubia, Michael T. Postek, National Institute of Standards and Technology (USA) ......................... [9636-3]

Lunch/Exhibition Break ..................... Tue 12:00 pm to 1:30 pm
SESSION 3
Room: Colton ........................ Tue 1:30 pm to 3:20 pm

Advancements in Optical and Particle Beam Microscopies II

Session Chairs: Lucille A. Giannuzzi, L.A. Giannuzzi & Associates LLC (USA);
András E. Vladár, National Institute of Standards and Technology (USA)

1:30 pm: Does your SEM really tell the truth? How would you know?
Part 4: Charging and its mitigation (Invited Paper), Michael T. Postek, András E. Vladár, National Institute of Standards and Technology (USA) ................................................................. [9636-4]

2:00 pm: Three-dimensional characterization of Gd nanoparticles using STEM-in-SEM tomography in a dual-beam FIB-SEM (Invited Paper), Brandon Van Leer, Cedric Bouchet-Marquis, Huikai Cheng, FEI Co. (USA) ................................................................. [9636-5]

2:30 pm: A novel approach to TEM preparation with a (7-axis stage) triple-beam FIB-SEM system (Invited Paper), Jamil J. Clarke, Hitachi High Technologies America, Inc. (USA) .................... [9636-6]

3:00 pm: Molecular dynamics study of crystalline orientation effect in scanning ion microscopes, Kaoru Ohya, The Univ. of Tokushima (Japan) ................................................................. [9636-7]

Coffee Break .............................. Tue 3:20 pm to 3:50 pm
SESSION 4
Room: Colton .......................... Tue 3:50 pm to 5:10 pm

Advancements in Optical and Particle Beam Microscopies III

Session Chairs: András E. Vladár, National Institute of Standards and Technology (USA); Lucille A. Giannuzzi, L.A. Giannuzzi & Associates LLC (USA)

3:50 pm: Correlative microscopy including CLSM and SEM to improve high-speed, high-resolution laser-engraved print and embossing forms, Markus Bohrer, Dr. Bohrer Lasertec GmbH (Austria); Michael Schweitzer, Carl Zeiss SMT GmbH (Austria); Robert Nirmberger, Carl Zeiss GmbH (Austria); Bernhard Weinberger, Dr. Bohrer Lasertec GmbH (Austria) .................................................. [9636-8]

4:10 pm: Sub-diffraction-limit imaging using mode multiplexing, Nan Wang, Jinping He, Jun Miyazaki, The Univ. of Electro-Communications (Japan); Hiromichi Tsurui, Juntendo Univ. (Japan); Takayoshi Kobayashi, The Univ. of Electro-Communications (Japan) ................. [9636-9]

4:30 pm: Investigation of electron beam irradiation effect on pore formation, Seong Soo Choi, Myoung Jin Park, Chul Hee Han, Sun Moon Univ. (Korea, Republic of); Sung In Kim, Jung Ho Yoo, Kyung Jin Park, National Nanofab Ctr. (Korea, Republic of); Nam Kyou Park, Seoul National Univ. (Korea, Republic of); Yong-Sang Kim, SungKyunKwan University (Korea, Republic of). ........................................ [9636-10]

4:50 pm: Investigation of all-optical micro- and nanolithography by electric field intensity gradient, Ugis Gertners, Zanda Gertnere, Janis Teteris, Univ. of Latvia (Latvia) .................................................. [9636-11]
SESSION 5  
Room: Steinbeck Forum  .......... Wed 8:30 am to 10:10 am

Scanning Beam Technologies and Applications

Session Chairs: Michael T. Postek, National Institute of Standards and Technology (USA); Jan Hendrik Peters, Carl Zeiss SMS GmbH (Germany)

8:30 am: Very-high energy (300-400 keV) SEM imaging of Cu interconnects (Invited Paper), Lynne Gignac, Christopher M. Breslin, Jemima Gonsalves, Franco Stellari, Chung-Ching Lin, IBM Thomas J. Watson Research Ctr. (USA) .............................. [9636-12]

9:00 am: Quantitative analysis of CD error induced by the fogging effect in e-beam lithography, Shao-Wen Chang, Tzu-Yi Wang, Ta Cheng Lien, Chia-Jen Chen, Chih-Cheng Lin, Shin-Chang Lee, Anthony Yen, Taiwan Semiconductor Manufacturing Co. Ltd. (Taiwan) .............. [9635-72]

9:30 am: Application of gas field ion source to photomask repairs (Invited Paper), Fumio Aramaki, Tomokazu Kozakai, Osamu Matsuda, Hiroshi Oba, Yasuhiko Sugiyama, Kazuo Aita, Anto Yasaka, Hitachi High-Tech Science Corp. (Japan) .............................. [9636-13]

9:50 am: The reparability of various pattern and material for 10nm lithography mask and beyond, Shingo Yoshikawa, Takeshi Kosuge, Takao Nishiguchi, Koichi Kanno, Hidemichi Imai, Masaaki Kurihara, Hiroyuki Miyashita, Naoya Hayashi, Dai Nippon Printing Co., Ltd. (Japan) . [9635-19]

Coffee Break ............................ Wed 10:10 am to 10:40 am
SESSION 6
Room: Colton ................. Wed 10:40 am to 12:30 pm

Advancements in Microscopy for Forensic Science
Session Chairs: S. Frank Platek, U.S. Food and Drug Administration (USA); Michael C. McVicker, U.S. Marine Corps (USA)

10:40 am: A compilation of cold cases using scanning electron microscopy at the University of Rhode Island, Michael J. Platek, Otto J. Gregory, The Univ. of Rhode Island (USA) ............... [9636-14]

11:00 am: SEM/EDS analysis for problem solving in the food industry, Wayne D. Niemeyer, McCrone Associates, Inc. (USA) ............. [9636-15]

11:20 am: Observations on the variability in deposition and recovery of gunshot residue particles for fabric targets within 10 meters of a discharged firearm, Andrew Wolf, Ctr. of Forensic Sciences (Canada); Victoria Del Plavignano, Univ. of Ontario Institute of Technology (Canada) .................................................. [9636-16]

11:40 am: Exploration of 2D-mXRF analysis of gunshot residue from cartridge cases and around bullet holes, Martin Janssen, Netherlands Forensic Institute (Netherlands). ................................. [9636-17]

12:00 pm: The use of commercial reference materials including the NIST Reference Manual (RM) 8820 SEM Artifact for SEM Calibrations in Forensic Laboratories (Invited Paper), S. Frank Platek, U.S. Food and Drug Administration (USA); Michael T. Postek, András E. Vladár, National Institute of Standards and Technology (USA); Stefanie L. Heckman, U.S. Food and Drug Administration (USA) ................................................ [9636-18]

Lunch/Exhibition Break ............. Wed 12:30 pm to 2:00 pm
SESSION 7
Room: Colton .............................. Wed 2:00 pm to 4:30 pm

Microscopy for Science, Technology, Engineering, and Mathematics (STEM)
Session Chairs: Robert Gordon, Hitachi High Technologies America, Inc. (USA); Michael T. Postek, National Institute of Standards and Technology (USA)

2:00 pm: There's an electron microscope on that bus?! (Invited Paper), Sarah Weisberg, Cell Motion Labs. (USA); Ben Dubin-Thaler, Cell Motion Labs. (USA); Robert Gordon, Hitachi High Technologies America, Inc. (USA). [9636-19]

2:30 pm: Hitachi TM3030 engages at the nexus of cross-curriculum teaching and vertical articulation (Invited Paper), Dave E. Menshew, James C. Enochs High School and Brandman Univ. (USA) [9636-20]

Coffee Break ........................................... Wed 3:00 pm to 3:30 pm

3:30 pm: Using a university characterization facility to educate the public about microscopes: light microscopes to SEM (Invited Paper), Nancy Healy, Walter Henderson, Georgia Institute of Technology (USA) [9636-21]

4:00 pm: How a lesson on microscopes supports learning about light in elementary schools (Invited Paper), Joyce Allen, Nancy Healy, Georgia Institute of Technology (USA) [9636-22]

STEM WORKSHOP
Room: Colton .............................. 4:30 pm to 5:30 pm

Science, Technology, Engineering, and Mathematics (STEM) Open Laboratory
Workshop Chairs:
Michael T. Postek, National Institute of Standards and Technology; Robert J. Gordon, Hayashi High Technologies America, Inc.
THURSDAY 1 OCTOBER

SESSION 8
Room: Colton ........................... Thu 8:30 am to 10:00 am

Advancements in Atomic Force Microscopy I

Session Chairs: Ronald G. Dixson, National Institute of Standards and Technology (USA); Lynne Gignac, IBM Thomas J. Watson Research Ctr. (USA)

8:30 am: Continuous monitoring of tip radius during atomic force microscopy imaging (Invited Paper), Jordi Fraxedas, Institut Català de Nanociència i Nanotecnologia (ICN2) (Spain); Francesc Pérez-Murano, Ctr. Nacional de Microelectrónica (Spain); Federico Gramazio, Institut Català de Nanociència i Nanotecnologia (ICN2) (Spain); Matteo Lorenzoni, Ctr. Nacional de Microelectrónica (Spain); Enrique Rull Trinidad, Urs Staufer, Technische Univ. Delft (Netherlands) ....................... [9636-23]

9:00 am: Correlated nanoparticle height and width measurements in atomic force microscopy (Invited Paper), Natalia Farkas, John A. Dagata, National Institute of Standards and Technology (USA) ............. [9636-24]

9:30 am: Lateral tip control effects in CD-AFM metrology: The large tip limit (Invited Paper), Ronald G. Dixson, National Institute of Standards and Technology (USA) .................. [9636-25]

Coffee Break ................................... Thu 10:00 am to 10:30 am
SESSION 9
Room: Colton ........................ Thu 10:30 am to 11:20 am

Advancements in Atomic Force Microscopy II
Session Chairs: Lynne Gignac,
IBM Thomas J. Watson Research Ctr. (USA);
Ronald G. Dixson, National Institute of Standards and Technology (USA)

10:30 am: SPM metrological assurance using a heterodyne interferometer, Tatiana Kazieva, NRNU MEPhI (Russian Federation); Andrey P. Kuznetsov, Konstantin L. Gubskiy, Vladimir N. Reshetov, National Research Nuclear Univ. MEPhI (Russian Federation); Maria Ponarina, NRNU MEPhI (Russian Federation); Andrey Antonov, LaserEye LLC (Russian Federation); Alexey Useinov, TISNUM (Russian Federation) . . . . . [9636-26]

10:50 am: Initial results of photomask linewidth comparison by PTB and NIST (Invited Paper), Detlef Bergmann, Bernd Bodermann, Harald Bosse, Egbert Buhr, Gaoliang Dai, Physikalisch-Technische Bundesanstalt (Germany); Ronald G. Dixson, National Institute of Standards and Technology (USA); Wolfgang Hässler-Grohne, Kai Hahm, Matthias Wurm, Physikalisch-Technische Bundesanstalt (Germany) . . . . . . . . . [9636-28]

SESSION 10
Room: Colton ........................ Thu 11:20 am to 12:10 pm

Advancements in X-Ray Microanalysis
Session Chairs: Dale E. Newbury,
National Institute of Standards and Technology (USA);
S. Frank Platek, U.S. Food and Drug Administration (USA)

11:20 am: Electron-excited energy dispersive x-ray spectrometry in the variable pressure scanning electron microscope: it’s not microanalysis anymore! (Invited Paper), Dale E. Newbury, Nicholas W. M. Ritchie, National Institute of Standards and Technology (USA) . . . . . . . . [9636-29]

11:50 am: Development of “water window” laser generated plasma soft X-ray source for contact microscopy experiments, Mesfin G. Ayele, Daniel Adjei, Joanna Czwartos, Przemyslaw W. Wachulak, Andrzej S. Bartnik, Henryk Fiedorowicz, Military Univ. of Technology (Poland) . . . . . . . . . . . . . . . . . . . [9636-30]
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Paid meeting registration includes online access to all 2015 SPIE Scanning Microscopies proceedings via the SPIE Digital Library. See below for details.

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Product Code: DLC587
Included Volumes: 9635, 9636

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Onsite Registration and Badge Pick-Up Hours
Portola Lobby

Monday 28 September ...................... 12:00 pm to 5:00 pm
Tuesday 29 September .................... 7:15 am to 4:00 pm
Wednesday 30 September ................. 7:30 am to 4:00 pm
Thursday 1 October ....................... 8:00 am to 10:30 am

SCANNING MICROSCOPIES REGISTRATION

Includes admission to all conference sessions, Keynote, Panel Discussion, Poster Reception, admission to the Exhibition, morning breakfast breads, coffee breaks, afternoon dessert snacks, and online proceedings. This does not include Photomask Reception or Lunches. Student pricing does not include proceedings, lunches, or Photomask Reception. Tickets can be purchased when you preregister or onsite.

EXHIBITION REGISTRATION

Exhibition-Only visitor registration is complimentary.

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- SPIE Members receive conference and course registration discounts. Discounts are applied at the time of registration.
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- Student registration rates are available only to undergraduate and graduate students who are enrolled full time and have not yet received their Ph.D. Post-docs may not register as students. A student ID number or proof of student status is required with your registration.
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Steinbeck Lobby

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The computers at the Internet Stations are available to preview speakers’ presentations. They are identical to the computer in the conference room. Speakers may use their own computer to present and may test their presentations in the conference room before, after or during breaks in the conference schedule. If experiencing any difficulties with a presentation, please visit the SPIE Registration Desk.

Exhibition/Poster Reception

Exhibition Hall

Tuesday 29 September . . . . . . . . . . . . . . . . . . . . . . . . . . . . 6:00 to 7:30 pm

Symposium attendees are invited to attend the Exhibition/Poster Reception on Tuesday evening in the Serra Grand Ballroom. The reception provides an opportunity for attendees to meet with colleagues, network, view poster papers and interact with the authors, and visit the exhibition booths. Refreshments will be served. Attendees are requested to wear their conference registration badges.

Poster Viewing

Exhibition Hall

Tuesday 29 September . . . . . . . . . . . . . . . . . . . . . . . . . . . . 10:00 am to 4:00 pm, and 6:00 to 7:30 pm

Wednesday 30 September . . . . . . . . . . . . . . . . . . . . . . . . 10:00 am to 3:00 pm

Poster authors may set up their poster papers between 10 am and 4 pm on Tuesday and will leave them up until Wednesday afternoon. Authors will be present during the Poster Reception 6:00 to 7:30 pm Tuesday to answer questions and provide in-depth discussion regarding their papers.
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Steinbeck Lobby – Internet Stations
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WiFi available in the Monterey Conference Center
SPONSORED BY:

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Business Center
Monterey Marriott

Attendees may use their hotel room key at the Monterey Marriott to access the onsite Business Center, which offers use of the free online computers. Copy and fax machines are available at the front desk. Copies are free for the first 20 copies, 10 cents per page after. The fax machine is $1 per page for domestic usage and $3 per page for international usage.

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Registration Hours

Found items will be kept at SPIE Cashier until the close of Registration each day and then turned over to Inact Protective Services, 831.763.2594. At the end of the meeting, all found items will be turned over to Monterey Conference Center, 831.646.3770.
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FOOD AND BEVERAGE SERVICES

Breakfast Breads
Steinbeck Lobby

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Complimentary coffee and breakfast breads will be served Tuesday through Thursday 7:30 to 8:30 am.

Coffee Breaks

SPONSORED BY:

Complimentary coffee will be served Tuesday through Thursday in the following locations.

Tuesday 29 September ..................... 10:30 am and 3:20 pm
Serra Grand Ballroom – Exhibition Hall

Wednesday 30 September ................. 10:10 am and 3:00 pm
Serra Grand Ballroom – Exhibition Hall

Thursday 1 October ...................... 10:00 am and 3:20 pm
Steinbeck Lobby
SPIE-Hosted Lunches
San Carlos Ballroom – Marriott

Hosted lunches will be served at the lunch break Tuesday through Thursday in the San Carlos Ballroom at the Monterey Marriott.

Complimentary lunch tickets will be included for full conference registrants attending the Photomask Meeting. NOTE: Scanning attendees, exhibitors and students may purchase tickets in the SPIE registration area in the Portola Lobby.

Desserts

Complimentary tickets for dessert snacks are included in conference attendee and exhibitor registration packets, and served in the exhibition hall during the afternoon coffee break.
OFFSITE SERVICES

FedEx Kinkos is located at 799 Lighthouse Ave., Suite A, Monterey, Calif., 93940, Phone 831.373.2298. It is located 1.3 miles from the Monterey Marriott. Go north on Calle Principal, left onto Del Monte Avenue, right onto Pacific St., right onto ramp to merge onto Lighthouse Avenue.

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The Monterey Marriott suggests the following childcare service companies:

- Parents Time Out. Phone: 831.375.9269 VIP
- Babysitting Solutions Inc. (in-room hotel babysitting services). Phone: 800.838.2787

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- In the United States call 1-800-654-2240
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To verify registered participants and provide a measure of security, SPIE will ask attendees to present a government-issued Photo ID at registration to collect registration materials.

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