Advanced Lithography

EXHIBITION GUIDE

Moving technology to market™

Exhibition
25–26 February 2020

Conferences + Courses
23–27 February 2020

San Jose Convention Center
San Jose, California, USA

spie.org/al
#SPIELitho
ADVANCED LITHOGRAPHY 2020

TECHNOLOGIES FOR LITHOGRAPHY R&D, DEVICES, TOOLS, FABRICATION, AND SERVICES

Exhibition: 25–26 February 2020
Conferences and Courses: 23–27 February 2020
San Jose, California, USA

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CUTTING-EDGE RESEARCH
WORLD-CLASS SPEAKERS
TRAINING AND EDUCATION
FOCUSED TECHNICAL TOPICS

spie.org/AL
WELCOME TO THE EXHIBITION

SPIE. ADVANCED LITHOGRAPHY

Tuesday 25 February · 10:00 AM - 5:00 PM
Wednesday 26 February · 10:00 AM - 4:00 PM

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For information about exhibiting, sponsorship, and advertising opportunities at future Advanced Lithography events, contact: SPIE Sales at spiesales@spie.org

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SPIE would like to express its deepest appreciation to the symposium chairs, conference chairs, program committees, session chairs, and authors who have so generously given their time and advice to make this symposium possible.

The symposium, like our other conferences and activities, would not be possible without the dedicated contribution of our participants and members. This program is based on commitments received up to the time of publication and is subject to change without notice.
Thanks to the following sponsors for their generous support of SPIE Advanced Lithography
SAN JOSE CONVENTION CENTER · EXHIBITION FLOOR

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THIS PROGRAM IS CURRENT AS OF 14 January 2020. Find the latest on the SPIE CONFERENCE APP.
GENERAL INFORMATION

Exhibition Hours
Tuesday 25 February · 10:00 AM - 5:00 PM
Wednesday 26 February · 10:00 AM - 4:00 PM

Onsite Registration and Badge Pickup Hours
Convention Center
Sunday 23 February · 7:15 AM - 5:00 PM
Monday 24 February · 7:15 AM - 4:00 PM
Tuesday 25 February · 7:30 AM - 5:00 PM
Wednesday 26 February · 7:30 AM - 4:00 PM
Thursday 27 February · 7:45 AM - 4:00 PM
(Thursday is conference registration only)

Complimentary Breakfast Breads
Hall 2 Concourse
Monday - Thursday · 7:30 AM - 8:30 AM
Breakfast breads will be served Monday-Thursday.
Sponsored by ASML

Complimentary Coffee Service
Sunday
7:30 AM - 8:30 AM, Executive Ballroom Concourse, front of windows
10:00 AM - 10:30 AM, Executive Ballroom Concourse, front of windows
3:00 PM - 3:30 PM, Executive Ballroom Concourse, front of windows
Monday
7:30 AM - 4:00 PM, Hall 2 Concourse
Tuesday
7:30 AM - 9:30 AM, Hall 2 Concourse
10:00 AM - 5:00 PM, Exhibition Hall 1
Wednesday
7:30 AM - 9:30 AM, Hall 2 Concourse
10:00 AM - 4:00 PM, Exhibition Hall 1
Thursday
7:30 AM - 4:00 PM, Hall 2 Concourse
Please check the conference schedule for specific break times.
Sponsored by ASML, DUPONT, Heraeus, FUJIFILM

SPIE Hosted Lunches
Convention Center Exhibition Hall
Tuesday - Wednesday · 11:30 AM - 1:00 PM
Check individual conference listings for exact times. Lunches are included with full conference registrations.
Sponsored by GIGAPHOTON

Food and Refreshments for Purchase
There are a variety of food and drink options, including hot and cold snacks, beverages, hot entrees, deli sandwiches, salads, and pastries available for purchase. Cash and credit cards accepted.

Ballroom Concourse
Monday - Thursday · 7:30 AM - 4:00 PM
Exhibition Hall Concession Stand
Tuesday - Wednesday · 11:00 AM - 2:00 PM

Wireless Internet Access
Convention Center, Upper Level Concourse
Complimentary wireless access is available; instructions will be posted onsite.
West end WiFi sponsored by
HITACHI
Inspire the Next

East end and Exhibition Hall WiFi sponsored by
TEL.

Phone Charging Station
Convention Center Concourse, Open during registration hours
Sponsored by KLA

SPIE Conferences and Exhibitions App
Search and browse the program, special events, participants, exhibitors, courses, and more. Build your personalized schedule and sync with the online MySchedule tool. The free SPIE Conferences and Exhibitions App is available for iPhone and Android phones. Information about restaurants and food options is also available on the app.
Sponsored by TEL.

SPIE Bookstore
Convention Center Lobby, near Registration
Stop by the SPIE Bookstore to browse the latest SPIE Press Books and educational materials. While there, get a t-shirt or educational toy to bring home to the family.

SPIE Education Services
Course Materials Pick-up, located near Registration, open during registration hours
Sunday-Thursday: Bookstore
If you have registered to attend a course, please stop by the Bookstore after you pick up your badge. Turn in your course ticket to get your course materials and the location of your course. Browse course offerings or learn more about SPIE courses available in portable formats such as online and customized, in-company courses.
SPIE Courses are focused, efficient training from the most experienced and accomplished minds in industry and research. Gain knowledge from the experts and apply it directly to your daily work.

- Learn from the best. This is your opportunity for direct instruction from legends in the semi/litho industry, many of whom are pioneers in their fields
- Course topics are aligned with current industry needs and trends
- Earn CEUs for professional continuing education requirements

spie.org/education

Information for Course attendees:
spie.org/education/course-attendees

MONEY-BACK GUARANTEE
We are confident that once you experience an SPIE course for yourself you will look to us for your future education needs. However, if for any reason you are dissatisfied, we will gladly refund your money. We just ask that you tell us what you did not like; suggestions for improvement are always welcome.

CONTINUING EDUCATION UNITS
SPIE is accredited by the International Association for Continuing Education and Training (IACET) and is authorized to issue the IACET CEU.

Review course descriptions onsite.

SEE SPIE CASHIER TO REGISTER

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Amuneal Manufacturing Corp  #202
Technical Products, 4737 Darrah Steet, Philadelphia, PA, 19124-2705 United States
+1 215 535 3000 243; fax +1 215 743 1715
tylera@amuneal.com; www.amuneal.com
Since 1965, Amuneal has been serving highly technical markets, working with leaders in aerospace, electronics, cryogenics, healthcare, and research to develop cost-effective magnetic shielding strategies and products that outperform the most demanding requirements. We offer a number of standard component shields to our clients, however, our culture and capabilities allow us to manufacture and install unique custom shields ranging from prototypes and models to full-scale assemblies. Contact: Tyler Anderson, Manufacturing Engineer, tylera@amuneal.com

attocube systems Inc.  #306
2020 Stuart St, Berkeley, CA, 94703 United States
+1 510 649 9245
info@attocube.com; www.attocube.com
attocube is the technology leader for ultra precise motion and sensing solutions compatible with extreme environmental conditions such as UHV, magnetic field, radiation exposure, as well as cryogenic to elevated operating temperatures. The portfolio also includes integrated measurement systems, such as the attoDRY800 cryo-optical table and a Photonic Probe Station, an ultra-stable, extremely compact and easy to use table top setup for nanophotonic device characterization.

Benchmark Technologies  #217
Bldg E, 7E Kimball Ln, Lynnfield, MA, 01940-2654 United States
+1 978 213 3002; fax +1 781 246 0308
contact@benmarktech.com; www.benchmarktech.com
Benchmark is a leading supplier of test and setup reticles for lithography systems. The company also offers overlay software for in-fab monitoring and analysis, general design and layout services, grayscale mask design, mask making services, imprint stamps and other custom fabrication services. Contact: Andrew Zanzal, VP Sales, azanzal@benchmarktech.com; Patrick Reynolds, President, preynolds@benchmarktech.com

C&D Semiconductor Services, Inc. #115
2031 Concourse Dr, San Jose, CA, 95131 United States
+1 408 383 1888; fax +1 408 383 1889
www.cdsemi.com/sales-offices-cdsemi.html
Featured Product: The P9000 Cluster System
C&D Semiconductor, Inc. is an innovative, fast-growing semiconductor equipment manufacturer based in San Jose, California. Founded in 1989, we have been serving the global semiconductor and other related industries for more than two decades, with customers from all over the world. Contact: Rick Acaba, National Sales Manager, racaba@cdsemi.com; Charlie Nguyen, General Manager, cnguyen@cdsemi.com

Cadence Design Systems, Inc.  #104
2655 Seely Ave, San Jose, CA, 95134-1931 United States
+1 408 943 1234; fax +1 408 428 5001
events@cadence.com; www.cadence.com
Featured Product: DFM and Computational Lithography Solutions
Cadence's computational DFM solutions include optical proximity correction, layout optimization, design analysis, and chemical and mechanical polishing modeling for improved design manufacturability and reduced time to yield. They are part of Cadence's Intelligent System Design strategy which helps customers develop differentiated products in markets such as, consumer, cloud, data center, automotive, and industrial. To learn more, contact Philippe Hurat. Contact: Philippe Hurat, Product Manager, Director, phurat@cadence.com
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Canon U.S.A., Inc. #102
Industrial Products Div - Optoelectronic, 3300 N First St, San Jose, CA, 95134-1900 United States
+1 408 468 2001
semi-info@cusa.canon.com; www.usa.canon.com/industrial

Featured Product: Semiconductor Manufacturing Equipment - Lithography
Canon USA Industrial Products Division provides advanced wafer & panel process equipment for applications including semiconductor, Advanced Packaging & display. Canon provides cost-effective wafer processing solutions including i-line & KrF optical lithography, nanoimprint lithography & Canon ANELVA deposition equipment. Canon also has a variety of panel based lithography & deposition solutions that can be extended to a variety of applications. Contact semi-info@cusa.canon.com for more info. Contact: Starley Douglas Shelton, Marketing Manager; Neel Chopra, Product Marketing

Cosmotec, Inc. #128
229 Polaris Ave Ste 3, Mountain View, CA, 94043-4579 United States
+1 408 428 9741; fax +1 408 428 9742
ask@cosmotec.us; www.cosmotec.us

Featured Product: The highest quality ceramic-to-metal UHV feedthroughs
We, at Cosmotec, design the highest quality feedthroughs available on the market today. Our ceramic-to-metal feedthroughs are 100% He leak tested for UHV applications. Rest assured that our feedthroughs are resistant to: ultra clean, high voltage, destructive chemicals, cryogenic, and excessive temperatures. Our exceptional feedthroughs are ideal for these severe conditions as well as for applications that require both hermeticity (vacuum tightness) and electrical insulation. Contact: Taku Sekiguchi, Head of engineering, sekiguchi@cosmotec.us

Coventor, Inc. #323
9121 Anson Way Ste. 200, Raleigh, NC, 27513 United States
+1 617 648 8388
sales@coventor.com; www.coventor.com

Featured Product: SEMulator3D, a platform for modeling semiconductor and MEMS fabrication processes
Coventor®, a Lam Research company, is a market leader in automated solutions for developing semiconductor process technology, as well as micro-electromechanical systems (MEMS). Coventor serves a worldwide customer base with offices in North America, Europe and Asia. Its SEMulator3D modeling and analysis platform provides fast and accurate 'virtual fabrication' of advanced semiconductor manufacturing processes, allowing engineers to understand manufacturing effects early in the development cycle. Contact: Dave Cook, sales@coventor.com

CyberOptics Corp. #308
5900 Golden Hills Dr, Minneapolis, MN, 55416 United States
+1 763 542 5000; fax +1 763 542 5100
info@cyberoptics.com; www.cyberoptics.com

Featured Product: Auto Vibration and Leveling Sensor with CyberSpectrum
CyberOptics Corporation is a leading global developer and manufacturer of high-precision 3D sensing technology solutions. CyberOptics’ sensors are used for inspection and metrology in the SMT and semiconductor capital equipment markets to significantly improve yields and productivity. Headquartered in Minneapolis, Minnesota, CyberOptics conducts worldwide operations through its facilities in North America, Asia and Europe. Contact: Allyn Jackson, Sales Manager & Sr. FAE, ajackson@cyberoptics.com

CEROBEAR GmbH #226
Kaiserstr. 100, Herzogenrath, 52134 Germany
+49 2407 95560; fax +49 2407 96224
cb-sales@cerobear.com; www.cerobear.com

Featured Product: All types of hybrid & all-ceramic ball and roller bearings, thin section bearings, slewing rings.
CEROBEAR GmbH is a manufacturer of custom engineered hybrid and all-ceramic rolling bearings for industries such as Semiconductor, Aerospace, Automation, Formula 1, Turbo Machinery, etc. CEROBEAR bearings maximize system reliability, lifetime and performance thus significantly reduce the total operating costs. CEROBEAR bearings perform trouble-free - even under extreme operating conditions including vacuum, clean room, extreme temperature, media or no lubrication, corrosive environment. Contact: Christian Klatt, Business Development Manager, Christian.klatt@cerobear.com
The leading source of photonics news, market trends and product applications. Sign up free to the weekly newsletter and we’ll send the news to you.

optics.org/newsletter

Get the latest industry news.
Energetiq Technology, Inc. #312
205 Lowell Street, Wilmington, MA, 01887-2972 United States
+1 781 939 0763; fax +1 781 939 0769
marketing@energetiq.com; www.energetiq.com

Featured Product: EQ-10 Electrodeless Z-Pinch™ Source
Energetiq Technology is the world’s leading developer and manufacturer of ultra-bright light sources. Energetiq’s EUV Sources are compact, easy-to-use, reliable, and cost-effective. The EQ-10 Series is uniquely suited for metrology and research applications.
Contact: Toru Fujinami, Sr. Director of Business Development, tfujinami@energetiq.com; Sam Gunnell, Product Manager, sgunnel@energetiq.com

Entegris, Inc. #203
129 Concord Rd, Billerica, MA, 01821-4600 United States
+1 978 436 6500; fax +1 978 436 6735
sales@entegris.com; www.entregris.com/content/en/home/about-us/locations.html

Entegris provides critical products and materials used in advanced high-technology manufacturing. These products and materials are used to make the building blocks of many of the world’s most complex microelectronic products, such as computers, mobile devices and phones, data storage components, televisions and monitors, and automobiles. With a broad product offering, advanced manufacturing capabilities, worldwide infrastructure and unmatched technical expertise, our passion is your advantage.

GeniSys Inc. #322
PO Box 410956, San Francisco, CA, 94141-0956 United States
+1 408 353 3951
info@genisys-gmbh.com; www.genisys-gmbh.de

Featured Product: MASKER - Mask Production Software for Data Preparation & Process Correction
Based in Munich, Germany, with offices in Tokyo, Japan and San Francisco, California, GeniSys develops, markets and supports flexible, high-performance software solutions for the optimization of micro and nano fabrication processes. Addressing the market for lithography and inspection, GeniSys combines deep technical expertise in layout data processing, process modeling, correction and optimization with world class software engineering and a strong focus on ease of use. Contact: Roger McCoy, Sales Director North America, mccay@genisys-gmbh.com; Ulrich Hofmann, General Manager, hofmann@genisys-gmbh.com

Gudeng Precision Industrial Co., Ltd. #225
SALES DEPT., 9F No 2 Sec 4 Jhongyang Rd, Tucheng City Taipei, 23678 Taiwan
+886 2 2268 9141; fax +886 2 2269 1943
sales@gudeng.com; www.gudeng.com

Featured Product: Extreme Ultraviolet Lithography (EUV) reticle carrier
Gudeng Precision Industrial Co., LTD is principally engaged in the production and sale of integrated solutions for protection, transfer and storage of photo masks and molds. The Company primarily operates two business segments. Gudeng Precision has contributed to developing innovative technology and has been a technological leader of Extreme Ultraviolet Lithography (EUV) mask handling. Gudeng Equipment is our subsidiary focusing on purging stations and mask cleaners. Contact: Ellen Wu, Product Assistant Manager, ellen.wu@gudeng.com; Weiching Lin, Senior sales, sales@gudeng.com

Heidelberg Instruments Inc. #307
2539 W 237th St Ste A, Torrance, CA, 90505 United States
+1 310 212 5071; fax +1 310 212 5254
info@himt.us; www.himt.us

With an installation base of well over 900 systems in more than 50 countries, Heidelberg Instruments is a world leader in production of high-precision maskless lithography systems. Due to their flexibility, these systems are used in research, development and industrial applications for direct writing and photomask production by some of the most prestigious universities and industry leaders in the areas of MEMS, nanotechnology, ASICS, TFT, displays, micro-optics, and other related applications. Contact: Niels Wijnandaens van Resandt, Director of Sales North & South America, info@himt.us

INKO Industrial Corp. #310
695 Vaqueros Ave, Sunnyvale, CA, 94085-3524 United States
+1 408 830 1040; fax +1 408 830 1058
sales@pellicle-inko.com; www.pellicle-inko.com

Featured Product: pellicle, KrF pellicle, ArF pellicle,
INKO, a U.S. based company, manufactures a complete line of pellicles for applications ranging from ASIC production to high volume memory production. From broadband to i/iG line, to 248nm/193nm DUV lithography, we have the right pellicle for your needs. Contact: Feng Ye, QA manager, ye@pellicle-inko.com; Joe Mac, Customer service manager, joemac@pellicle-inko.com

This program is current as of 14 January 2020. Find the latest on the SPIE Conference App.
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J.A. Woollam

J.A. Woollam Company is here for you every step of the way. Stop by our booth #211 for more information or contact us today about the variety of spectroscopic ellipsometers we provide to help you characterize your thin films. You can also email us today at sales@jawoollam.com or visit us on the web at www.jawoollam.com. Contact: Ron Synowicki, Applications Engineer, rsynowicki@jawoollam.com

JEOL USA Inc.

JEOL is the world’s top supplier of EBL systems since its first Lithography system produced in 1967. Our applications range from mask/reticle production for high-end devices and nano-lithography research to ultrafine, direct write exposures for communication devices. JEOL continuously pursues higher writing accuracy, and throughput, with easier operation. We offer unsurpassed technical reliability and service expertise. Contact: Zane Marek, EBL Product Mgr, marek@jeol.com

JSR Micro, Inc.

JSR Micro, Inc. is an innovation partner to its customers manufacturing the industry’s most innovative family of photoresists, developers, and specialty chemicals. JSR is also a leader in Advanced Cleans Technology and materials for packaging. Our unique THB series of negative tone resists and WPR series of dielectric materials are ideal for next generation packaging technologies that facilitate higher performance. Contact: Joe Ritter, Sales Director, jritter@jsrmicro.com

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J.A. Woollam  #211

J.A. Woollam Company

645 M St Ste 102, Lincoln, NE, 68508-2243 United States
+1 402 477 7501; fax +1 402 477 8214

sales@jawoollam.com; www.jawoollam.com

For all your ellipsometry needs, from measuring your thin film sample to the installation and training of your very own ellipsometer, the J.A. Woollam Company is here for you every step of the way. Stop by our booth #211 for more information or contact us today about the variety of spectroscopic ellipsometers we provide to help you characterize your thin films. You can also email us today at sales@jawoollam.com or visit us on the web at www.jawoollam.com. Contact: Ron Synowicki, Applications Engineer, rsynowicki@jawoollam.com

JEOL USA Inc.  #130

JEOL USA Inc.

11 Dearborn Rd, Peabody, MA, 01960-3823 United States
+1 978 535 5900; fax +1 978 536 2205

salesinfo@jeol.com; www.jeolusa.com

JEOL is the world’s top supplier of EBL systems since its first Lithography system produced in 1967. Our applications range from mask/reticle production for high-end devices and nano-lithography research to ultrafine, direct write exposures for communication devices. JEOL continuously pursues higher writing accuracy, and throughput, with easier operation. We offer unsurpassed technical reliability and service expertise. Contact: Zane Marek, EBL Product Mgr, marek@jeol.com

JSR Micro, Inc.  #124

JSR Micro, Inc.

1280 N Mathilda Ave, Sunnyvale, CA, 94089-1213 United States
+1 408 543 8800; fax +1 408 543 8996; www.jsrmicro.com

Featured Product: Leading-edge photoresists, developers, packaging materials and specialty chemicals

JSR Micro, Inc. is an innovation partner to its customers manufacturing the industry’s most innovative family of photoresists, developers, and specialty chemicals. JSR is also a leader in Advanced Cleans Technology and materials for packaging. Our unique THB series of negative tone resists and WPR series of dielectric materials are ideal for next generation packaging technologies that facilitate higher performance. Contact: Joe Ritter, Sales Director, jritter@jsrmicro.com

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spie.org/courses
Kayaku Advanced Materials, Inc. #224
200 Flanders Road, Westborough, MA, 01581-1040 United States
+1 617 965 5511
sale@kayakuAM.com; www.kayakuAM.com

Featured Product: PMGI Bi Layer Resists
Kayaku Advanced Materials, Inc., previously MicroChem, focuses on providing innovative chemicals solutions to the MEMS, microelectronic, and semiconductor markets. Along with our exclusive distribution partnership with DuPont electronic materials, Kayaku Advanced Materials specializes in photoimageable epoxy, eBeam and PMGI Bi-layer resists and a suite of ancillary lithography materials. Kayaku Advanced Materials is a wholly owned subsidiary of Nippon Kayaku Co. Ltd., Tokyo, Japan. Contact: Bob Andrews, Sales Director, Bandrews@kayakuAM.com; Rob Hardman, Sr Sales, rhardman@kayaku.com

Mentor, a Siemens Business #300
8005 SW Boeckman Rd, Wilsonville, OR, 97070-9733 United States
+1 503 685 7000; fax +1 503 685 7704
calibre@mentor.com; www.mentor.com

Featured Product: Calibre
The challenges of developing advanced lithography flows require a strong partner. With a complete design-to-manufacturing platform for Immersion Lithography, EUV and DSA, Mentor, A Siemens Business is the ideal partner for semiconductor manufacturing success. We offer best-in-class technology, comprehensive solutions, development and production support, and continuous innovation. That is why more than 30 fabs choose Mentor as their partner. Get more info at www.mentor.com. Contact: Steffen Schulze, VP Product Management, steffen_schulze@mentor.com; Gandharv Bhatara, Product Marketing Manager, gandharv_bhatara@mentor.com

Micro Lithography, Inc. #219
1257 Elko Dr, Sunnyvale, CA, 94089-2211 United States
+1 408 747 1769; fax +1 408 747 1978
www.mliusa.com

Featured Product: Pellicles
MLI is featuring pellicles formulated to yield high rates of transmission and long lifetimes for UV exposure. Our complete line of pellicle films ranges from broadband, g-/i-/line to DUV (KrF-248nm and Arf-193nm). MLI’s DUV pellicles have the lowest outgassing materials available in the market today. Contact: Kevin Duong, Customer Service Manager, kevin.duong@mliusa.com; Corbin Imai, Sales Representative, corbin@zysancorp.com

Microlight #117
5 ave du Grand Sablon, La Tronche, 38700 France
+33 476 549 516
contact@microlight.fr; www.microlight3d.fr

Mitsui Chemicals America, Inc. #127
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m.bautista@mitsuichem.com; www.mitsuichemicals.com

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+82 31 629 2300 ; fax +82 31 629 2399
sales@nextinsol.com; www.nextinsol.com

NTT Advanced Technology Corp. #119
1950 University Ave Ste 600, East Palo Alto, CA, 94303-2250 United States
+1 408 392 4280; fax +1 408 573 7721
bizdevelop@ntt-at.com; www.ntt-at.com

Featured Product: Multilayer mirrors, Nano-scale test patterns, Polarizer, Transmission grating, Fresnel zone plate
NTT-AT provide custom design optical components such as Multilayer mirrors, Nano-scale test patterns, Polarizer, Transmission grating, Fresnel zone plate for R&D and industrial fields. These components are fabricated as solutions for EUV Lithography fields: light source, metrology, mask and photo-resist. NTT-AT’s optics are corresponding to LPPs, SRs/XFELs, HHGs and soft x-ray lasers as well. Contact: Mayumi Yamashita, Sales and Business Development, m.yamashita@ntt-at.com

Pall Corp. #223
25 Harbor Park Dr, Port Washington, NY, 11050-4605 United States
+1 516 484 5400; fax +1 516 801 9711
microelectronics@pall.com; www.pall.com

Pall offers a complete line of filtration, purification and separation technologies for all lithography processes. These include asymmetric Nylon 6,6, Highdensity polyethylene and PTFE media. Pall has demonstrated that our innovative filter technologies can significantly reduce defectivity, decrease filter start up time and improve overall cost of ownership. Find out how Pall can help you improve your lithography process. Contact: Glenn Dado, Sn Marketing Manger, Glenn_Dado@pall.com

Philips Innovation Services #318
High Tech Campus 34, Eindhoven, 5656 AE Netherlands
innovationservices@philips.com; www.innovationservices.philips.com

Featured Product: Philips Innovation Services creates the bridge from idea to market.
Making innovation work, is our drive as well as our deliverable. That is what we have been doing in the last 50 years. Not only within Philips but also for external customers in the Semiconductor market. Helping leading equipment suppliers to keep pace with Moore’s Law through our expertise. Driven by our deep technical creativity, we continue where others stop. Are you looking for new solutions? Let’s talk! Contact: Arie Leunis, arie.leunis@philips.com

Osiris International GmbH #227
Gewerbestr. 13, Moos, 78345 Germany
+49 7732 15 698 20
info@osiris-nano.com; www.osiris-nano.com

Osiris International is a manufacturer of machines specializing in photolithographic process equipment used in semiconductor and microsystems (MEMS) technology. The main application areas for surface treatment of wafers, substrates or masks are the following processing applications: Photoresist spin & spray coating, developing, baking, wet cleaning, post CMP cleaning, etching, stripping & lift-off and temporary bonding & debonding.
PM B.V. #228
Galileistraat 2, Dedemsvaart, 7701 SK Netherlands
+31 523 61 22 58 ; fax +31 523 61 52 90
info@pmbearings.nl; www.pmbearings.nl

**Featured Product:** XYZ2-Theta motion system, precision linear bearings, linear slides, rotary stages.
PM has engineered and manufactured innovative and top quality precision linear bearings, slides and engineered-to-spec motion systems. We are experts in finding solutions that meet the specific requirements of a wide variety of industry applications. A trusted partner for hundreds of industry heavyweights around the globe, our client base ranges from the semiconductor industry, medical technology and metrology sectors, to industrial automation, space and defense industry. Contact: Bert Post, Sales manager, bert.post@pm.nl; Ard Abbink, Sales manager, ard.abbink@pm.nl

POLLEN Metrology #324
122 rue Rocher du Lorzier, Moirans, 38430 France
+33 476657121
johann@pollen-metrology.com; www.pollen-metrology.com

**Featured Product:** Platypus Smart software to accelerate the development of etch, litho and deposition processes
Pollen Metrology is a deep-tech company specialized in data analysis software powered by a unique AI and data fusion technology oriented to the process control of high-performance materials. Our primary market is Semiconductor industry where Pollen offers its Platypus Smart products portfolio to analyze automatically complex images coming from CD-SEM, TEM and cross-section SEM to accelerate process development in etch, lithography, deposition (...). Contact: Johann Foucher, CEO, johann@pollen-metrology.com; Ron Burns, VP Sales, ron.burns@pollen-metrology.com

Pozzetta, Inc. #213
3121 S Platte River Dr, Englewood, CO, 80110-2139 United States
+1 303 783 3172; fax +1 303 374 7342
sales@pozzetta.com; www.pozzetta.com

**Featured Product:** Photomask Boxes, Reticle Cassettes, SMIF Pods, Wafer Carriers, PFA Fittings
We help our customers reduce costs with customized in-process solutions such as reticle boxes, wafer carriers, PFA fittings, and critical device shipping solutions. We help optimize fab space by personally reviewing the storage and processing of critical devices and delivering complete solutions that include tracking tags, reticle pods and custom cleanroom storage solutions. We also help manage cleaning and maintenance programs for cassettes, pods and wet process stations. Contact: Artemis Vasiiladis, Account Executive, artemis@pozzetta.com; Scott Reese, Account Executive, scott.reese@pozzetta.com

**SPONSOR**
Qoniac GmbH #100
Dr.-Kuelz-Ring 15, Dresden, 01067 Germany
+49 351 4189 3340; fax +49 351 4189 3341
info@qoniac.com; www.qoniac.com

**Featured Product:** OVALiS Software Suite
Qoniac is the premier supplier of on-product process optimization and control solutions for leading-edge semiconductor lithography & patterning. The company has developed the OVALiS Suite, which provides unprecedented improvements of on-product optimization, simulation, diagnostics, monitoring and process control for the optimal on-product performance. Qoniac has customers and representatives in all key markets. The acquisition by KLA in 2019 will enhance Qoniac’s technical footprint. Contact: Saveen Krishnamurthy, Director Sales & Marketing, saveen.krishnamurthy@qoniac.com

Raith America, Inc. #116
1377 Long Island Motor Parkway Ste 101, Islandia, NY, 11749 United States
+1 631 738 9500; fax +1 631 738 2055
sales@raithamerica.com; www.raith.com

Raith is a leading precision technology manufacturer for focused ion beam (FIB-SEM) nanofabrication, large area scanning electron microscopy (SEM), and electron beam lithography (EBL) instrumentation. With sub-5 nm patterning performance, Raith instruments are enabling researchers in academic and industry environments to continuously advance their applications in applied nanoscale research and development, as well as production of compound semiconductor components.

SAES Group #320
1122 E Cheyenne Mountain Blvd, Colorado Springs, CO, 80906 United States
+1 719 576 3200; fax +1 719 576 5025
susa_custserv@saes-group.com; www.saesgroup.com

**Featured Product:** SAES GROUP is the global leader in Non-Evaporable Getter (NEG) pumps.
SAES GROUP is the global leader in Non-Evaporable Getter (NEG) pumps used in a variety of high and ultra-high vacuum applications. The usage of SAES NEG pumps in electron microscopy and lithography systems allows to transport the electron guns under vacuum in total absence of power, making the installation easier and faster. Contact: Russell Graybehl, Senior Sales Engineer, rng@saes-group.com; Andrea Cadoppi, Business Area Manager, andrea_cadoppi@saes-group.com
Sage Design Automation, Inc.  #103

2075 de La Cruz Blvd Ste 105, Santa Clara, CA, 95050-3035 United States
+1 408 727 6294; fax +1 508 727 6288
info@sage-da.com; www.sage-da.com

Featured Product: SLiC: Standardcell Library Compiler. A complete cell library from netlist to layout in 1 day.
Sage-DA provides new solutions for agile technology path-finding and Design-Technology Co-Optimization. Sage tools enable an order of magnitude faster DTCO cycles and the ability to explore many more combinations of process assumptions and design constraints for thorough analysis of their interactions and PPAC trade-offs. Sage tools include logic cell library compiler, design rule editor, instant DRC, design rule impact analysis and test layout generation for validation of DRC runsets. Contact: Coby Zelnik, President, c.zelnik@sage-da.com; Raul Camposano, CEO, r.camposano@sage-da.com

SCIL Nanoimprint Solutions  #316
De Lismortel 31, Eindhoven, 5612 AR Netherlands
+31 6 51087938
rob.voorkamp@scil-nano.com; www.scil-nano.com

Featured Product: Nanoimprint lithography tools, nanoimprint resist, nanoimprint processes
Substrate Conformal Imprint Lithography (SCIL) is a cost effective, robust, high yield process enabling nanometer resolution patterns on a large variety of materials. It can be used to make high quality structures on wafer areas up to 200 mm with feature sizes down to less than 10 nm and overlay alignment down to 1 µm. We help customers with optimized equipment, consumable materials and processes for high volume production. Contact: Rob Voorkamp, CEO, rob.voorkamp@scil-nano.com; Marc Verschuuren, CTO, marc.verschuuren@scil-nano.com

SCREEN SPE USA, LLC  #201

820 Kifer Rd Ste B, Sunnyvale, CA, 94086-5214 United States
+1 408 594 6021; fax +1 408 523 9150
inquiries@screen-spe.com; www.screen.co.jp/eng/spe

Featured Product: Coat/Develop Track, DT-3000, SK-60EX/80EX, RF310A, SC-80EX, Direct Imaging System, DW-6000/3000
SCREEN SPE USA (SEUS) was established in 1987 in Sunnyvale, California. SEUS is the sales, marketing, engineering and service organization responsible for operations in the US market for SCREEN Semiconductor Solutions, Co. Ltd., Kyoto, Japan. SEUS has 8 major local offices in the US to better serve our customers. Our products include lithography coat/develop, wet cleaning/etching, thermal annealing and metrology applications. SCREEN is well known in manufacturing the most reliable equipment. Contact: Luke Chang, Program Director, luke.chang@screen-spe.com; Ian Brown, VP of Engineering, ian.brown@screen-spe.com

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Seiwa Optical America Inc. #111
3042 Scott Blvd, Santa Clara, CA, 95054-3301 United States
+1 408 844 8008; fax +1 408 844 8944
info@seiwaamerica.com; www.seiwaamerica.com
Featured Product: IR-2200 microscope allows the user to inspect sub-surface images including MEMS devices and wafers.
For over 50 years, SEIWA OPTICAL has been a provider of standard and customizable optical solutions for machine vision, inspection, and industrial processing. We have offices established worldwide and are also a distributor for industrial vision products. Contact: info@seiwaamerica.com

Shin-Etsu MicroSi, Inc. #110
10028 S 51st St, Phoenix, AZ, 85044-5203 United States
+1 480 893 8898; fax +1 480 893 8637
info@mricsi.com; www.mricsi.com
Featured Product: advanced photoresists, mask blanks, synthetic quartz
Shin-Etsu, the world’s No. 1 supplier of semiconductor silicon wafers and a leading supplier of essential electronic materials. Shin-Etsu’s product portfolio includes, photomask blanks, EB resists, pellicles, synthetic quartz, semiconductor advanced resists along with numerous specialized thermal interface materials. Contact: Jake Hansen, Customer Development, jhansen@mricsi.com

Seiwa Optical America Inc. #111
3042 Scott Blvd, Santa Clara, CA, 95054-3301 United States
+1 408 844 8008; fax +1 408 844 8944
info@seiwaamerica.com; www.seiwaamerica.com
Featured Product: IR-2200 microscope allows the user to inspect sub-surface images including MEMS devices and wafers.
For over 50 years, SEIWA OPTICAL has been a provider of standard and customizable optical solutions for machine vision, inspection, and industrial processing. We have offices established worldwide and are also a distributor for industrial vision products. Contact: info@seiwaamerica.com

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Synopsys, Inc. #204
690 E Middlefield Rd, Mountain View, CA, 94043-4010 United States
+1 650 584 5000; fax +1 650 584 4102
info@synopsys.com; www.synopsys.com
Synopsys provides industry-proven EDA solutions to meet the demands of today’s advanced IC manufacturing processes while setting the standard in platform flexibility to enable innovative solutions for next generation technology nodes. Synopsys comprehensive Mask Synthesis, Mask Data Preparation, TCAD and Yield Management tools provide leading-edge performance, accuracy, quality, and cost of ownership for all your production and development needs.

SEQENS #118
725 Trotter St, Saint-Jean-Sur-Richelieu, QC, J3B 8J8 Canada
+1 450 348 0901; fax +1 450 349 1528
orderdesk@seqens.com; www.seqens.com
SEQENS is a technology-oriented fine chemical group serving global industrial customers since 1962. Our core expertise is the development and production of high quality materials (polymers and small molecules) for Life Sciences and Specialty Chemicals markets, such as Lubricant, Cosmetics and Electronics. Our customers within the Electronic industry use our products in Photolithography/Microelectronics (Resist, ARC, Additives) and Printed Electronics (OLED, OFET, OPV) applications. Contact: Andréanne Bolduc, Sales and Marketing Manager, andreanne.bolduc@seqens.com; Francis Belanger, Director Customer Relationship, francis.belanger@seqens.com

Vistec Electron Beam GmbH #221
Ilmstr 4, Jena, 07743 Germany
+49 3641 799 80; fax +49 3641 7998 222
electron-beam@vistec-semi.com; www.vistec-semi.com
Featured Product: Vistec SB250series & Vistec SB3050series
As a long-standing equipment supplier, Vistec Electron Beam GmbH is providing leading technology solutions for advanced electron-beam lithography. Based on the Variable Shaped Beam (VSB) principle, the electron-beam lithography systems are mainly utilized for semiconductor applications and advanced research as electron-beam direct write in semiconductor manufacturing, mask making as well as integrated optics and several new emerging markets. Contact: Ines Stolberg, Manager Marketing & Sales, ines.stolberg@vistec-semi.com; John Whittey, Buiness Development Manager, john.whittey@vistec-semi.com
**EXHIBITOR DIRECTORY**

**XEI Scientific, Inc. #121**

**SPIE Corporate Member**

1755 E Bayshore Rd Ste 17, Redwood City, CA, 94063-4153 United States  
+1 650 369 0133; fax +1 650 363 1659  
sales@evactron.com; www.evactron.com

**Featured Product: Evactron De-Contaminators**

Evactron® De-Contaminators by XEI Scientific are world leaders in remote RF plasma cleaning of hydrocarbon contamination in vacuum chambers. Evactron plasma cleaners use a unique, energy-efficient hollow cathode plasma source to generate oxygen radicals plus UV for dual-action removal of adventitious carbon at turbo pump pressures. The new Evactron 50 De-Contaminator outperforms other remote plasma cleaners and is easy to use, powerful, compact, and low cost. Contact: Barbara Armbruster, Director of Sales and Marketing, barbara@evactron.com; Meg Price, Marketing Administrator, meggie@evactron.com

**Zygo Corporation #205**

**SPIE Corporate Member**

21 Laurel Brook Road, Middlefield, CT, 06455-1291 United States  
+1 860 347 8506; fax +1 860 347 8372  
inquire@zygo.com; www.zygo.com

For 50 years, Zygo Corporation is a leading global provider of comprehensive metrology solutions, precision optics, and electro-optical design and manufacturing services for the both research and production applications. The company designs and manufactures some of the world’s most advanced noncontact 3D measurement systems providing unmatched performance, versatility, reliability, and value. Contact: Ernesto Abruna, Product Manager, Ernesto.abruna@ametek.com; Joe Salemi, Product Manager, Joe.salemi@ametek.com

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The International Day 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.

**SPIE supports the International Day of Light and its annual celebration on 16 May.**

**SPIE IDL GRANTS**

SPIE will provide seed funding up to US$3,000 to organizations creating Day of Light activities.

**IDL RESOURCES**

SPIE encourages communities to plan their own annual celebration on 16 May and provides various resources to help create an event.

**SPIE PHOTO CONTEST**

Amateur and professional photographers alike should submit photos demonstrating the vital role that light plays in our lives for a chance to win US$2,500.

Learn more: spie.org/idl
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#SPIELitho
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CEROBEAR GmbH
Gudeng Precision Industrial Co., Ltd.
PM B.V.
Seiwa Optical America Inc.

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attocube systems Inc.

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Kayaku Advanced Materials, Inc.
SEQENS

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Synopsys, Inc.
Vistec Electron Beam GmbH

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Cosmotec, Inc.
Osiris International GmbH

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XEI Scientific, Inc.

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Seiwa Optical America Inc.

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SCIL Nanoimprint Solutions

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Seiwa Optical America Inc.

OPTOMECHANICAL COMPONENTS, DEVICES
CEROBEAR GmbH

PHOTONIC INTEGRATION
Canon U.S.A., Inc.
SCIL Nanoimprint Solutions

POSITIONING EQUIPMENT, MOTION CONTROL AND ACCESSORIES
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CEROBEAR GmbH
PM B.V.
Raith America, Inc.

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Coventor, Inc.
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Kayaku Advanced Materials, Inc.
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