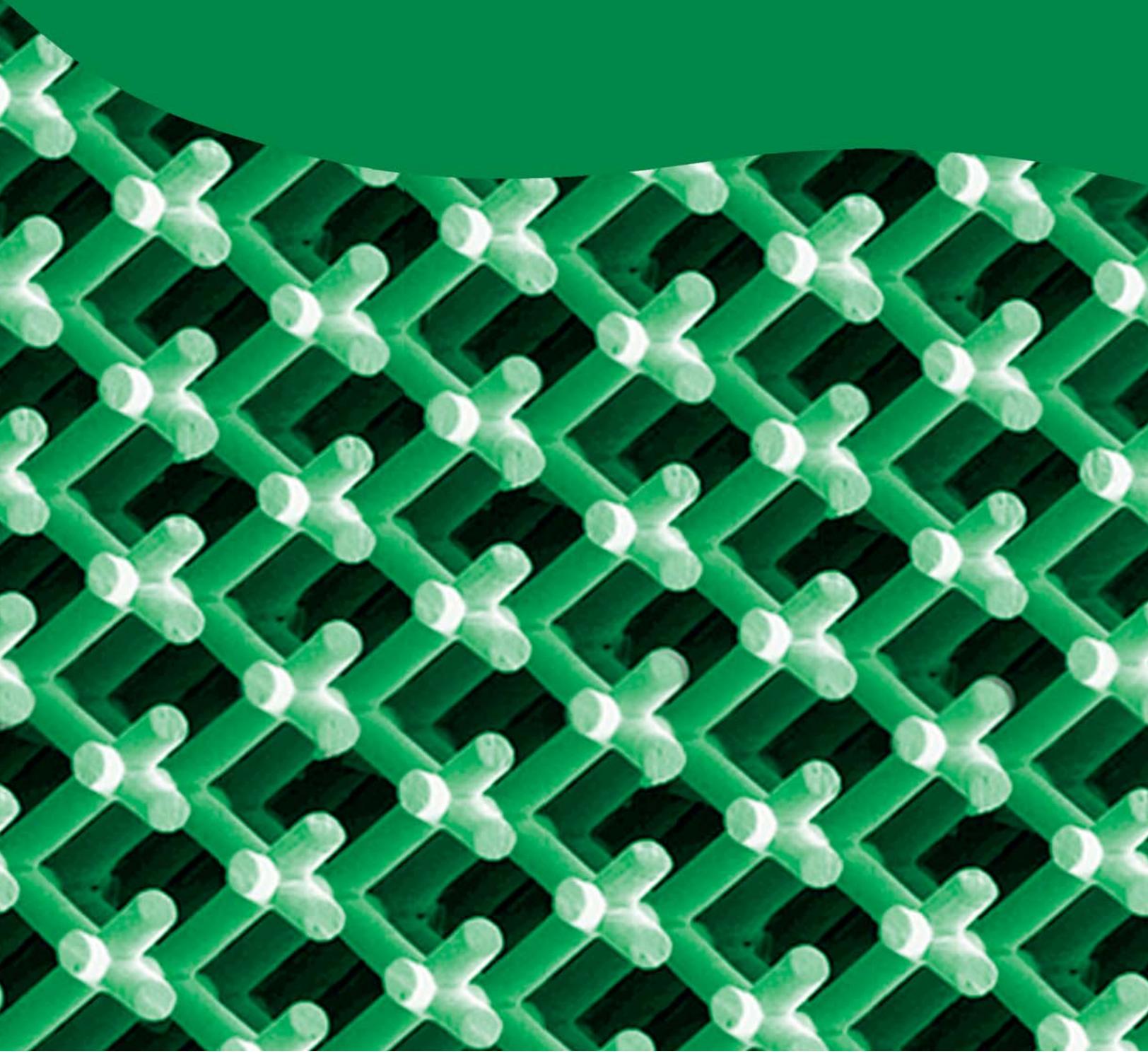


Exhibition Guide

SPIE *Advanced*
Lithography

25 February–2 March 2007
San Jose Convention Center and San Jose Marriott
San Jose, California USA



WITH CALIBRE, THE OLD RULES ARE MEANT TO BE BROKEN.



INTEGRATED SYSTEM DESIGN + DESIGN FOR MANUFACTURING + ELECTRONIC SYSTEM LEVEL DESIGN + FUNCTIONAL VERIFICATION

Design for Manufacturing | Since designing in nanometer technologies has become commonplace, the word "impossible" is fading from our vocabulary. Yet for all the freedom nanometer technology affords, the drive for acceptable yields has pressed designers to adopt new DFM tools and methodologies. The industry-leading Calibre® DFM platform is the only solution that allows design and manufacturing to work in unison with integrated, high-performance tools. Calibre enables designers to break the old rules and take DFM to the next level. Learn more. Go to www.mentor.com/techpapers or call us at 800.547.3000.

**Mentor
Graphics®**
THE EDA TECHNOLOGY LEADER

SPIE *Advanced* Lithography

Conferences • Courses • Exhibition

25 February–2 March 2007
San Jose Convention Center and San Jose Marriott
San Jose, California USA

Exhibition Dates: 27–28 February 2007

Sponsored by:

SPIE

SPIE is a not-for-profit international society
dedicated to furthering technological innovations.

Cooperating Organization:



Promotional Partners:

Laser + Photonik

Laser Focus World

Photonics Spectra

Semiconductor International

Solid State Technology

Welcome to the Exhibition!

Contents

Sponsors	2
Exhibitor Booth Index	4
Exhibition Floor Plan	5
Advertisers Index	5
Exhibitor Spotlights	6
General Information	7-8
Course Daily Schedule	10-11
Exhibitor Directory	12-26
Product Categories	28-29
Corporate Members	30-31



Microlithography World, a Solid State
Technology publication, is published
in cooperation with SPIE and BACUS.

Plan now to be part of next year's
Advanced Lithography Exhibition.

26–27 February 2008

San Jose Convention Center, San Jose, California USA

For information about exhibiting, sponsorship and
advertising opportunities at future Advanced
Lithography events, contact: SPIE Sales; E-mail:
spiesales@spie.org; Web: www.spie.org/exhibitions

A Special Thank You to the following Sponsors.

Breakfast Breads/Coffee, Meter Board and Room Keys

CYMER

Booth #903, www.cymer.com

Coffee Breaks

ASML

Booth #413, www.asml.com

JSR Micro JSR
MATERIALS INNOVATION

Booth #713, www.jsrmicro.com

AZ AZ Electronic Materials

Booth #313, www.az-em.com

Design & Process Integration Panel

INVARIUM

Booth #307, www.invarium.com

cadence[™]

Booth #520, www.cadence.com

Internet Pavilion

JEOL
www.jeol.com

Lanyards

**Mentor
Graphics**

Booth #213, www.mentor.com

Tuesday Lunch

TOPPAN

Booth #712, www.toppantphotomask.com

Metrology Panel

**APPLIED
MATERIALS**

Booth #703, www.appliedmaterials.com

Nanotechnology Panel

tok

Booth #913, www.tok.co.jp

Plenary Session

Computer Systems, Inc.
MERCURY

Booth #722, www.mc.com

Poster Receptions

**Mentor
Graphics**

Booth #213, www.mentor.com

Semiconductor
INTERNATIONAL

Booth #524, www.semiconductor.net

ShinEtsuMicroSi

Booth #1113, www.microsi.com

Show Bags

SYNOPSYS

Booth #813, www.synopsys.com

Virtual Lithography Panel and Stairway Strips

Canon
www.usa.canon.com

BACUS Panel on DPT

INVARIUM

Booth #307, www.invarium.com

**Mentor
Graphics**

Booth #213, www.mentor.com

SYNOPSYS

Booth #813, www.synopsys.com

PHOTONICS

Booth #202, www.photonics.com

Wi-Fi Pavilion

TEL

TOKYO ELECTRON
Booth #201, www.telusa.com

General Refreshments

Canon U.S.A., Inc.
Micro Lithography Inc.

FULL SPECTRUM PHOTONIC AND NETWORK DESIGN AUTOMATION

BandSolve 3.0 FullWAVE 5.0 BeamPROP 7.0
ModeSYS 4.6 FemSIM 2.0 GratingMOD 2.0
DiffractMOD 2.0 MOST 2.0 BandSolve 3.0
Artifex 4.4 LASERMOD 2.2 MetroWAND 3.3 BeamPROP
ModeSYS 4.6 BandSolve 3.0 LASERMOD 2.2
OPTSIM 4.6 FullWAVE 5.0 FemSIM 2.0
MOST 2.0 GratingMOD 2.0 Artifex 4.4
ve 3.0 DiffractMOD 2.0
BeamPROP 7.0 OPTSIM 4.6 MetroWAND 3.3

Are you ready for what's next?

RSOFT

Design Group

Photonic
Component
Design Suite

ADVANCED LITHOGRAPHY
27-28 FEB. 2007, SAN JOSE, CA
San Jose Convention Center
BOOTH 718

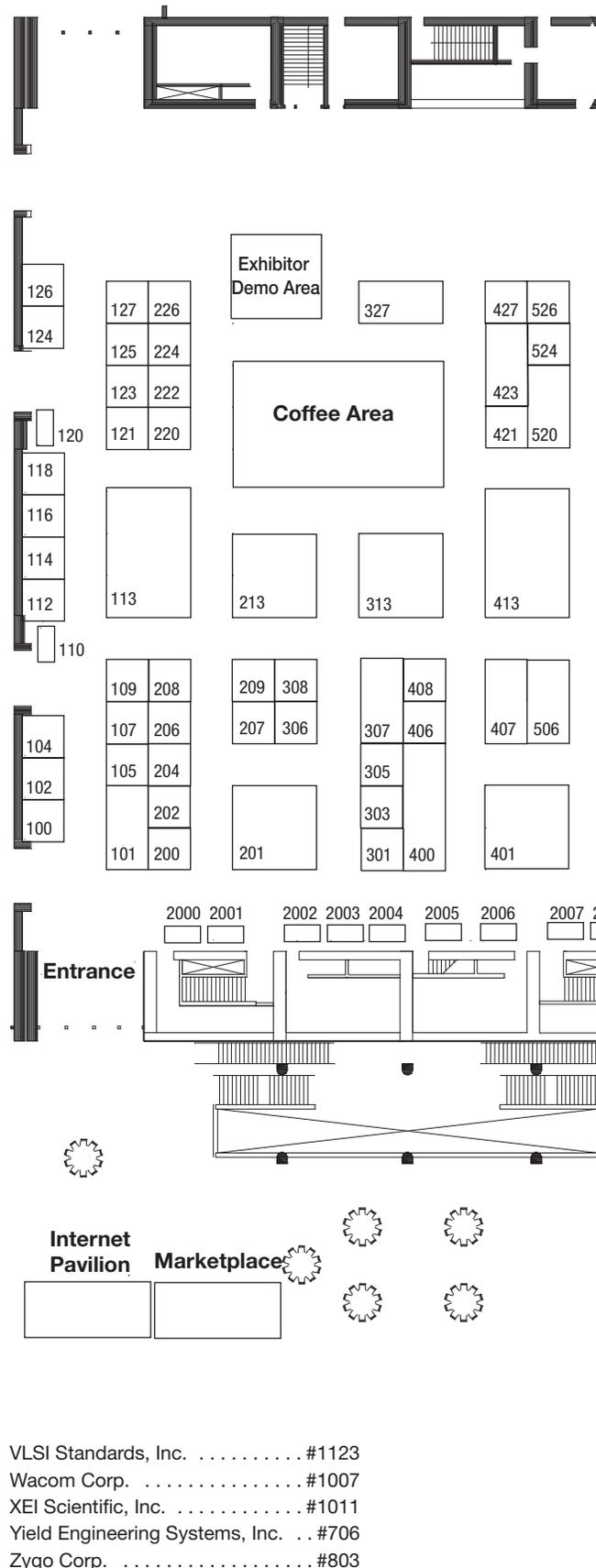
Optical
Communication
Design Suite

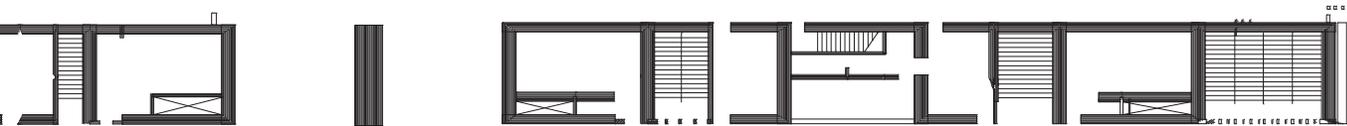
www.rsoftdesign.com

Exhibitor Booth List

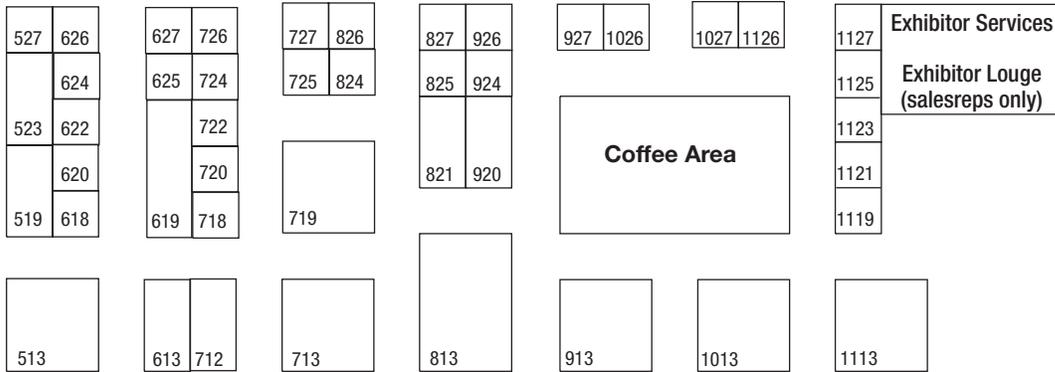
Abeam Technologies#2000
 Aerotech, Inc.#1002
 Air Products and Chemicals, Inc. #1102
 Anchor Semiconductor Inc.#303
 Applied Materials#703
 ASML#413
 ATMI Packaging, Inc.#904
 AZ Electronic Materials USA Corp #313
 Benchmark Technologies, Inc. ...#101
 Braggone#1106
 Brewer Science#613
 Brion Technologies, Inc.#423
 Cadence Design Systems, Inc. ...#520
 Carl Zeiss SMT#909
 CMPC Surface Finishes#1119
 Corning Inc.#619
 CUNO Inc.#622
 CVI Laser LLC#421
 Cyantek Corp.#805
 CyberOptics Semiconductor ...#306
 Cymer, Inc.#903
 Digital Optics Corp.#809
 DNS Electronics, LLC#821
 Donaldson Co., Inc.#725
 Dongjin Semichem Co., Ltd.#719
 Eastman Chemical Co.#109
 Energetiq Technology, Inc.#2009
 Entegris, Inc.#606
 EV Group Inc.#1107
 Foothill Instruments, LLC#806
 FUJIFILM Electronic Materials
 U.S.A., Inc.#513
 Gigaphoton Inc.#200
 Gudeng Precision Industrial Co.,
 Ltd.#102
 Hakuto Co., Ltd.#523
 Halocarbon Products#1008
 Hitachi High Technologies America,
 Inc.#401
 Honeywell Electronic Materials ...#509
 HORIBASTEC#105
 Inko Industrial Corp.#1006
 Intel#1125
 International Radiation Detectors,
 Inc.#908
 Invarium, Inc.#307
 J.A. Woollam Co.#907
 JCMwave GmbH#1004
 JSR Micro, Inc.#713
 King Industries Inc.#625
 KLA-Tencor Corp.#1013
 Laser Focus World#1005
 Lasertec U.S.A., Inc.#206
 LINOS Photonics, Inc.#305
 Media Lario Technologies#624
 Mentor Graphics#213
 Mercury Computer Systems, Inc. ...#722
 MetroBoost#208
 Metrosol, Inc.#308
 Micro Lithography Inc.#927

MicroChem Corp.#802
 Microlithography World#724
 Micronic Laser Systems AB#426
 Mitsui Chemicals America, Inc. ...#2008
 Molecular Imprints, Inc.#506
 n&k Technology, Inc.#1026
 Nanometrics Inc.#113
 Nanonex Corp.#427
 National Institute of Standards
 & Technology#720
 New Focus, Inc.#618
 Nikon Precision Inc.#601
 OBDUCAT AB#924
 Olympus Micro Imaging#209
 OnWafer Technologies, Inc.#204
 ORC Manufacturing Co., Ltd.#620
 Osram Sylvania Inc.#902
 Pall Corp.#207
 Particle Measuring Systems#807
 Photonics Spectra#408
 Photronics, Inc.#202
 Pixar Technology Ltd.#1109
 Pozzetta Products, Inc.#407
 Queensgate Instruments Ltd. ...#1103
 Rainbow Research Optics, Inc. ...#309
 Raith USA, Inc.#507
 RAVE LLC#220
 Renishaw Inc.#1009
 Rohm and Haas Electronic
 Materials#501
 RSoft Design Group, Inc.#718
 Rudolph Technologies#519
 SAES Pure Gas, Inc.#222
 Sagantec#1108
 SAGEM SA#107
 Semiconductor International
 Magazine#524
 SensArray Corp.#607
 Shin-Etsu MicroSi, Inc.#1113
 Sokudo USA, LLC#821
 Solid State Technology#724
 SPIE Industry Resources#100
 Star Tech Instruments#1003
 Steinmeyer, Inc.#1105
 Sumika Electronic Materials, Inc./
 Sumitomo Chemicals Co. Ltd. ...#400
 SUSS MicroTec Inc.#824
 Synopsys, Inc.#813
 SynQuest Laboratories, Inc.#406
 Technical Manufacturing Corp. ...#1010
 The Precision Alliance#808
 Timbre Technologies, Inc.
 a TEL Company#201
 Tokyo Ohka Kogyo America, Inc. ...#913
 Toppan#712
 Transfer Devices, Inc.#825
 USHIO America, Inc.#301
 Veeco Instruments#920
 Vistec Semiconductor Systems
 Inc.#1121

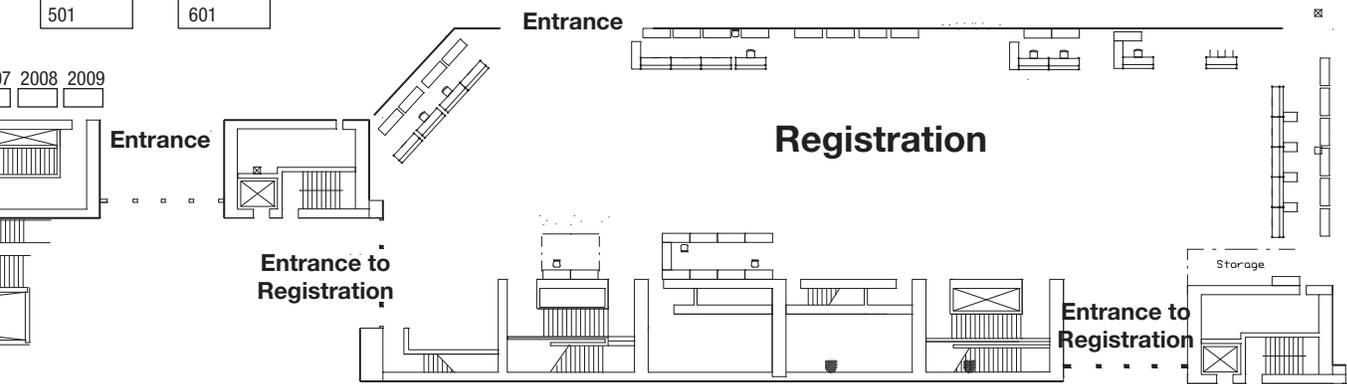
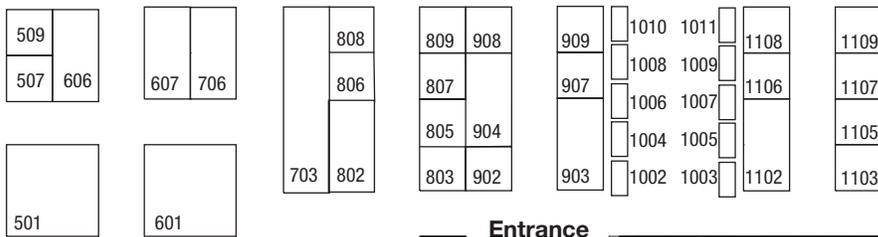




Seating Area



Lunches and Seating Area



Advertisers Index

Mentor Graphics	inside front cover
RSoft	3
Carl Zeiss	12
Nano-Master, Inc.	27
Fujifilm	inside back cover
Rave	back cover

Exhibitor Spotlights

Convention Center, Exhibition Hall 1, back of Aisle 200.

Tuesday

12:30 pm

The Benefits of AutoCal and AutoCD on PEB Profile and Critical DI CD's

Andrew Beers, OnWafer Technologies

Utilizing Gen4 BakeTemp SensorWafer and SmartFou-eZ Hardware we will demonstrate the ease and ability of OnWafers AutoCal and AutoCD software suite in improving Post Exposure Bake (PEB) Temperature Profile and Optimizing After Develop Inspect Critical Dimensions.

1:30 pm

Improved Yield Through Improved Leveling and Teaching

Dennis Bonciolini, CyberOptics Semiconductor

CyberOptics Semiconductor will discuss how wireless and wafer-like precision measurement devices (WaferSense™), for sensing, reporting and recording inclination or capable of target acquisition (utilizing machine vision technology) can improve tool performance to enhance yields in lithography areas.

2:30 pm

"EastaPure" Electronic Chemicals, Be Sure It's Pure

Mike Quillen, Eastman Chemical Company

Stemming from its experience in high purity products Eastman is developing a next generation product used in the removal of contaminants in surface sensitive processes.

Wednesday

10:30 am

Nanoimprint solutions from Nanonex

Larry Koecher, Nanonex Corp.

Nanonex Corporation, the world leader in nanoimprint lithography, will discuss its current product offerings and solutions.

11:30 am

Wafer Based Metrology for Lithography Tools

Mei Sun, PhD, SensArray Corp.

Mei Sun will show several different configurations of instrumented wafers that can be used to characterize exposure systems, resist processing tracks, and etch patterning tools.

12:30 pm

Raith's New Lithography Systems

George Lanzarotta, Raith USA, Inc.

Descriptions of Raith's new lithography systems will be presented. Our new system components and improved specifications make for more complete nanotechnology workstations.

Jumpstart Your Job Search.

Regardless of your status—recent graduate, newly unemployed, or considering a career move—find the job that's right for you.

spieworks.com

spieworks.com
SPIE·WORKS
APPLY YOUR MIND.

Exhibition Hours

Convention Center, Exhibition Halls 1-2

Tuesday 10:00 am to 5:00 pm
Wednesday 10:00 am to 4:00 pm

Over 130 leading Advanced Lithography companies showcase the latest products and technologies in the industry. The current exhibitor list and floor plan is available on-line at www.spie.org/exhibitions.

There is no charge to visit the exhibition hall; however, a registration badge is required for admittance. Pre-registration and on-site registration are available for exhibition-only visitors.

Registration and Information Hours

Convention Center, Exhibit Hall 2

Sunday 7:00 am to 6:00 pm
Monday 7:00 am to 4:00 pm
Tuesday through Thursday 7:30 am to 5:00 pm
Friday 7:30 am to 11:00 am

Breakfast Breads

Sponsored by 

Breakfast breads and coffee will be served from 7:30 to 8:30 am Monday through Friday for Symposium attendees in the Convention Center, Concourse 2 Lobby.

Underage Persons on Show Floor

For safety and insurance reasons, no persons under the age of 16 will be allowed in the exhibition area during move-in and move-out. During open exhibition hours, only children over the age of 12 accompanied by an adult will be allowed in the exhibition area.

Coffee Breaks

Sponsored by   

Convention Center, Exhibition Halls 1-2

Tuesday – Wednesday 10:00 to 11:00 am; 3:00 to 4:00 pm

Desserts

Sponsored by  

Desserts will be served in the exhibition halls 1-2, on Tuesday and Wednesday, 3:00 to 4:00 pm.

Exhibition Concession Stands

For those whose registration plan does not include the lunch coupons, or for obtaining food and beverage at other than lunch times, concession stands located in the halls will be open during exhibition hours. They will serve hot and cold snacks, beverages, deli-style sandwiches, salads, a few hot entrees, and pastries.

Internet Access

Convention Center - Concourse

Sunday - Thursday during registration hours

Sponsored by 

At this location will be multiple workstations allowing attendees to access their internet e-mail during the conference, and several Ethernet connections to use with your personal laptop. There will be a 10-minute time limit per each person's internet session.

WiFi Access

Sponsored by  

Complimentary WiFi access for attendees with wireless-enabled laptops and PDAs will be available Monday through Friday in the Ballroom Concourse (east end) of the Convention Center near the SPIE Marketplace and Internet Pavilion.

Message Center

Convention Center, located near registration

Messages will be taken during registration hours Sunday through Thursday by calling: 408-271-6200. Attendees should check the message boards at the message center on a daily basis to receive their messages.

Audio/Video/Digital Recording Policy

Due to copyright restrictions, strictly no recordings of any kind are permitted without prior written consent of the presenter in any conference session, short course or posters. Consent forms are available at the SPIE Audiovisual Desk and anyone wishing to record must have a written consent form signed and filed for each presenter being recorded. Individuals not complying with this policy will be asked to leave a given session and to surrender their film or disc.

In the Exhibition Hall: For security and courtesy reasons, photographing or videotaping individual booths and displays in the exhibit hall is allowed ONLY with explicit permission from on-site company representatives. Individuals not complying with this policy will be asked to surrender their film and to leave the exhibition hall.

Photography

Personal photographs and video taping of individual booths (and their displays) is not allowed without the explicit permission from the company representative on-site. Failure to obtain consent could result in losing your film and being asked to leave the Exhibition Hall.

Lunch Coupons

Tuesday lunch sponsored by 

Full conference registrants will receive a lunch coupon redeemable towards a luncheon purchased Tuesday and Wednesday at designated areas in the Exhibition Hall. Coupons will be accepted from 11:30 am to 1:30 pm both days. Some restrictions apply; please refer to the coupons in your registration packet.

SPIE Copy Center

Sunday through Thursday during registration hours SPIE will provide a copy service during the week for symposium attendees. The rates are 5 cents/copy and \$1 per transparency. Located near registration in Exhibit Hall 2.

SPIE Marketplace

The SPIE Marketplace is your source for the latest SPIE Press books, Proceedings, and Educational and Professional Development materials. You can become a member of SPIE, explore the Digital Library, and take home a souvenir.

General Information

No Suitcasing Policy

Please note that while all meeting attendees are invited to the exhibition, any attendee who is observed to be soliciting business in the aisles or other public spaces, in another company's booth, or in violation of any portion of the SPIE Exhibition Policy, will be asked to leave immediately. Additional penalties may be applied. Please report any violations you may observe to show management.

Parking

sjdowntownparking.com

(click on the area on the corner of San Carlos and Woz Way)

At the Convention Center

\$14 per day for 24 hours with no in/out privileges.
\$20 with in/out privileges. 650 spaces for public use.

Alternate Parking Downtown San Jose - River Park Tower Garage

\$1.25 per 20 minutes, \$18 daily maximum. Rates and hours subject to change without notice. Click on link below for all alternate parking lots.

sjdowntownparking.com/parking_map.php

Located on the corner of San Carlos and Woz Way, 333 W. San Carlos St. 1,000 spaces available. Open 6:30 am to 12:00 midnight, Mon to Frid, 8:00 am to 12 midnight Sat; (Sunday varies).

Parking at the Downtown Hotels

HOTEL RATES: Rates are subject to change without notice.

FAIRMONT HOTEL: No self-parking available. Valet parking for **overnight guests** (on space-available basis) is \$24 with in/out privileges. Valet parking for **visitors** (on space-available basis): 1st 30 min is \$5, each additional 20 minutes is \$1.50, maximum per day is \$24. Parking garage is beneath the hotel

MARRIOTT HOTEL: Parking for guests is available for \$21 per day with in/out privileges. Non-guests pay \$4.00 per hour with a maximum of \$21/day.

HILTON SAN JOSE & TOWERS: For Guests Self-parking \$14 max. with in/out privileges. Valet-parking \$19 max. with in/out privileges & with validation at City Bar & Grille, \$8 for up to 5 hrs. For Non-Guests Self-parking - \$6 for 1st hr., \$1 each add'l 30 min up to 7 hrs with a max of \$18 per 12 hr. period. Valet parking - \$8 for up to 1st hr, \$12 1-2 hrs, \$18 2-5 Hrs, \$20 over 5 hrs, & with validation from City Bar & Grille, \$8 for up to 5 hrs.

CROWNE PLAZA: For Guests – self-parking, \$14 per day (subject to change) with in/out privileges. No valet. For non-guests – \$6. for 1st hr., \$1. every half hr. thereafter - max. \$20 per day.

SAINTE CLAIRE: For Guests only, valet parking only for \$18 overnight. In/out privileges are available to guests who charge their parking to their room.

RAMADA LTD.: Guest parking is complimentary.

HOTEL MONTGOMERY: For Guests – Self-parking \$17 per day, Valet parking \$20 per day (24-hour period), both with in/out privileges.

Bring any SPIE Course to your company— Anytime, Anywhere.

Microlithography • Microelectronics • Optoelectronics • Micromachining

Any SPIE course can be presented live at your company. SPIE offers over 800 courses taught by industry experts that run from one-day to three-day sessions of concentrated instruction.

- **Compete more effectively with a well-trained staff**
- **Ensure your employees stay ahead of changing technologies**
- **Keep company trade secrets secure with private training sessions**

SPIE course instructors are world-renowned experts from industry and academia. Courses and instructors are consistently evaluated to ensure quality.

Learn more:

spie.org/incompany

Contact SPIE to schedule your In-Company Training today:
Gayle Lemieux, Education Services, gaylel@spie.org • Tel: +1 360 685 5537

SPIE

Design Your Future

It's your career—take charge of shaping it.

Courses

Workshops

In-Company Training

DVDs/CD-ROMs/Videos

Professional development options with SPIE will help you:

- **Improve your job performance**
- **Meet changing job demands**
- **Increase your value to your organization**

Students save 50% on Course Registration

Proof of student status is required; please include your student ID number or proof of student status with your registration. Offer applies to undergraduate/graduate students who are not also full-time employees in the industry, government, or academia.

SPIE reserves the right to cancel a course due to insufficient advance registration.

Money-back Guarantee

We are confident that once you experience an SPIE course for yourself you will look to SPIE for your future education needs. However, if for any reason you are dissatisfied, SPIE 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 an authorized provider of Continuing Education Units (CEUs) through ICAET—The International Association of Continuing Education and Training. SPIE awards CEUs to participants who successfully attend courses, and complete and return the evaluation form within 30 days of the course presentation. SPIE maintains a record of all CEUs earned for each participant for seven years.

Professional Development from SPIE
spie.org/education



Course Daily Overview

Sunday	Monday	Tuesday	Wednesday	Thursday
Emerging Lithographic Technologies				
<p>SC100 Introduction to Electron-Beam Lithography (<i>McCord</i>) 8:30 am to 12:30 pm, \$280 / \$325</p> <p>SC101 Introduction to Microlithography: Theory, Materials, and Processing (<i>Bowden, Thompson, Willson</i>) 8:30 am to 5:30 pm, \$530 / \$615</p> <p>SC830 Recent Advances in Electron Beam Lithography (<i>Pfeiffer</i>) 1:30 to 5:30 pm, \$280 / \$325 NEW!</p> <p>SC622 Nano-Scale Patterning with Imprint Lithography (<i>Sreenivasan, Willson, Resnick</i>) 6:00 to 10:00 pm, \$280 / \$325</p>				
Metrology, Inspection, and Process Control				
<p>SC105 CD Metrology and Image Formation in the Scanning Electron Microscope (SEM) (<i>Wells, Postek</i>) 8:30 am to 5:30 pm, \$460/\$545</p> <p>SC705 Instruments and Methodologies for Accurate Metrology and Fleet Matching (<i>Archie, Banke</i>) 8:30 am to 5:30 pm, \$460 / \$545</p> <p>SC101 Introduction to Microlithography: Theory, Materials, and Processing (<i>Bowden, Thompson, Willson</i>) 8:30 am to 5:30 pm, \$530 / \$615</p> <p>SC831 Introduction to Scatterometry Metrology: Theory and Application (<i>Bao, Barry</i>) 1:30 to 5:30 pm, \$280 / \$325 NEW!</p>			<p>Register at the SPIE Cashier!</p>	
Resist Technology and Processing				
<p>SC101 Introduction to Microlithography: Theory, Materials, and Processing (<i>Bowden, Thompson, Willson</i>) 8:30 am to 5:30 pm, \$530 / \$615</p> <p>SC780 Tracks 101: Microlithography Coat and Develop Basics (<i>Daggett, Williams</i>) 8:30 am to 5:30 pm, \$460 / \$545</p> <p>SC355 Fundamentals of Photochemical Contamination Control for Lithographic Tools (<i>Kunz</i>) 6:00 to 10:00 pm, \$280 / \$325</p> <p>SC833 Lithography Integration for Semiconductor Back-End-Of-The-Line (BEOL), (<i>Lin</i>) 8:30 am to 12:30 pm, \$280 / \$325</p>			<p>SC103 Resists for Deep UV Lithography (<i>Willson</i>) 8:30 am to 5:30 pm, \$460 / \$545</p> <p>SC616 Practical Photoresist Processing (<i>Dammel</i>) 1:30 to 5:30 pm, \$280 / \$325</p>	
The Business Side				
		<p>SC832 IP Issues in Advanced Lithography and Semiconductor Manufacturing (<i>Gortych</i>) 1:30 to 5:30 pm, \$280 / \$325 NEW!</p>		

Optical Microlithography

SC120 193-nm Photoresist Materials (Dammel) 8:30 am to 12:30 pm, \$280 / \$325

SC540 Applying Optical Proximity Correction and Design for Manufacturability to Product Designs (Capodieci, Lucas) 8:30 am to 5:30 pm, \$460 / \$545

SC707 Basics of Optical Imaging in Microlithography: A Hands-on Approach (Milster, Flagello, Brooker) 8:30 am to 12:30 pm, \$280 / \$325

SC105 CD Metrology and Image Formation in the Scanning Electron Microscope (SEM) (Wells, Postek) 8:30 am to 5:30 pm, \$460 / \$545

SC705 Instruments and Methodologies for Accurate Metrology and Fleet Matching (Archie, Banke) 8:30 am to 5:30 pm, \$460 / \$545

SC101 Introduction to Microlithography: Theory, Materials, and Processing (Bowden, Thompson, Willson) 8:30 am to 5:30 pm, \$530 / \$615

SC116 Lithographic Optimization: A Theoretical Approach (Mack) 8:30 am to 5:30 pm, \$460 / \$545

SC117 The Fundamental Limits of Optical Lithography (Smith) 8:30 am to 12:30 pm, \$395 / \$440

SC706 Imaging and Optics Fundamentals in Microlithography (Flagello) 1:30 to 5:30 pm, \$280 / \$325

SC124 Pushing the Limits: Optical Enhancement, Polarization, and Immersion Lithography (Smith) 1:30 to 5:30 pm, \$280 / \$325

SC355 Fundamentals of Photochemical Contamination Control for Lithographic Tools (Kunz) 6:00 to 10:00 pm, \$280 / \$325

SC102 Optical Lithography Modeling (Neureuther, Smith) 6:00 to 10:00 pm, \$315 / \$360

SC833 Lithography Integration for Semiconductor Back-End-Of-The-Line (BEOL), (Lin) 8:30 am to 12:30 pm, \$280 / \$325

NEW!

SC779 Polarization for Lithographers (Kye, McIntyre) 8:30 am to 12:30 pm, \$280 / \$325

SC579 Photomask Fabrication and Technology Basics (Duff) 8:30 am to 5:30 pm, \$460 / \$545

SC834 Lithography Friendly Design and Beyond - A Broader Review of DfM (Liebmann, Mansfield, Wong) 8:30 am to 5:30 pm, \$460 / \$545

NEW!

SC118 Anti-Reflective Coatings: Theory and Practice (Dammel) 8:30 am to 12:30 pm, \$280 / \$325

New Courses at Advanced Lithography 2007

Don't miss these cutting-edge additions to this year's Professional Development program.

- Recent Advances in Electron Beam Lithography
- Introduction to Scatterometry Metrology: Theory and Application
- IP Issues in Advanced Lithography and Semiconductor Manufacturing
- Lithography Integration for Semiconductor Back-End-Of-The-Line (BEOL)
- Lithography Friendly Design and Beyond— A Broader Review of DfM

Register at the SPIE Cashier!

Design for Manufacturing

SC540 Applying Optical Proximity Correction and Design for Manufacturability to Product Designs (Capodieci, Lucas) 8:30 am to 5:30 pm, \$460 / \$545

SC105 CD Metrology and Image Formation in the Scanning Electron Microscope (SEM) (Wells, Postek) 8:30 am to 5:30 pm, \$460 / \$545

SC705 Instruments and Methodologies for Accurate Metrology and Fleet Matching (Archie, Banke) 8:30 am to 5:30 pm, \$460 / \$545

SC778 Introduction to Advanced Process Control (APC) for Semiconductor Manufacturing (Misra) 8:30 am to 5:30 pm, \$460 / \$545

SC116 Lithographic Optimization: A Theoretical Approach (Mack) 8:30 am to 5:30 pm, \$460 / \$545

SC833 Lithography Integration for Semiconductor Back-End-Of-The-Line (BEOL), (Lin) 8:30 am to 12:30 pm, \$280 / \$325

NEW!

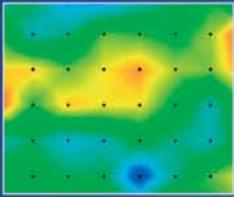
SC505 Data to Silicon: Understanding the Fundamentals of MDP, Frame Generation, RET and DFM (Morse) 8:30 am to 5:30 pm, \$460 / \$545

SC834 Lithography Friendly Design and Beyond - A Broader Review of DfM (Liebmann, Mansfield, Wong) 8:30 am to 5:30 pm, \$460 / \$545

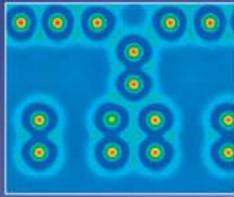
NEW!

SC708 Impact Of Variability On VLSI Circuits (Puri, Gupta) 1:30 to 5:30 pm, \$280 / \$325

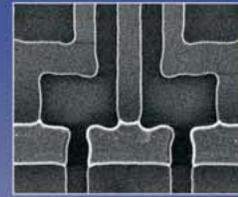
Carl Zeiss Mask Solutions



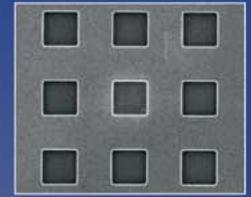
Global CDU Map - quality assessment of total mask area



Printability tests for defect evaluation



Extended defect chrome deposition



High-precision chrome etching



AIMS™ 45-193i



MeRiT™ MG

Carl Zeiss SMT offers unique solutions for your Mask Making Process. The industry-proven AIMS™ technology allows rapid evaluation of mask features, repairs and defects without requiring cost intensive wafer prints followed by CD metrology. The E-beam mask repair tool MeRiT™ MG

meets the requirements for advanced repair for both today's and future generation binary and phase shift masks for all nodes – 65nm and beyond. The combination of mask evaluation and repair technology enables us to safeguard your Mask Making Process.

Enabling the Nano-Age World®

Abeam Technologies

#2000

5286 Dunnigan Ct, Castro Valley, CA, 94546
510/415-6032; fax 510/538-4862
sb@abeamtech.com; www.abeamtech.com

New Product: BEAMETR: E-beam metrology; CHARIOT: CD-SEM, inspection, and EBL; TRAVIT: dry etch simulation.

Abeam Technologies develops software and hardware used in microelectronic industry to optimize micro- and nano-fabrication processes. The company has its headquarters in California, a group of software developers and mathematicians in Russia, representative companies in Japan, Korea and Germany. Contact: Sergey Babin, President.

Aerotech, Inc.

#1002

SPIE Corporate Member

101 Zeta Dr, Pittsburgh, PA, 15238-2897
412/963-7470; fax 412/963-7459
sales@aerotech.com; www.aerotech.com

New Product: ABRIS Series Low Profile, Direct-Drive, Air-Bearing Rotary Stages.

Aerotech manufactures a variety of products, from motors, drives and controllers to fully integrated mechanical and air-bearing stage systems. Our systems and components are used in applications including lithography, high-precision wafer processing, flat-panel display fabrication and laser micromachining. Aerotech also specializes in vacuum applications like reticle manufacturing, direct-write systems and wafer inspection. Contact: John Lindell, Product Manager, Positioning Systems Division, jllindell@aerotech.com.

Air Products and Chemicals, Inc.

#1102

1969 Palomar Oaks Way, Carlsbad, CA, 92011
800/545-9241; fax 610/706-5256
info@airproducts.com; www.airproducts.com/electronics

New Product: OptiYield® CD Developer; OptiPattern® Smooth Surface Conditioner.

Visit with one of our applications team members at the show (Booth 1102) and let us show you how we can drive down your manufacturing costs in existing and future processes. Learn about Air Products advanced photoresist ancillary product line. Our OptiYield® CD developer and OptiPattern® Smooth surface conditioners can significantly lower your cost of ownership and improve yield. While at the booth, find out how you can enter to win an iPod Video! Contact: Steve Rogers, rogerssa@airproducts.com; Manny Jaramillo, jaramim@airproducts.com.

Anchor Semiconductor Inc. #303

1090 Kifer Rd Ste 200, Sunnyvale, CA, 94086
408/720-8600; fax 408/720-8610
www.anchorsemi.com

Founded in 2000, Anchor Semiconductor is the pioneer and technology leader in semiconductor DFM products for controlling layout-to-silicon pattern transfer to bridge the gap between design and manufacturing. With its breakthrough pattern-centric architecture, fast and accurate layout patterning simulation, flexible and powerful pattern analysis, Anchor's NanoScope software is uniquely capable of addressing the layout-to-silicon patterning challenges in both design and manufacturing domains. Contact: Frank Li, Director, Sales, frank.li@anchorsemi.com.

Applied Materials

#703

SPIE Corporate Member

3050 Bowers Ave, Santa Clara, CA, 95050-3298
408/727-5555; fax 408/748-9943
www.appliedmaterials.com

Applied Materials Inc. is the global leader in Nanomanufacturing Technology™ solutions with a broad portfolio of innovative products for the fabrication of semiconductor chips, flat panels and solar cells. At the Advanced Lithography Conference, Applied will feature its portfolio of lithography-enabling solutions, including advanced wafer etch systems, innovative CVD and PVD hardmask technologies, CD-SEM metrology and OPC design qualification solution and industry-leading mask etch technology.



Coffee Break Sponsor

ASML

#413

SPIE Corporate Member

8555 S River Pky, Tempe, AZ, 85284
480/383-4422; fax 480/383-3987
information@asml.com; www.asml.com

ASML is the world's leading provider of lithography systems for the semiconductor industry. The ASML TWINSCAN™ dual-stage lithography system exemplifies our technology leadership. ASML Special Applications focuses on lithography solutions for customers with unique requirements. ASML MaskTools focuses on technological enhancements as well as software development. ASML Optics is an extreme precision optical foundry for the semiconductor and optical manufacturing industries.

ATMI Packaging, Inc.

#904

10851 Louisiana Ave S, Minneapolis, MN, 55438
952/942-0855; fax 952/942-8474

ATMI leads the global semiconductor industry in delivering smart and active materials-delivery solutions. Our NOWPak product line is a liner-based containment and dispensing system that maintains the purity and cleanliness of critical chemicals. Unique chemical key-coding of the closures and connectors ensures chemical misconnect prevention. The nowTRAK system RFID tagging adds inventory visibility, tracking, and control. Our solutions enhance process yields and efficiency, and reduced costs. Contact: Mark Litecky, Director Marketing and Sales, mlitecky@atmi.com; Rick Wilson, Sales, rwilson@atmi.com.



Coffee Break Sponsor

AZ Electronic Materials USA Corp.

#313

SPIE Corporate Member

70 Meister Ave, Somerville, NJ, 08876-3440
908/429-3500; fax 908/429-3631
az-info@az-em.com; www.az-em.com

Industry leader in manufacture of Anti-reflective Coatings, thick film, flat panel and other specialty products. Contact: Kathryn Durham, Director Marketing & Sales Support, kathryn.durham@az-em.com; Brad Williams, National Sales Manager, brad.williams@az-em.com.

Exhibitor Directory

Benchmark Technologies, Inc.

#101

7E Kimball Ln, Lynnfield, MA, 01940
781/246-3303; fax 781/246-0308
info@benchmarktech.com; www.benchmarktech.com

New Product: Double Patterning Assessment Reticle.

Benchmark Technologies is the premier provider of test reticles for all aspects of lithography tool monitoring and characterization, including: monitoring of focus, aberration, polarization, resolution and defects, and matching of overlay from tool to tool. Reticles for double patterning process development are also available. The company also offers turnkey services to supply CAD and fabrication of photomasks, nano-imprint template masters and replicas, and patterned test wafers.

Braggone

#1106

Kaitovayla 1, Oulu, Finland, 90570
358 50 525 6106; fax 358 8 556 2613
info@braggone.com; www.braggone.com

With offices located in Oulu, Finland, and London, Braggone is an innovative technology company focused on the manufacturing of advanced optoelectronic and information electronic materials and components. Braggone's portfolio of materials and processes are utilized to improve performance and facilitate production for various component and system structures. Braggone's capabilities in enhancing its customers' product performance are based on its success in exploiting and effectively processing the linkage between fundamental material development and advanced applications of its clients in fields such as flat panel displays, semiconductor manufacturing, digital cameras, telecommunication optics and photonic crystal materials. Additional information on Braggone can be found at www.braggone.com.

Brewer Science

#613

SPIE Corporate Member
2401 Brewer Dr, Rolla, MO, 65401
573/364-0300; fax 573/364-6880
www.brewerscience.com

New Product: ARC®100-Tunable k; ARC®160-low outgassing; Benchtop processing equipment.

Brewer Science is a technology company providing material and equipment product solutions to the semiconductor, optoelectronic, MEMS and packaging industries. Products include spincoat/develop/bake equipment; bottom anti-reflective coatings (BARC's) tailored for a wide range of applications under the ARC® brand of products; specialty materials for use in litho, wafer thinning/etching and bulk micromachining applications; temporary etch protective and temporary wafer bonding materials. Contact: Rick Miller, Global Sales Manager, rmiller@brewerscience.com; Lindell Widger, Equipment Sales Manager, lwidger@brewerscience.com.

Brion Technologies, Inc.

#423

SPIE Corporate Member
4211 Burton Dr, Santa Clara, CA, 95054
408/653-1500; fax 408/653-1501
info@brion.com; www.brion.com

Brion, the pioneer in Lithography-Driven Design & Manufacturing™ leads the emerging market of optical proximity correction (OPC) verification. Brion's Tachyon products successfully address the compromise between speed and accuracy by chip makers. By inventing a platform that combines both image-based computing and hardware-accelerated co-processing, Brion enables exceptional design and verification accuracy without compromising the speed or productivity of the circuit manufacturing process. Contact: Christian Desplat, Vice President Worldwide Sales, Cdesplat@brion.com.



DPI Panel Sponsor

Cadence Design Systems, Inc.

#520

2655 Seely Ave, San Jose, CA, 95131
408/943-1234
www.cadence.com

Cadence enables global electronic-design innovation and plays an essential role in the creation of today's integrated circuits and electronics systems. Customers use Cadence software and hardware, methodologies and services to design and verify advanced semiconductors, printed-circuit boards and systems used in consumer electronics, networking and telecommunications equipment and computer systems. More information about the company, its products and services is available at www.cadence.com. Contact: Bob Naber, Product Marketing Director, naber@cadence.com.

Carl Zeiss SMT

#909

One Zeiss Dr, Thornwood, NY, 10594
914/747-7700; fax 914/681-7443
info@smt.zeiss.com; www.smt.zeiss.com

Carl Zeiss SMT provides leading-edge, 45nm half-pitch, mask qualification, mask repair and phase metrology measurement tools. AIMS™ is used for actinic mask qualification and allows for fast evaluation of mask features, repairs and defects without the need of wafer prints. MeRiT™ MG ebeam reliably repairs imperfections in the mask structure, via etch or deposit, without damaging the mask substrate. PHAME™ will provide full die or individual phase and transmission measurements. Contact: Jim Polcyn, National Director of Sales, SMS Products, polcyn@smt.zeiss.com.

CMPC Surface Finishes

#1119

SPIE Corporate Member
39 Official Rd, Addison, IL, 60101
630/543-6682; fax 630/543-4013
surf-fin@att.net; www.surfacefinishes.com

New Product: Subaperture Stitching Interferometry Services for your large clear & high numerical aperture needs.

Since 1949, Surface Finishes has been a leader in precision lapping, grinding and optical polishing techniques specializing in flat, cylindrical, perpendicular and parallel surfaces with extremely demanding geometry. These capabilities produce Angstrom level tolerances on components such as: Mirrors for optical imaging and scanning, air bearings, vacuum chucks, optical disc molds, large area reference surfaces and custom gauging. Free engineering advice for your most challenging applications. Contact: David Patterson, Account Manager, david_patterson@cabotcmp.com.

Corning Inc.

#619

SPIE Corporate Member

60 O'Connor Rd, Fairport, NY, 14450
585/388-3500; fax 585/377-6332

optics_info@corning.com; www.corning.com

Corning Incorporated is a premier supplier of advanced optical solutions for the world's leading semiconductor equipment manufacturers. World-class materials and processes, a long heritage in optical design and manufacturing and state of the art metrology enable Corning to keep pace with the toughest optical requirements of today, and the next generation. Contact: Dave Young, youngdj@corning.com; Elijah Baity, baityea@corning.com.

CUNO Inc.

#622

400 Research Pkwy, Meriden, CT, 06450
203/237-5541; fax 203/630-4530

www.cuno.com

CUNO fluid clarification products deliver premium performance for process water treatment, electronics, chemical and photoresist production and CMP slurry distribution. CUNO membrane filters remain the most effective deterrent to contamination in water applications. PTFE membrane and stainless steel media for chemical and gas filtration and 316L stainless steel housings complete a comprehensive range of products for the semiconductor industry. Contact: Chris Tsourides, Director of Marketing for Electronics, catsourides@mmm.com.

CVI Laser LLC

#421

SPIE Corporate Member

200 Dorado Pl SE, Albuquerque, NM, 87123
505/296-9541; fax 505/298-9908

sales@cvilaser.com; www.cvilaser.com

New Product: UV Anamorphic Prism Pairs for beam expansion of elliptically shaped laser beams.

CVI is one of the world's leading manufacturers of optical components and optical mounts, providing engineering, rapid prototype delivery, high volume production and system integration for the most challenging optical requirements. New for 2007, CVI is launching a rapid lens prototyping service with turnaround times of less than 2 weeks for complete parts. Contact: Rich Drake, OEM Sales Manager, rdrake@cvilaser.com; Glen Callahan, OEM Sales Manager, gcallahan@cvilaser.com.

Cyantek Corp.

#805

SPIE Corporate Member

3055 Osgood Ct, Fremont, CA, 94539
510/651-3341; fax 510/651-3398

sales@cyantek.com; www.cyantek.com

Cyantek provides a full line of etchants, developers, organic strippers and mask cleaners. We offer customized blends that can help you address your special process needs, whether for mask manufacturing, IC, thin film or FPD technologies. Our products are used on chrome, iron oxide, silicon dioxide and other specialized substrates. Cyantek's popular Nano-Strip™ product is a stabilized SPM solution used for stripping and cleaning processes. Call us or visit our website for more information. Contact: Dale Deg, Sales & Marketing Manager, daled@cyantek.com.

CyberOptics Semiconductor #306

13555 SW Millikan Way, Beaverton, OR, 97005

503/495-2200; fax 503/495-2201

csinfo@cyberoptics.com; www.cyberopticssemi.com

New Product: Wireless, wafer-like WaferSense Auto Teaching System (ATS) and WaferSense Auto Gapping System (AGS).

CyberOptics Semiconductor designs and manufactures precision products that measure critical parameters in semiconductor processes and equipment. New to the WaferSense product line, WaferSense Auto Teaching System (ATS) uses machine vision technology to "see" inside semiconductor equipment to teach wafer transfer positions. WaferSense Auto Leveling System (ALS), in both wafer and reticle-like form factor, wirelessly measures and captures inclination data to reduce equipment downtime and scrap. Contact: Mark Hannaford, National Sales Manager, mhannaford@cyberoptics.com; Dennis Bonciolini, Vice President of Engineering, dbonciolini@cyberoptics.com.

Breakfast Sponsor, Meter Board Sponsor and Room Keys Sponsor

Cymer, Inc.

#903

17075 Thornmint Ct, San Diego, CA, 92127

858/385-7300; fax 858/385-7100

marketing@cymer.com; www.cymer.com

New Product: XLR 500i-the world's first ArF laser light source for 45nm production immersion photolithography.

Cymer, Inc. is the world's leading supplier of DUV illumination sources, the essential light source for DUV photolithography systems. DUV lithography is a key enabling technology that has allowed the semiconductor industry to meet the exacting specifications and manufacturing requirements for volume production of today's advanced semiconductor chips.

Digital Optics Corp.

#809

SPIE Corporate Member

9815 David Taylor Dr, Charlotte, NC, 28262

704/887-3100; fax 704/887-3101

doc@doc.com; www.doc.com

Digital Optics Corporation, a subsidiary of Tessera Technologies, Inc., is a worldwide leader in micro-optics and integrated micro-optical sub-assembly design for high-performance, small-form factor, optical solutions. Industry-leading capabilities include diffractive, refractive and wafer-level optics. DOC provides solutions for consumer electronics, sensors, semiconductor equipment, IR systems, aerospace/defense, vision systems and more. Contact: Jessica Wargats, Sales Engineer, jwargats@tessera.com; Todd Hudson, Senior Sales Engineer, thudson@tessera.com.

Donaldson Co., Inc.

#725

PO Box 1299, Minneapolis, MN, 55440

952/887-3131

www.donaldson.com

New Product: ChemCore filters - the lightweight alternative to carbon - control ambient acids and bases.

Donaldson manufactures cost-effective filters for AMC control. In addition to protecting chemically amplified resists from amine poisoning, AMC control is critical to the reduction of crystal and silicate formation on reticles and lenses. Products include: ChemCore filters for recirculation systems and terminal diffusers, refillable LITHOGUARD activated carbon filters for tracks & scanners and point-of-use filters for compressed air (CDA) and N2 purge lines. Contact: Dan Lynch, North American Account Manager, dlynch@mail.donaldson.com.

Exhibitor Directory

Dongjin Semichem Co., Ltd. #719

SPIE Corporate Member

625-3 Yodang-ri, Yanggam-Myun, Hwasung-kun, Kyungki-si, South Korea, 445-931

82 31 350 5557; fax 82 31 353 6481

zhum@dongjin.com; www.dongjin.com

We offers high resolution positive photoresists for KrF, ArF and EUV, multi purpose bottom ARC, CMP slurries, colored resists, column spacer, organic insulator designed to meet the requirements of the semiconductor and the flat-panel display industry. Our product line includes thinner, stripper, developer, rinsing solution and etchants. DHA-5000 series developed for ArF lithography are adequate for the immersion lithography without top-coating materials because of its low defectivity level. Contact: Sung-Il Kim, Executive director, sikima@dongjin.com; Jaehyun Kim, Executive director, jaehkim@dongjin.com.

Eastman Chemical Co. #109

PO Box 431, Kingsport, TN, 37662-5075

423/229-5996; fax 423/224-0648

nneal@eastman.com; www.eastman.com

Eastman Chemical Company's EastaPure® Electronic Chemicals, "Be Sure It's Pure", is a leading line of high purity products offered to the semiconductor industry. Stemming from its experience in high purity products Eastman introduces a next generation product used in the removal of contaminants in surface sensitive processes. This novel, proprietary solvent is expected to outperform conventional industry standards in contaminant removal. Contact: Nancy Neal.

Energetiq Technology, Inc. #2009

7 Constitution Way, Woburn, MA, 01801

781/939-0763; fax 781/939-0769

info@energetiq.com; www.energetiq.com

New Product: Electrodeless EUV and DUV light sources.

Energetiq is a developer and manufacturer of short wavelength light sources based on patented electrodeless technology that generates high brightness or high power light in the 1nm to 400nm range with high reliability in a compact package. Applications: EUV Lithography, EUV Metrology and EUV Resist development, Deep UV Cleaning of substrates, DUV-Assisted Etching, DUV Resist treatment; Soft X-Ray Microscopy. Contact: Debbie Gustafson, Vice President Sales and Service, dgustafson@energetiq.com.

Entegris, Inc. #606

3500 Lyman Blvd, Chaska, MN, 55318

952/5563131; fax 952/556-1880

webrequest@entegris.com; www.entegris.com

New Product: IntelliGen® Mini Dispense System; LiquidLens™ UPW System.

Entegris is a global leader in materials integrity management - purifying, protecting and transporting critical materials used in the semiconductor and other high tech industries. Entegris provides solutions that protect photoresist processes, exposure tool optics and reticles from particle and airborne molecular contamination. These solutions chemically filter, purify and condition the environment around critical lithography components, as well as dispense and purify photoresists and coatings. Contact: Raul Ramirez, Liquid Filtration Products, raul_ramirez@entegris.com; Paul Magoon, Dispense Products, paul_magoon@entegris.com.

EV Group Inc. #1107

7700 S River Pkwy, Tempe, AZ, 85284

480/727-9600; fax 480/727-9700

www.evgroup.com

EV Group provides leading-edge wafer processing equipment for MEMS and Microfluidics, Advanced Packaging, Compound Semiconductor/MOEMS, SOI, Power Devices and Nanotechnology applications: Double side mask/bond aligners. Wafer bonders for anodic, silicon fusion, thermo compression and LowTemp plasma bonding. Wafer/mask cleaning systems. Temporary bonders and debonders. Resist processing systems, photoresist spin/spray coaters and developers. Hot embossing and nanoimprinting systems. Contact: Carl Mann, Regional Sales Manager, c.mann@evgroup.com; Thorsten Matthias, Technology Director, t.matthias@evgroup.com.

Foothill Instruments, LLC #806

5011 Jarvis Ave, La Canada, CA, 91011

818/952-5600

sales@foothill-instruments.com; www.foothill-instruments.com

Foothill Instruments manufactures film and wafer thickness metrology solutions for packaging, MEMS, semiconductor and related markets. Our film thickness tools are capable of measuring dielectrics such as SU-8 of thickness greater than 500 microns and layers on difficult Cu substrates. Our wafer thickness products use breakthrough optical technology to enable wafer thickness measurements from 20 - >500 microns. This includes Si, GaAs, SOI and bumped wafers.

FUJIFILM Electronic Materials U.S.A., Inc. #513

80 Circuit Dr, North Kingston, RI, 02852

401/431-2487; fax 401/432-3799

www.fujifilm-ffem.com

New Product: 45nm to 250nm DUV Photoresists, 193 and 248nm TIS2000 Series Photoresist Systems. GAR 7000 and 8000 Series 193nm Photoresists, FAiR Series 193nm immersion and e-beam Photoresists.

GKR 5000 and GKR 6000 DUV photoresist series for 90nm to 150nm dense, semi-dense, isolated line and contact hole applications. GAR 7000, GAR 8000 Series 193nm Photoresists for 50nm to 130nm dense, semi-dense, isolated line and contact hole applications. FAiR Series 193nm photoresists for <45 nm, low defectivity immersion applications. TIS2000 (Thin Imaging Systems) for 193nm and 248nm applications providing superior lithographic performance in back-end, dual damascene and front-end applications with design rules of 65nm to 180nm.

Negative and positive e-Beam resists families for mask making. Durimide®, aqueous developable polyimides. Cleaners, strippers, ancillaries, thin film systems and color filter array materials. Contact: Nancy Greene, Sales Coordinator, Nancy_Greene@fujifilm-ffem.com; Heather Mazjanis, Business Manager, Photoresist Products, Heather_Mazjanis@fujifilm-ffem.com.

Gigaphoton #200

Yokokurashinden 400, Oyama, Toyko, Japan, 323-8558

81 285 28 8410; fax 81 285 28 8439

www.gigaphoton.com

Gudeng Precision Industrial Co., Ltd.

#102

SPIE Corporate Member

No 428 Bade St, Shulin City, Taipei, Taiwan, 238
886 2 2680 0980; fax 886 2 2680 0930
www.gudeng.com.tw

Gudeng Precision Industrial Co. Ltd, founded in 1998, originally specialized in manufacture and design of injection mold and high precision parts. After transfer to focusing on the field of photo lithography, Gudeng becomes one of the largest manufacturers in the world providing the ultra clean photomask shipping/storing carrier and reticle cleaning equipment for PSM and high-end reticles. Products include reticle SMIF pod, photomask case, CDA/N2 purge station/ cabinet and other related parts. Contact: Poshin Lee, Director, Sales Division, poshin@gudeng.com.tw; Larry Liu, Manager, Sales Department, larryliu@gudeng.com.tw.

Hakuto Co., Ltd.

#523

1-13 Shinjuku 1-Chome, Shinjuku Tokyo, Japan, 160-8910
81 3 3225 8910; fax 81 3 3225 9012
kawashima-h@hakuto.co.jp; www.hakuto.co.jp

Halocarbon Products Corp. #1008

PO Box 661, River Edge, NJ, 07661
201/262-8899; fax 201/262-0019
info@halocarbon.com; www.halocarbon.com

Hitachi High Technologies America, Inc.

#401

5100 Franklin Dr, Pleasanton, CA, 94588
925/218-2880; fax 925/218-3230
emdwebsite@hitachi-hta.com; www.hitachi-hta.com

Hitachi High Technologies America (HTA) provides the expertise, reliability and value-added services that our customers have come to expect. HTA products include advanced CD-SEM, Defect Review SEM and Optical Defect Inspection Systems for metrology solutions, Plasma Etchers for metal and advanced material etching that support productivity and yield improvement in your wafer fabrication process. Hitachi's innovative technologies stand apart from the competition and exceed your satisfaction. Contact: Sammy Nozaki, Manager, Business Development, In Line Systems Group, sadatsugu.nozaki@hitachi-hta.com; Jim Cox, Senior Business Development Manager, jim.cox@hitachi-hta.com.

Honeywell Electronic Materials

#509

1349 Moffett Park Dr, Sunnyvale, CA, 94089
408/962-2098; fax 408/980-1430
lance.chapman@honeywell.com; www.electronicmaterials.com

Honeywell Electronic Materials is a leading material supplier to the semiconductor industry developing and manufacturing a broad line of products utilized in the production of integrated circuits. Providing solutions for applications utilizing subtractive or damascene processes, Honeywell offers spin-on glasses, advanced dielectrics, application specific electronic chemicals, PVD targets, thermocouples and packaging solutions for thermal management and electrical interconnect as well as sapphire substrates and custom sapphire fabrications for the optoelectronics industry. For additional information, please visit www.electronicmaterials.com.

HORIBASTEC

#105

9701 Dessau Rd Ste 605, Austin, TX, 78754
512/836-9560; fax 512/836-8054
shi.sale@horiba.com; www.horibastec.com

HORIBA STEC provides instruments for process control, measurement and analysis, featuring mass flow/liquid flow controllers and meters, direct injection vapor controllers, exhaust controllers, particle detection and analysis, thin film inspection, concentration monitors, silica and D.O. monitors, PFC/gas analyzers, plasma characterization, endpoint detection and residual gas analyzers. Contact: Keith Peterson, Regional Sales Manager, keith.peterson@horiba.com.

Inko Industrial Corp.

#1006

SPIE Corporate Member

695 Vaqueros Ave, Sunnyvale, CA, 94085
408/830-1041; fax 408/830-1055
sales@pellicle-inko.com; www.pellicle-inko.com

INKO, a U.S. based company, manufactures a complete line of pellicles for applications ranging from ASIC production, high volume memory production. From broadband to I/G line to 248 nm/193nm DUV lithography. We have the right pellicles for your needs. Contact: Joe Mac, Sales and Customer Service; Sherry Chi, Marketing, sherry@pellicle-inko.com.

Intel

#1125

2200 Mission College Blvd SC2-12, Santa Clara, CA, 95054
408/765-5353; fax 408/765-2518
frank.abboud@intel.com

International Radiation Detectors, Inc.

#908

SPIE Corporate Member

2527 W 237th St Unit A, Torrance, CA, 90505-5243
310/534-3661; fax 310/534-3665
irdinc@earthlink.net; www.ird-inc.com

New Product: Multi-element filtered photodiodes for EUV steppers.

Manufacturer of stable UV, VUV, EUV and soft x-ray photons and electron detectors and associated electronics. Contact: Raj Korde, President, rajkorde@ird-inc.com; Jacob Sprunck, Device Physicist, jsprunck@ird-inc.com.

*DPI Panel Sponsor
DPT Panel Sponsor*

Invarium, Inc.

#307

SPIE Corporate Member

1754 Technology Dr Ste 117, San Jose, CA, 95110
408/213-8000; fax 408/213-8001
mail@invarium.com; www.invarium.com

New Product: Dimension PPC™ is the industry's full-chip process and proximity compensation (PPC) solution.

Dimension PPC™ is aimed at the 65 and 45 nm nodes, Dimension PPC delivers superior CD control and expanded process windows compared to conventional RET/OPC tools. The correct-by-construction technology in Dimension PPC also greatly reduces RET/OPC development and tapeout cycle times, eliminates the need for independent OPC verification, and substantially cuts the total RET/OPC cost of ownership. Contact: Ram Ramanujam, SVP, Marketing, ram.ramanujam@invarium.com; Wolf Staud, Director, Marketing, mail@invarium.com.

Exhibitor Directory

J.A. Woollam Co.

#907

645 M St Ste 102, Lincoln, NE, 68508-2243
402/477-7501; fax 402/477-8214
sales@jawoollam.com; www.jawoollam.com

J. A. Woollam Company offers a wide range of spectroscopic ellipsometers for nondestructive materials characterization, including thin film thickness (single and multilayer), optical constants, composition, growth/etch rates and more. Instruments available for research and manufacturing metrology covering spectral ranges from vacuum ultra-violet to far infrared. Offering table-top, in-line and in-situ models. Contact: James Hilfiker, Applications Engineer.

JCMwave GmbH

#1004

Haarer Str 14a, Putzbrunn, Germany, 85640
49 89 460 6568; fax 49 89 460 5925
info@jcmwave.com; www.jcmwave.com

New Product: JCMwave - Rigorous simulation tools for advanced lithography.

JCMwave offers software for precise and fast electromagnetic simulations. Application areas include DUV and EUV lithography, optical metrology, surface plasmons, resonance phenomena, meta-materials, photonic crystals and others. In lithography simulation benchmarks with competing methods JCMwave's products were superior in accuracy and speed by orders of magnitude. JCMwave is a spin-off company from Zuse Institute Berlin, a leading research institute for applied mathematics. Contact: Sven Burger.

 **Coffee Break Sponsor**

JSR Micro, Inc.

#713

SPIE Corporate Member

1280 N Mathilda Ave, Sunnyvale, CA, 95054
408/543-8800; fax 408/543-8999
www.jsrmicro.com

JSR Micro, Inc. is an innovation company that designs and manufactures materials for the leading IC manufacturers. JSR Micro produces high performance CMP consumables including pads and slurries and advanced photoresists. JSR Micro is also a pioneer in spin-on low-k dielectric materials. JSR CMP pads contain uniformly dispersed WSP Compound™ and JSR CMP slurries contain Soft•brasive™ technology for superior polishing performance. Contact: Debbie Stiewing, Assistant to the Vice President, dstiewing@jsrmicro.com.

King Industries, Inc.

#625

Science Rd, Norwalk, CT, 06850
203/866-5551; fax 203/866-1268
smg@kingindustries.com; www.kingindustries.com

KLA-Tencor Corp.

#1013

SPIE Corporate Member

160 Rio Robles, San Jose, CA, 95134
408/875-3000; fax 408/875-3030
info@kla-tencor.com; www.kla-tencor.com

KLA-Tencor Corporation is the world's leading supplier of inspection, measurement products and solutions used for advanced process control and yield management in the semiconductor, photomask manufacturing and related industries. The company's comprehensive portfolio of tools, software, analysis, services and expertise is designed to help customers optimize yield throughout the entire process—from R&D to final yield analysis in production.

Laser Focus World

#1005

SPIE Corporate Member

98 Spit Brook Rd, Nashua, NH, 03062-5737
603/891-0123; fax 603/891-0574
www.laserfocusworld.com

Laser Focus World is a monthly magazine for engineers, researchers, scientists and technical professionals providing comprehensive global coverage of optoelectronic technologies, applications and markets. The magazine reports on and analyzes the latest developments and significant trends in both technology and business in the worldwide optoelectronics and photonics industry.

Lasertec U.S.A., Inc.

#206

SPIE Corporate Member

2025 Gateway Pl Ste 480, San Jose, CA, 95110
408/437-1441; fax 408/437-1430
www.lasertec.co.jp

New Product: Photomask Inspection System "MATRICS" Series.

Photomask Inspection System: MATRICS Series, Pellicle/Photomask Particle Inspection System: PEGSIS P100, EUVL Maskblank Inspection System: M7360, Maskblanks Inspection System: M3320, Mask Process Monitoring System: M2351, Wafer Review/Inspection System: M5350, Phase-Shift Measurement System: MPM193/248. Contact: JJ Yeh, Sales Manager, jyeh@Lasertecus.com; Ji Lee, Sales and Business development, Jlee@Lasertecus.com.

LINOS Photonics, Inc.

#305

SPIE Corporate Member

459 Fortune Blvd, Milford, MA, 01757
508/478-6200; fax 508/478-5980
info@linos.com; www.linos-photonics.com

New Product: Precision optics and coatings for UV applications.

LINOS offers an industry-leading selection of optical components, opto-mechanical and opto-electronic devices - over 4,000 standard products plus thousands of custom devices. Products include lenses, mirrors, beamsplitters, filters, prisms, polarizers, laser optics, beam expanders, CCD and machine vision lenses, positioning systems, fiber optic components, laser modulators, Pockels cells, Faraday isolators, x-ray imaging lenses and cw Optical Parametric Oscillator. Contact: David J. Butler, Business Unit Support Manager, david.butler@linos.com

Media Lario Technologies

#624

Localita' Pascolo, Bosisio Parini, Italy, I-23842
39 31 867 111; fax 39 31 876 595
info@media-lario.com; www.media-lario.com

New Product: High-precision reflective optical components & systems with thermal management.

Media-Lario Technologies is a supplier of EUV Collector optics, offering optical design, thin film expertise, integrated thermal management and cost-effective electroforming manufacturing technology. With the drive toward lower wavelengths in Semiconductor and FPD manufacturing, MLT is well positioned to serve these demanding applications for high-thermal load laser and flash lamp annealing as well as inspection and metrology with its fleet of thermally managed reflective optics offerings. Contact: Ahmad Kermani, Vice President Customer Operations, ahmad.kermani@media-lario.com.

Lanyard Sponsor
Poster Reception Sponsor

Mentor Graphics

#213

SPIE Corporate Member

8005 SW Boeckman Rd, Wilsonville, OR, 97070-7777
503/685-7000; fax 503/685-1521
www.mentor.com

Mentor Graphics Calibre Design to Silicon Platform. In a continuing tradition of delivering advanced technology, the Calibre platform of integrated tools efficiently and accurately manages every facet of the design-to-silicon transition and the complexities of the nanometer era. Recognized worldwide as the industry standard and market leader, the Calibre platform includes physical verification, parasitic extraction, design-for-manufacturability, resolution enhancement technologies and mask data preparation.

Plenary Sponsor

Mercury Computer Systems, Inc.

#722

199 Riverneck Rd, Chelmsford, MA, 01824
866/627-6951; fax 978/256-0852
webinfo@mc.com; www.mc.com

Mercury Computer Systems is a leading provider of high-performance, real-time digital signal, image and data processing solutions. The Company's multi-processor systems have long been used to process real-time radar, sonar and signals intelligence data for the military. Mercury's advanced multi-core computing systems are now used in state-of-the-art semiconductor applications including lithography, photomask generation, RET, OPC, wafer inspection, defect classification and metrology. Contact: James McKibben, Director Business Development, jmckibbe@mc.com.

MetroBoost

#208

1750 Halford Ave Ste 218, Santa Clara, CA, 95051
408/243-1067; fax 408/516-9435
info@metroboost.com; www.metroboost.com

New Product: MetroChip - Microscope Calibration Target - 20mm x 20mm x 0.75mm.

MetroBoost provides calibration wafers and analysis software for metrology and lithography in semiconductor manufacturing. Products include 200-mm and 300-mm MetroCal patterned wafers for calibration and periodic monitoring of critical dimension metrology tools and Overlay Booster, an overlay analysis software package for control and optimization of scanner and stepper lithography tools. Contact: Farid Askary, President, farid.askary@metroboost.com.

Metrosol, Inc.

#308

SPIE Corporate Member

2101 Donley Dr #101, Austin, TX, 78758
512/833-8750; fax 512/833-8767
info@metrosol.com; www.metrosol.com

New Product: SHORTY ES series short wavelength optical metrology systems.

Ultra-thin film characterization via the only commercially available systems that measure in the VUV down to 120 nm—providing increased sensitivity and crucial measurement data not observable at longer wavelengths. Decouple thickness, composition and other parameter information. Applications include: Fast and ultra-sensitive characterization of contamination on lenses, windows and in immersion fluids. Improved accuracy and sensitivity for optical properties at 193 nm, 157 nm and below. Contact: Bill Stueve, Vice President Sales/Marketing, bill.stueve@metrosol.com; Henry Yeung, Business Development Manager, henry.yeung@metrosol.com.

General Refreshment Sponsor

Micro Lithography Inc.

#927

1257 Elko Dr, Sunnyvale, CA, 94089-2211
408/747-1769; fax 408/747-1978
www.mliusa.com

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 mid (g-line, i-line) to deep UV (193 nm, 248 nm). Frames are available in over 500 different sizes. We supply pellicles for LCD masks. We can custom make anti-reflective coating (ARC) solutions for your photolithographic needs. Contact: Corbin Imai, Sales Representative, zysancorporation@aol.com; Dick Whitaker, Sales Representative, rwhit0007@aol.com.

MicroChem Corp.

#802

1254 Chestnut St, Newton, MA, 02464-1418
617/965-5511; fax 617/965-5818
www.microchem.com

Microlithography World

#724

98 Spit Brook Rd, Nashua, NH, 03062-5737
603/891-9253; fax 603/891-9290
www.mliusa.com

Microlithography World is the only publication exclusively focused on the widely diversified Advanced Lithography Industry. *Microlithography* is a quarterly publication of *Solid State Technology*. Contact: Marc Levenson, Editor-in-Chief, marcl@pennwell.com.

Micronic Laser Systems AB #426

SPIE Corporate Member

Nytorpsvaqen 9, PO Box 3141, Taby, Sweden, S-183 03
46 8638 5200; fax 46 8638 5290
info@micronic.se; www.micronic.se

Micronic provides semiconductor mask pattern generators ranging from half-micron technology down to the 45nm technology node. The Sigma7000 series uses Micronic's unique writing strategy based on spatial light modulator (SLM) technology to meet 90-45nm technology requirements including advanced PSM applications. Micronic's Omega6000 product line is based on multi-beam laser scanning. It is designed for cost-effective volume production of semiconductor photomasks down to the 130nm technology node. Contact: Don Miller, Director Sales, don.miller@micronic-us.com.

Mitsui Chemicals America, Inc.

#2008

2099 Gateway Pl Ste 260, San Jose, CA, 95110
408/487-2889; fax 408/453-0684
www.mitsuichemicals.com

New Product: Mitsui Photomask Pellicle.

Since 1986, Mitsui has been the industry leader in providing pellicles to the semiconductor industry. Mitsui's ISO 9001 certified full-automated plant produces Mitsui Pellicle, which transmits more than 99% of exposed light with excellent uniformity and longevity. Mitsui Pellicle, manufactured by rigorous selection of all materials and with 15 years accumulated expertise of non-dust structure, contributes to maximum production yields by eliminating pellicle related particle generations. Contact: Masanari Kitajima, General Manager, m.kitajima@mitsuichem.com.

Exhibitor Directory

Molecular Imprints, Inc.

#506

SPIE Corporate Member

1807-C W Baker Ln Ste 100, Austin, TX, 78726
512/339-7760; fax 512/339-3799
info@molecularimprints.com; www.molecularimprints.com

Molecular Imprints, Inc. (MI) is a global developer and manufacturer of nano-lithography systems for high resolution and for 3-dimensional pattern replication. Contact: John Doering, sales@molecularimprints.com.

n&k Technology, Inc.

#1026

4051 Burton Dr, Santa Clara, CA, 95054-1585
408/850-7300; fax 408/850-7350
sales@nandk.com; www.nandk.com

n&k Technology, Inc., of Santa Clara, California, manufactures advanced metrology tools for semiconductor, photomask, flat panel display and data storage industries. The company's high resolution optical metrology equipment are used for film thickness, n and k, phase shift, trench depth, CD and profile measurements. Contact: Allan Deyto, Account Manager, adeyto@nandk.com.

Nanometrics Inc.

#113

1550 Buckeye Dr, Milpitas, CA, 95035
408/435-9600; fax 408/232-5910
sales@nanometrics.com; www.nanometrics.com

Supplier of advanced integrated and standalone metrology equipment. Core products include film analysis (using broadband reflectometry and spectroscopic ellipsometry), optical CD (linewidth/profiling) measurement, overlay metrology systems for CMP, CVD, etch and lithography process monitoring. Nanometrics also offers advanced lattice metrology systems for specialized processes using strained silicon, SOI or epitaxial layers for high performance logic, optoelectronics and LED manufacturing.

Nanonex Corp.

#427

1 Deer Park Dr Ste O, Monmouth Junction, NJ, 08852
732/355-1600; fax 732/355-1608
sales@nanonex.com; www.nanonex.com

New Product: NXB100, NXB200, Ultra-100.

Nanonex NIL solution offers low-cost, high-throughput, large-area patterning of 3D nanostructures with sub-10 nm resolution and accurate overlay alignment. It also includes all forms of nanoimprinting, such as thermoplastic, uv-curable, thermal curable and direct imprinting (embossing). The Nanonex NIL solution can meet the needs of a broad spectrum of markets, such as optical devices, displays, data storage, biotech, semiconductor ICs, chemical synthesis and advanced materials. Contact: Larry Koecher, Chief Operating Officer, lkoecher@nanonex.com; John Pong, Sales Director, jpong@nanonex.com.

National Institute of Standards & Technology

#720

MS 8101, 100 Bureau Dr, Gaithersburg, MD, 20899
301/975-4000; fax 301/975-6513
nsmp@nist.gov

Founded in 1901, NIST is a non-regulatory federal agency within the U.S. Commerce Department's Technology Administration. NIST's mission is to promote U.S. innovation and industrial competitiveness by advancing measurement science, standards and technology in ways that enhance economic security and improve our quality of life. NIST has an operating budget of about \$858 million and operates in two locations: Gaithersburg, MD, and Boulder, CO. Contact: Stephen Knight, Director, Office of Microelectronics Programs, stephen.knight@nist.gov; Jack Martinez, Senior Scientist, Office of Microelectronics Programs, jack.martinez@nist.gov.

New Focus, Inc.

#618

SPIE Corporate Member

2584 Junction Ave, San Jose, CA, 95134
408/919-1500; fax 408/919-6083
sales@newfocus.com; www.newfocus.com

New Focus™, a leader in the design and manufacture of photonics components and subsystems, offers an extensive line of lasers, optomechanics, detectors and high-resolution actuators. Additionally, we engineer and manufacture integrated solutions for precision beam delivery and metrology applications. Designed for the demands of semiconductor industry, products are assembled in class 100 environments with materials qualified for use in DUV and EUV applications. Contact: contact@newfocus.com.

Nikon Precision Inc.

#601

SPIE Corporate Member

1399 Shoreway Rd, Belmont, CA, 94002-4105
650/508-4674; fax 650/508-4600
npcicom@nikon.com; www.nikon.com

New Product: NSR-SF150: A scan field i-line stepper with ultra high throughput and low cost of ownership.

Nikon Corporation is a worldwide leader in lithography equipment with more than 7,800 exposure systems installed worldwide. Nikon offers an extensive selection of production-class steppers and scanners that serve the microelectronics manufacturing industry. Nikon Precision provides service, training, technical support and sales and marketing for Nikon equipment in North America.

OBDUKAT AB

#924

PO Box 580, Malmoe, Sweden, 201 25
46 40 36 2100; fax 46 40 36 21 60
info@obducat.com; www.obducat.com

New Product: Nanoimprint lithography for high volume mass production (HVM).

Obducat is the leading supplier of lithography solutions for production and replication of advanced micro- and nano structures for mass replication as well as for R&D purposes. Our Nanoimprint lithography tools are used in a variety of applications including: Storage media, photonic devices, sensors, MEMS/NEMS and Bio-Medical devices and semiconductors. Obducat's Electron Beam Lithography Systems employ a unique radial stage well suited for information storage applications. Contact: Kenneth Mason, Business Development Manager North America, ken.mason@obducat.com; Obducat Sales Department, obducatsales@obducat.com.

Olympus Micro Imaging

#209

One Corporate Dr, Orangeburg, NY, 10962
866/642-4725; fax 800/233-0697
sales@olympusindustrial.com; www.olympusindustrial.com

Olympus Industrial now provides seamless integration of digital imaging solutions using the Discover series of digital cameras and image analysis software. In addition, Olympus continues to provide its world-class line of materials research microscopes as well as a new selection of metrology tools that provide three dimension measurements. Olympus continues to strive to be the premier supplier of optical imaging and metrology tools for the material industry. Contact: Matt Smith, Director of Micro Imaging Marketing, matt.smith@olympusindustrial.com; Joel Young, Vice President Sales Micro Imaging Division, joel.young@olympusindustrial.com.

OnWafer Technologies, Inc. #204

5627 Gibraltar Dr Ste 200, Pleasanton, CA, 94588
925/416-3100; fax 925/416-3101
sales@onwafer.com; www.onwafer.com

OnWafer Technologies is the pioneer and global leader of Process Zone Control segment within the Metrology market. Applications currently target photolithography and plasma etch processes and will ultimately extend to a broad range of mission-critical process technologies. OnWafer's "mobil metrology" solutions feature wireless, wafer-based sensors, software and optimization programs to monitor, measure and dynamically tune process results. Founded in 2000. Privately owned. Contact: info@onwafer.com.

ORC Manufacturing Co., Ltd. #620

17835 Sky Park Cir Ste B, Irvine, CA, 92614
949/852-1551; fax 949/852-1665
oac.sales@oac-orc.com; www.orc.co.jp

New Product: Excimer Lamps. Stepper Lamps.

ORC has been "supplying industry with light" for over half a century as a manufacturer of specialized light sources and equipment. Our leading edge optoelectronics technologies, products and systems play major roles in the fields of semiconductor, nanotechnology, liquid crystal display and printed circuitry. ORC also manufactures power supplies, integration units, irradiance meters, lamp houses and complete sub-assemblies for various UV applications. Contact: Neil Nakao, General Manager, neil.nakao@oac-orc.com.

Osram Sylvania Inc. #902

Display Optics Div., 100 Endicott St, Danvers, MA, 01923
978/777-1900; fax 978/750-2089
www.sylvania.com

OSRAM's product range for the Semiconductor industry includes low wattage Mercury and Xenon short arc lamps for mask alignment, wafer inspection and microscopy. High wattage Mercury short arc lamps (i-line and g-line) for most Lithography tools used in the Semiconductor industry. High wattage Mercury/Xenon lamps for LCD and PCB manufacturing. Infrared halogen lamps 200-3000 watts for annealing, surface treatment and process heating (RTP). Contact: David Dorman, Product Marketing Manager, Semiconductor, david.dorman@sylvania.com.

Pall Corp. #207

2200 Northern Blvd, East Hills, NY, 11548
516/484-5400; fax 516/625-3610
microelectronics@pall.com; www.pall.com

New Product: 0.04um Asymmetric P-Nylon filter: Low pressure drop for higher viscosity applications.

Pall Microelectronics provides a complete line of filtration/ purification products for lithography applications. The PhotoKleen EZD-3L assembly is designed for the latest generation photoresist dispense systems by providing safe and simple filter change-outs. The Asymmetric P-Nylon filter provides proven 193nm and BARC defect reducing performance. Contact: Michael Mesawich, Vice President Marketing, michael_mesawich@pall.com; Don Stevens Jr., Vice President Sales, DSJ@pall.com.

Particle Measuring Systems #807

5475 Airport Blvd, Boulder, CO, 80301
800/238-1801; fax 303/546-7331
marketing@pmeasuring.com; www.pmeasuring.com

New Product: AirSentry II Gas Analyzer.

Detect optical contamination before costly damage occurs. Contact: Ed Terrell, Sales Manager, eterrell@pmeasuring.com.

Photonics Spectra #408

Berkshire Common, 2 South St, Pittsfield, MA, 01201
413/499-0514; fax 413/442-3180
photonics@laurin.com; www.photonics.com

Photonics Spectra is the leading photonics magazine serving industries that use photonic technology: Lasers, imaging, fiber optics, optics, electro-optics and photonic component manufacturing. It presents the latest news articles and in-depth reports on photonics technology. It is distributed free to those who use or apply photonics. Contact: Ron Sherwood, Regional Manager, advertising@photonicsgroup.com; Nancy Lamontagne, Managing Editor, editorial@photonicsgroup.com.

Photronics, Inc. #202

15 Secor Rd, Brookfield, CT, 06804-3972
203/775-9000; fax 203/740-5618
www.photronics.com

Photronics is a leading worldwide manufacturer of photomasks and reticles for use in the manufacture of semiconductors, flat panel displays, and other types of electrical and optical components. Photronics services its customers at strategically located manufacturing facilities in Asia, Europe, and North America. Additional information on the Company can be accessed at www.photronics.com. Contact: Mike McCarthy, VP, Investor Relations and Communications, mmccarthy@brk.photronics.com.

Pixier Technology Ltd. #1109

44 Maale Camon, Karmiel, Israel, 21613
972 4 908 8600; fax 972 4 908 8666
www.pixertech.com

New Product: CDC101 -on-the-fly high-resolution Critical Dimensions Control for mask makers and IC Manufacturers.

Pixier is a supplier of semiconductor capital equipment, focusing on innovative solutions that improve IC manufacturers and mask makers overall yield. It provides both with solutions to correct, improve and selectively optimize the photolithography masks that are used to imprint an IC design onto wafers in the manufacturing process. Pixier develops and manufactures highly integrated systems based on its innovative optical laser technologies. The company is based in Karmiel, Israel. Contact: Gidi Gottlieb, Director of Marketing, gidi@pixertech.com; Bill Turnquist, Vice President Sales, bill@pixertech.com.

Pozzetta Products, Inc. #407

3219 S Platte River Dr, Englewood, CO, 80110
303/783-3161; fax 303/761-8625
www.pozzetta.com

New Product: Several new products & services designed to protect against particles, ESD, outgassing & high costs.

Companies around the world trust Pozzetta to create secure environments for the handling, storage and transport of photomasks and wafers. Pozzetta will protect your valuable products from particles, ESD damage, outgassed components and high costs. Contact: Scott Reese, Sales - US, scott.reese@pozzetta.com; Natalie Marshall, Sales - UK & Europe, natalie.marshall@pozzetta.com.

Exhibitor Directory

Queensgate Instruments Ltd.

#1103

Woodland Rd, Torquay, United Kingdom, TQ2 7QY
44 1803 407865; fax 44 1803 407699
info@nanopositioning.com; www.nanopositioning.com

New Product: SPNS 1100 is a single channel, high performance linear displacement measurement system.

We provide nanopositioning and sensing solutions for high technology industries. Over 70% of sales are custom designs of performance critical components for multi-national corporations based in the USA, Europe and Japan. Products include flexure guided nano mechanisms, open and closed loop stages, capacitance position sensors and interferometers for metrology applications. Mechanical engineering and nanotechnology. Contact: Robert Ching, Sales Director, rching@sifam.com; David Daymond, Sales Coordinator, ddaymond@sifam.com.

Raith USA, Inc.

#507

2805 Veterans Hwy Ste 23, Ronkonkoma, NY, 11779
631/738-9500; fax 631/738-2055
ebeam@raithusa.com; www.raithusa.com

New Product: The unique ionLINE will produce exciting results for nanolithography, fabrication and engineering.

Raith offers a variety of lithography products for research and development. These products range from attachments for SEMs and FIBs to complete turnkey systems with full wafer and mask handling capabilities. We offer a range of Electron Beam Lithography systems as well as our new ionLINE Ion Beam Lithography system. Raith celebrated our 25th year in 2005 with worldwide operations and over 700 installations. Our products are designed and built with expert engineering in Dortmund, Germany. Contact: Brian Whitehead, Sales Engineer, bw@raithusa.com.

RAVE LLC

#220

SPIE Corporate Member

430 S Congress Ave Ste 7, Delray Beach, FL, 33445
561/330-0411; fax 561/330-0647
www.ravenano.com

New Product: RAVE LLC manufactures and distributes defect repair systems for all photomask types.

The nm450 Photomask Repair System employs proprietary nanomachining technology, providing advanced photomask defect repair in support of the ITRS 45nm node and beyond. Unique applications include precision removal of Quartz and "Soft" contaminant defects, plus the precise removal of EUV, MoSi, Binary Chrome and Carbon Patch Defects. The fp650 Photomask Femtosecond Laser Repair System provides the optimum combination of leading edge design rule support, through pellicle repair, large and small area image reconstruction and low cost of ownership mask repair. Contact: David Lee, David.Lee@ravenano.com.

Renishaw Inc.

#1009

5277 Trillium Blvd, Hoffman Estates, IL, 60192
847/286-9953; fax 847/286-9974
usa@renishaw.com; www.renishaw.com

New Product: New fiber-launched high stability RLE20 differential laser interferometer feedback system.

Renishaw's range of precision optical, magnetic and laser encoders are famous for their innovative design, high accuracy, high speed and reliability and have become the established choice for many industrial applications. Contact: Howard Salt, Business Manager Encoder Systems, Howard.Salt@Renishaw.com; Jeff Selega, Marketing Manager, Jeffrey.Seliga@Renishaw.com.

Rohm and Haas Electronic Materials

#501

Microelectronic Technologies, 455 Forest St, Marlboro, MA, 01752-3902
800/832-6200; fax 508/480-0853
www.rohmhaas.com

Rohm and Haas Electronic Materials is a global technology leader focused on the semiconductor manufacturing, circuit board and advanced packaging industries; our products and technologies are integral elements in electronic devices. Our Microelectronic Technologies products include g-Line, i-Line, DUV and 193 nm photoresists, anti-reflectants, developers, electroplating chemistries, advanced removers and Metalorganics that drive advances in lithography and device performance. Contact: Raj Saini, Sales Administration, rsaini@rohmhaas.com.

RSoft Design Group, Inc.

#718

SPIE Corporate Member

400 Executive Blvd Ste 100, Ossining, NY, 10562
914/923-2164; fax 914/923-2169
info@rsoftdesign.com; www.rsoftinc.com

New Product: DiffractMOD 2.0.

RSoft is the worldwide leader in photonics design automation software and serves several industries including optical communication, optoelectronics and semiconductor manufacturing. Within optical communications, RSoft is the only company to provide a full range of design, optimization and planning tools. RSoft also provides award-winning design tools for optoelectronics components and subsystems as well as advanced electromagnetic modeling software for optical metrology and lithography. Contact: Zhengyu Huang, Vice President Sales and Business Development, zhengyu@Rsoftdesign.com; Carl Klinges, Sales Manager, carl@rsoftdesign.com.

Rudolph Technologies

#519

One Rudolph Rd, Flanders, NJ, 07836
973/691-1300; fax 973/691-4863
info@rudolph.com; www.rudolphtech.com

A worldwide leader in the design, development, manufacture and support of high-performance process control metrology, defect inspection and data analysis systems used by semiconductor device manufacturers, Rudolph provides a full-fab solution through its families of proprietary products that provide critical yield-enhancing information, enabling microelectronic device manufacturers to drive down costs.

SAES Pure Gas, Inc.

#222

4175 Santa Fe Rd, San Luis Obispo, CA, 93401
805/541-9299; fax 805/541-9399
spg@saes-group.com; www.puregastechologies.com

New Product: Introducing our new MicroTorr line. New sizes and capabilities for point of use gas purification.

SAES Pure Gas, Inc., a member of the SAES Getters Group, is the world leader in gas purification technology. The SAES Pure Gas MicroTorr and MonoTorr Point of Use purifiers are offered in a wide range of sizes to meet individual flow and purity requirements. SAES Pure Gas purifiers are engineered for simplified installation, maintenance-free operation and have the backing of over 60 years of expertise in getter technologies by the SAES Getters Group. Contact: Greg Perry, Inside Sales, greg_perry@saes-group.com.

Sagantec

#1108

46485 Landing Pkwy, Fremont, CA, 94539
510/360-5200; fax 510/360-5255
info@sagantec.com; www.sagantec.com

DFM-Fix™ corrects IC physical design and optimizes it for the best lithography performance and manufacturing yield. With its silicon-proven layout optimization technology, Sagantec tools accelerate convergence between design and manufacturing providing the fastest path to 65nm, 45nm and 32nm implementation. Sagantec products enable physical design reuse, improved manufacturability and yield of both digital and mixed-signal designs in advanced technology nodes. Contact: Richard Gary, Vice President Sales, richardg@sagantec.com; Alok Mehrotra, Country Manager Asia-Pacific Sales, alok@sagantec.com.

SAGEM SA

#107

Avenue de la Tour Maury, St. Pierre du Perray, France, F-91280
33 1 69 89 72 00; fax 33 1 69 89 72 20
www.sagem.com

Semiconductor International Magazine

#524

2000 Clearwater Dr, Oak Brook, IL, 60516
630/288-8000; fax 630/288-8586
sisales@reedbusiness.com; www.semiconductor.net

Semiconductor International is the world's leading trade publication serving the semiconductor manufacturing industry. Print and digital editions reach 42,500 qualified buyers of semiconductor manufacturing equipment and materials around the world. Additional products include *Semiconductor Packaging*, *SemiSource*, *Semiconductor International Product Showcase*, *Semiconductor International Japan*, *Semiconductor International China*, electronic newsletters and the website, www.semiconductor.net. Contact: John Bold, Publisher, jbold@reedbusiness.com; Pete Singer, Editor-in-Chief, sieditor@aol.com.

SensArray Corp.

#607

5451 Patrick Henry Dr, Santa Clara, CA, 95054-1167
408/986-5600; fax 408/986-5601
info@sensarray.com; www.sensarray.com

New Product: The newest generation of Integral Wafer.

SensArray is the leading provider of wafer level process metrology for semiconductor manufacturing. SensArray products acquire, display and utilize actual process response data to monitor, control, diagnose and optimize processes for the IC and photomask manufacturing. Utilizing SensArray solutions benefit with increased performance and improve control of critical parameters during semiconductor manufacturing processes. Our mission is for you to know the truth about your process.

Poster Reception Sponsor

Shin-Etsu MicroSi, Inc.

#1113

10028 S 51st St, Phoenix, AZ, 85044-5203
480/893-8898; fax 408/893-8637
info@microsi.com; www.microsi.com

Shin-Etsu MicroSi, Inc., together with our parent company Shin-Etsu Chemical Co., Ltd. represents world-class leadership in the development and manufacture of specialty materials for the semiconductor industries. Our product lines are specifically designed to address today's photolithography and packaging requirements. Contact: Edwin Nichols, Product Marketing Manager, enichols@microsi.com.

Sokudo USA, LLC

#821

3303 Scott Blvd M/S 10856, Santa Clara, CA, 95052
408/496-8053; fax 408/496-8095
www.sokudo.com

SOKUDO Co., Ltd. is a joint venture company established between Dainippon Screen Mfg. Co., Ltd., and Applied Materials, Inc., for the advancement of semiconductor coat/develop track equipment.

The word "SOKUDO" in Japanese translates as "SPEED" in English. True to our company name, our goal is to become our customer's coat/develop track supplier of choice through accelerated product development.

Solid State Technology

#724

98 Spit Brook, Rd, Nashua, NH, 03062
603/891-9253; fax 603/891-9290
www.solid-state.com

Solid State Technology, in its 50th year of publication, provides leading coverage online and in print of the latest process, equipment and materials technologies for the worldwide semiconductor manufacturing industry. Our mission is to spark ideas within our readers, as well as provide them with innovative solutions for the ever-changing semiconductor marketplace. Our expanded, media-rich Solid State Technology International Media Network. For more information visit www.solid-state.com. Contact: Paul Weingartner, Regional Sales Manager, paulw@pennwell.com; Kristine Collins, Regional Sales Manager, kristinec@pennwell.com.

Exhibitor Directory

SPIE Industry Resources #100

PO Box 10, Bellingham, WA, 98227
360/676-3290; fax 360/647-1445
<http://spie.org>

SPIE provides valuable resources to industry that support your marketing, R&D, training and recruiting efforts. For example, exhibitions, advertising and sponsorships increase visibility of your organization and help you educate the market about your offerings. Access to scientific and engineering information published in the SPIE Digital Library and on the SPIE Newsroom help your R&D team to discover the innovations and breakthroughs that lead to successful new products. Leadership in this fast-evolving, knowledge-driven environment requires continuous learning and education of technical staff to retain your competitive advantage, making SPIE In-Company Training invaluable. And when growth drives demand for new skilled employees, the SPIEWorks job site is the place to find the specialized talent you want to hire.

Star Tech Instruments #1003

SPIE Corporate Member
203/312-0767

info@startechinst.com; www.startechinst.com

Star Tech Instruments manufactures energy probes and imaging sensors for the XUV and DUV spectral range. Contact: W. Fricke, tatzen@att.net.

Steinmeyer, Inc. #1105

217 Middlesex Tpke, Burlington, MA, 01803
781/273-6220; fax 781/273-6602
www.steinmeyer.com

Steinmeyer has been manufacturing precision ball screws since 1965 and has established a global reputation for reliability and performance. At Steinmeyer, we're also dedicated to the design and engineering of precision linear and rotary stages. These compact products are manufactured by our FMD division, located in Dresden and boast some of the lowest runout accuracies available. To paraphrase our motto we would like to "welcome you to where precision is"!

Sumika Electronic Materials, Inc./Sumitomo Chemicals Co. Ltd. #400

3832 E Watkins St, Phoenix, AZ, 85034
602/659-2500; fax 602/438-2277

customerservice@sumikamaterials.com; www.sumikamaterials.com
Sumika Electronic Materials, a U.S. subsidiary of Sumitomo Chemical Company Ltd., is a leading supplier of advanced photoresists, EBR solvents, post CMP cleaners and Aluminum targets. Sumitomo lithography related products include leading edge 193nm, 248nm, i-line and e-beam photoresists designed exclusively to meet customer specific applications.

SUSS MicroTec Inc. #824

228 Suss Dr, Waterbury Center, VT, 05677
802/244-5181; fax 802/560-0001
info@suss.com; www.suss.com

SUSS MicroTec is a global supplier of production and test equipment for markets including Advanced Packaging, MEMS, Nanotechnology, Compound Semiconductor, Silicon-On-Insulator and 3D Interconnect. Producers of Mask Aligners, Spin & Spray Coaters, Wafer & Device Bonders as well as Test Systems. Our commitment to superior performance, cost effective solutions and high levels of customization have made SUSS equipment both market and technology leaders throughout the world. Contact: Carol Menard, Marketing Specialist, cmenard@suss.com; Louise Jones, Marketing Specialist, ljones@suss.com.

 **DPT Panel Sponsor**
Show Bag Sponsor

Synopsys, Inc. #813

SPIE Corporate Member

700 E Middlefield Rd, Mountain View, CA, 94043-4024
650/584-5000; fax 650/584-1996

info@synopsys.com; www.synopsys.com

Synopsys offers the most comprehensive Design for Manufacturing (DFM) solution for current and advanced technology nodes enabling customers to reach 45nm and beyond. Our Manufacturing Yield Management solutions extend into the fab, providing real-time access to yield data and the analysis capability to reduce defects. This systematic approach to DFM makes intelligent use of data throughout the flow, so designs at 45nm and advanced geometries achieve entitled yield. Visit us in booth #813. Contact: J. Tracy Weed, tweed@synopsys.com; Srinivas Raghvendra, srini@synopsys.com.

SynQuest Laboratories, Inc. #406

PO Box 309, Alachula, FL, 32616-0309
877/425-8676; fax 386/462-7097

info@synquestlabs.com; www.synquestlabs.com

New Product: Fluorochemicals.

SynQuest is a leading supplier of fluorinated intermediates for the pharmaceutical, electronics, materials and gas industries. SynQuest offers a comprehensive range of fluorine-containing building blocks, biochemicals, monomers, chiral intermediates and gases from grams to tons. We offer custom synthesis and contract research services and can take projects from laboratory concept through full scale production with our parent company, Central Glass of Japan. Contact: Michio Ishida, Director, cgi.ny-1@fluoroquest.com.

Technical Manufacturing Corp. #1010

SPIE Corporate Member

15 Centennial Dr, Peabody, MA, 01960
978/532-6330; fax 978/531-8682

www.techmfg.com

New Product: Mag-NetX Magnetic Field Cancellation System.

TMC manufactures a complete line of active and passive vibration isolation systems. STACIS® is the world's most advanced vibration isolation system which provides piezoelectric vibration cancellation with an active bandwidth from 0.3 Hz to 250 Hz. Electro-Damp II is an active vibration isolation system incorporating pneumatic vibration isolation with linear motor feedback and feed forward damping to enhance vibration isolation and quickly settle payload disturbances including XY stage forces. Contact: Sales, sales@techmfg.com.

The Precision Alliance

#808

1171 Market St Ste 111, Fort Mill, SC, 29708
803/396-5544; fax 803/396-7810
info@tpa-us.com; www.tpa-us.com

The Precision Alliance is a North American and European sales & marketing alliance between a few, relatively small companies that have aligned themselves to provide a complete miniature product offering to the automation industry. TPA was established to answer the ever-increasing demand for higher precision and lower costs. Our combined product offering provides designers with the widest variety of cost effective positioning solutions from a single source. Contact: Todd Kanipe, Sales Manager, tkanipe@tpa-us.com; Dennis Barnes, President, dbarnes@tpa-us.com.

Timbre Technologies, Inc. a TEL Company

#201

SPIE Corporate Member

2953 Bunker Hill Ln #301, Santa Clara, CA, 95054
408/200-1400; fax 408/200-1401
timbre@us.tel.com; www.timbrecom.com

New Product: Timbre's newest ODP release expands metrology capability for advanced production control.

Timbre Technologies' ODP (Optical Digital Profilometry) solution provides advanced profile metrology to meet the demanding requirements of CD process control for the 65nm node and below. This production-proven scatterometry solution provides CDs, profile and film stack information in one single package. ODP uses broadband light to provide non-destructive, high-speed, detailed profiles for a wide range of complex 2D and 3D applications for wafer and mask metrology.

Nanotechnology Group Panel Sponsor

Tokyo Ohka Kogyo America, Inc.

#913

190 Topaz St, Milpitas, CA, 95035
408/956-9901; fax 408/956-9995
user@tokamerica.com; www.tok.co.jp
Contact: Natalie King, natalie.king@tokamerica.com.

Lunch Sponsor

Toppan

#712

SPIE Corporate Member

131 Old Settlers Blvd, Round Rock, TX, 78664
512/310-6500; fax 512/310-6853
info@photomask.com; www.photomask.com

Together, Toppan Printing, TCE and Toppan Photomasks provide a broad array of technology options to fit the imaging needs of any fabless, foundry or IDM company. Our global network of sales offices, data centers and manufacturing sites provide local service and support for every step of the photomask production process. Contact: Don Needham, Sales, don.needham@photomask.com.

Transfer Devices, Inc.

#825

500 Laurelwood Rd Ste 11, Santa Clara, CA, 95054
408/980-9684
info@transferdevices.com; www.transferdevices.com

USHIO America, Inc.

#301

5440 Cerritos Ave, Cypress, CA, 90630
714/236-8600; fax 714/229-3180
customerservice@ushio.com ; www.ushiosemi.com
USHIO, the leading specialty lighting manufacturer of energy sources for Photolithography, low-k curing, RTP, EPI, CVD, PVD and inspection applications. USHIO, known as the industry benchmark for quality, service and innovative technologies, remains the semiconductor manufacturer's choice for light energy since the dawn of the industry. USHIO continues to support and create new products and applications, improve existing process productivity; all with an environmentally conscious direction. Contact: David Guidry, Senior Sales Manager - Semiconductor.

Veeco Instruments

#920

SPIE Corporate Member

100 Sunnyside Blvd, Woodbury, NY, 11797
516/677-0200; fax 513/349-8321
info@veeco.com; www.veeco.com

Veeco is a worldwide leader in precise non-destructive 3D metrology and low defect density deposition for the semiconductor and Photomask industry. The Dimension X3D is a non-destructive, accurate 3D profile metrology tool for the control of advanced photoresist and etch processes enabling metrology of LER/LWR, SWR and accurate 3D profile metrology not currently met by existing CD techniques. The Nexus LDD-IBD is a high performance, production worthy deposition system for next generation Photomask applications.

Vistec Semiconductor Systems Inc.

#1121

48073 Fremont Blvd, Fremont, CA, 94538-6541
510/623-3000; fax 512/623-3011
info@vistec-semi.com; www.vistec-semi.com

New Product: Vistec IPRO4 Pattern Placement Metrology, LWM9045 Photomask CD SEM.

Vistec Semiconductor Systems Inc. offers a wide range of lithography, metrology and inspection products for both wafers and photomasks. Products include Shaped Beam Electron Beam Lithography systems for photomask and direct write applications as well as Gaussian Beam Electron Beam Lithography systems for nano-lithography. Vistec also offers the INS3300 and LDS3300 which are micro and macro defect review systems for wafer inspection applications. Contact: John Whittey, Global Sales Director - Photomask Products, John.Whittey@Vistec-Semic.com; Maarten Kramer, Vice President North American Sales, Maarten.Kramer@Vistec-Semi.com.

VLSI Standards, Inc.

#1123

3087 N First St, San Jose, CA, 95134-2006
408/428-1800; fax 408/428-9555
sales.support@vlsistd.com; www.vlsistd.com

New Product: NanoCD Line Width and Nanolattice Pitch Calibration Standards Photomask handling CD-AFMs & CD-SEMs

See VLSI Standards for all of your Advanced Lithography calibration requirements. Line Width Standards down to 25 nm. Pitch Standards down to 100 nm. Come ask VLSI Standards about all of our new product offerings. Contact: Marc Helvey, Worldwide Sales, marc.helvey@vlsistd.com.

Exhibitor Directory

Wacom Corp.

#1007

146 Red Schoolhouse Rd, Spring Valley, NY, 10977
845/735-1303; fax 845/735-3940
aruggiero@a-link.net

New Product: Super High Intensity Lamps.

WACOM, serving the semiconductor industry since 1971, is a leading manufacturer of photolithography lamps. WACOM is known for having some of the most technically advanced lamps in the industry, with long-life, high intensity types, along with an extensive array of sizes and applications. We are committed to providing the most complete quality and service to our customers now and in the years to come! Contact: Al Ruggiero, Director Sales and Engineering.

XEI Scientific, Inc.

#1011

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

XEI Scientific supplies the Evactron® De-Contaminator to the Electron Microscope community. This highly effective tool removes organics and hydrocarbons from vacuum chambers and specimens to prevent contamination build-up. The Evactron De-Contaminator uses a small RF plasma to create oxygen radicals from air to oxidize organics and remove them as H₂O and CO vapors. It is effective and easy to install on SEMs and FIBs. Contact: Vincent Carlino, Global Sales Director; Ronald Vane, President, rvane@evactron.com.

Yield Engineering Systems, Inc.

#706

SPIE Corporate Member

2185 Oakland Rd, San Jose, CA, 95131-1578
408/954-8353; fax 408/954-8369
info@yieldengineering.com; www.yieldengineering.com

New Product: YES-1224P CVD system is enhanced with plasma, combining two processes into one.

Yield Engineering Systems (YES) manufactures engineering process control equipment, including high temperature cure ovens, chemical vapor deposition (CVD) systems and plasma etching tools. YES equipment is used for precise surface modification and thin film coating of semiconductor wafers and NEMS devices. Applications include resist processing, low-k dielectric repair, carbon nanotube adhesion and nanoscale patterning for CMOS. Contact: Lori Cantrell, Vice President Sales & Marketing, lcantrell@yieldengineering.com.

Zygo Corp.

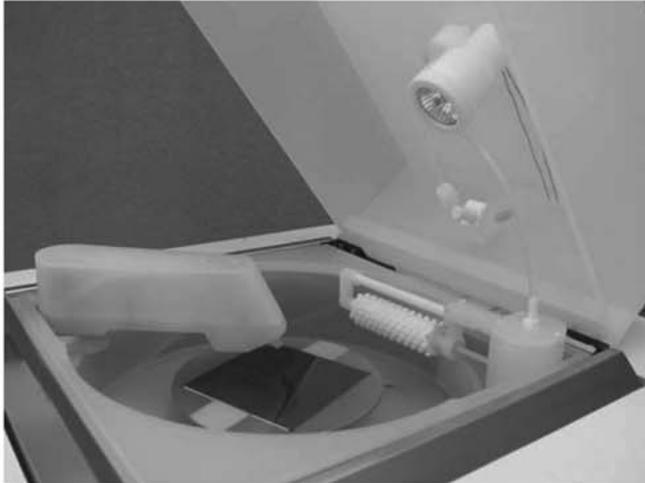
#803

SPIE Corporate Member

21 Laurel Brook Rd, Middlefield, CT, 06455-0448
860/347-8506; fax 860/347-8372
inquire@zygo.com; www.zygo.com

Zygo Corporation is a worldwide developer and supplier of high-performance metrology instruments and systems, high-precision optics, optical assemblies and automation for the semiconductor and industrial markets. ZYGO's products raise production yields and productivity for our customers, thereby increasing their profits and enabling their success. Our status as an industry leader is due to continuous innovation, technology implementation and a close working relationship with our customers. Contact: Robert Ham, rham@zygo.com; William Raynak, wraynak@zygo.com.

Damage Free Megasonic Chemical Cleaning



SWC-4000



Patent 6,730,176 on
Uniform Megasonic Cleaning

Wafer / Mask
Patterned , Un-Patterned
Pelliclized Reticles
GaAs, ITO, Wafer Frame

Uniform Energy
Megasonic Nozzle
Point of Use Chemical Dispense
Sequential / Co-Processing
Nitrogen Spin Dry
Reduced Cleaning Time

Brush Clean
Hot DI Flush
Hot Nitrogen
Nitrogen Ionizer
Ozonated DI Water
Selective Cleaning

For a complete line of products visit us at:

www.nanomaster.com

- Sputter Coater
- PECVD
- RIE
- Deep RIE
- Thermal Evaporator
- Ion Beam Etcher



NANO-MASTER, Inc.

3019 Alvin Devane Blvd. Suite 300, Austin, TX 78741
Ph. 512-385-4552; Fax 512-385-4900; info@nanomaster.com

Product Categories

Abrasives, Chemicals & Process Materials

AZ Electronic Materials USA Corp
Brewer Science
CMPC Surface Finishes
Cyantek Corp.
Eastman Chemical Co.
Invarium, Inc.
JSR Micro, Inc.
Pall Corp.
Rohm and Haas Electronic Materials

Cameras and CCD Components

Digital Optics Corp.
Invarium, Inc.

Chemical & Biological Sensing

Invarium, Inc.
SynQuest Laboratories, Inc.

Clinical, Chemical and Biological Instrumentation

CMPC Surface Finishes
Invarium, Inc.

Communications

CMPC Surface Finishes
Digital Optics Corp.
Invarium, Inc.
RSoft Design Group, Inc.
Synopsys, Inc.

Displays

CMPC Surface Finishes
Corning Inc.
Invarium, Inc.
Media Lario Technologies
OBDUCAT AB

Distributor or Reseller

Invarium, Inc.
Mitsui Chemicals America, Inc.
The Precision Alliance

Electron-Beam Lithography

Abeam Technologies
Aerotech, Inc.
Air Products and Chemicals, Inc.
Anchor Semiconductor Inc.
ASML
Brewer Science
Invarium, Inc.
KLA-Tencor Corp.
OBDUCAT AB
Raith USA, Inc.
SAES Pure Gas, Inc.
Sumika Electronic Materials, Inc./ Sumitomo Chemicals Co. Ltd.

Synopsys, Inc.
Vistec Semiconductor Systems Inc.

Electronic Imaging Components, Equipment, Systems

Aerotech, Inc.
CMPC Surface Finishes
Invarium, Inc.
Media Lario Technologies
Mercury Computer Systems, Inc.
ORC Manufacturing Co., Ltd.
SAES Pure Gas, Inc.
The Precision Alliance

Electronics, Signal Analysis Equipment

Abeam Technologies
Invarium, Inc.
SAES Pure Gas, Inc.

EUV Lithography

Aerotech, Inc.
Air Products and Chemicals, Inc.
Anchor Semiconductor Inc.
ASML
Cymer, Inc.
Energetiq Technology, Inc.
EV Group Inc.
Gudeng Precision Industrial Co., Ltd.
International Radiation Detectors, Inc.
Invarium, Inc.

JCMwave GmbH
KLA-Tencor Corp.
Media Lario Technologies
Micronic Laser Systems AB
National Institute of Standards & Technology
Nikon Precision Inc.
ORC Manufacturing Co., Ltd.
RSoft Design Group, Inc.
SAES Pure Gas, Inc.
Sumika Electronic Materials, Inc./ Sumitomo Chemicals Co. Ltd.
SUSS MicroTec Inc.
Synopsys, Inc.

Fiber Optic Components, Equipment, Systems

Aerotech, Inc.
Digital Optics Corp.
Invarium, Inc.
Mercury Computer Systems, Inc.
Renishaw Inc.
RSoft Design Group, Inc.
SAES Pure Gas, Inc.

Finished Optics, Filters, & Coatings, Optical Fabrication Equipment

Aerotech, Inc.
CMPC Surface Finishes
Corning Inc.
CUNO Inc.
CVI Laser LLC
Invarium, Inc.
LINOS Photonics, Inc.
Media Lario Technologies
SAES Pure Gas, Inc.
Zygo Corp.

High Speed Imaging and Sensing

Invarium, Inc.
KLA-Tencor Corp.
Mercury Computer Systems, Inc.
SAES Pure Gas, Inc.

Illumination Engineering

Digital Optics Corp.
Invarium, Inc.
JCMwave GmbH
Media Lario Technologies
SAES Pure Gas, Inc.

Infrared Sources, Detectors, Systems

Digital Optics Corp.
Eastman Chemical Co.
Invarium, Inc.
Mercury Computer Systems, Inc.
Osram Sylvania Inc.
SAES Pure Gas, Inc.

Ion-Beam Lithography

Aerotech, Inc.
Air Products and Chemicals, Inc.
ASML
Invarium, Inc.
Raith USA, Inc.
SAES Pure Gas, Inc.
SUSS MicroTec Inc.
Synopsys, Inc.

Lasers and Other Light Sources, Laser Accessories, Laser Systems

Cymer, Inc.
Energetiq Technology, Inc.
Invarium, Inc.
KLA-Tencor Corp.
Media Lario Technologies
Osram Sylvania Inc.
Renishaw Inc.
SAES Pure Gas, Inc.
Wacom Corp.

Metrology, Inspection and Process Control

Abeam Technologies
Aerotech, Inc.
Anchor Semiconductor Inc.
Applied Materials
Brion Technologies, Inc.
CMPC Surface Finishes
Corning Inc.
Digital Optics Corp.
Donaldson Co., Inc.
Energetiq Technology, Inc.
Foothill Instruments, LLC
Hitachi High Technologies America, Inc.
Invarium, Inc.
J.A. Woollam Co.
JCMwave GmbH
KLA-Tencor Corp.

Lasertec U.S.A., Inc.
Media Lario Technologies
MetroBoost
MetroSol, Inc.
n&k Technology, Inc.
Nanometrics Inc.
National Institute of Standards & Technology
Nikon Precision Inc.
OnWafer Technologies, Inc.
ORC Manufacturing Co., Ltd.
Particle Measuring Systems
Raith USA, Inc.
Renishaw Inc.
RSoft Design Group, Inc.
Rudolph Technologies
SAES Pure Gas, Inc.
SensArray Corp.
Steinmeyer, Inc.
Synopsys, Inc.
Timbre Technologies, Inc. a TEL Company
Vistec Semiconductor Systems Inc.
VLSI Standards, Inc.
Zygo Corp.

Nanotechnology

Abeam Technologies
Aerotech, Inc.
Brewer Science
CMPC Surface Finishes
Cymer, Inc.
Donaldson Co., Inc.
EV Group Inc.
Gudeng Precision Industrial Co., Ltd.
Hitachi High Technologies America, Inc.
Invarium, Inc.
JCMwave GmbH
Molecular Imprints, Inc.
Nanonex Corp.
OBDUCAT AB
ORC Manufacturing Co., Ltd.
Pall Corp.
Queensgate Instruments Ltd.
Renishaw Inc.
RSoft Design Group, Inc.
SAES Pure Gas, Inc.
Steinmeyer, Inc.

Synopsys, Inc.
Vistec Semiconductor
Systems Inc.
Yield Engineering
Systems, Inc.

Non-Optical Lithography

Abeam Technologies
Aerotech, Inc.
Air Products and
Chemicals, Inc.
Invarium, Inc.
Nanonex Corp.
SAES Pure Gas, Inc.

Optical Components

Abeam Technologies
CMPC Surface Finishes
Corning Inc.
Digital Optics Corp.
Invarium, Inc.
KLA-Tencor Corp.
LINOS Photonics, Inc.
Media Lario Technologies
OBDUCAT AB
Olympus Micro Imaging
Pozzetta Products, Inc.
RSoft Design Group, Inc.
SAES Pure Gas, Inc.
The Precision Alliance
USHIO America, Inc.

Optical Detectors

Eastman Chemical Co.
International Radiation
Detectors, Inc.
Invarium, Inc.
Star Tech Instruments

Optical Fibers

Invarium, Inc.
RSoft Design Group, Inc.
SAES Pure Gas, Inc.

Optical Materials and Substrates

Applied Materials
CMPC Surface Finishes
Corning Inc.
Inko Industrial Corp.
Invarium, Inc.
Mitsui Chemicals
America, Inc.

National Institute of
Standards &
Technology
Pozzetta Products, Inc.
Rohm and Haas
Electronic Materials
SAES Pure Gas, Inc.

Optical Test and Measurement Equipment, Interferometer

ASML
CMPC Surface Finishes
Corning Inc.
Foothill Instruments, LLC
International Radiation
Detectors, Inc.
Invarium, Inc.
J.A. Woollam Co.
KLA-Tencor Corp.
Mercury Computer
Systems, Inc.
National Institute of
Standards &
Technology
Particle Measuring
Systems
Renishaw Inc.
Star Tech Instruments
Synopsys, Inc.
VLSI Standards, Inc.
Zygo Corp.

Optical/Laser Microlithography

Abeam Technologies
Aerotech, Inc.
Anchor Semiconductor
Inc.
ASML
Corning Inc.
Digital Optics Corp.
Donaldson Co., Inc.
Invarium, Inc.
JCMwave GmbH
KLA-Tencor Corp.
Micro Lithography Inc.
Micronic Laser Systems
AB
Nikon Precision Inc.
Osram Sylvania Inc.
Pixar Technology Ltd.
RSoft Design Group, Inc.
SAES Pure Gas, Inc.
Synopsys, Inc.

Optics Manufacturing

Aerotech, Inc.
ASML
CMPC Surface Finishes
Corning Inc.
Digital Optics Corp.
Invarium, Inc.
LINOS Photonics, Inc.
SAES Pure Gas, Inc.
Synopsys, Inc.
Vistec Semiconductor
Systems Inc.

Photonics Equipment Manufacturer

Invarium, Inc.
OBDUCAT AB
Renishaw Inc.
SAES Pure Gas, Inc.
The Precision Alliance
Vistec Semiconductor
Systems Inc.

Positioning Equipment

Aerotech, Inc.
CMPC Surface Finishes
Invarium, Inc.
Queensgate Instruments
Ltd.
Renishaw Inc.
Steinmeyer, Inc.
SUSS MicroTec Inc.
The Precision Alliance

Resist Technology and Processing

Abeam Technologies
Applied Materials
Brewer Science
Cyantek Corp.
CyberOptics
Semiconductor
Digital Optics Corp.
Energetiq Technology,
Inc.
Invarium, Inc.
JSR Micro, Inc.
KLA-Tencor Corp.
Nanonex Corp.
OBDUCAT AB
Pall Corp.
Rohm and Haas
Electronic Materials

SAES Pure Gas, Inc.
Sokudo USA, LLC
Sumika Electronic
Materials, Inc./
Sumitomo Chemicals
Co. Ltd.
Synopsys, Inc.
Tokyo Ohka Kogyo
America, Inc.
Yield Engineering
Systems, Inc.

Sensor & Sensor Systems

CyberOptics
Semiconductor
Digital Optics Corp.
International Radiation
Detectors, Inc.
Invarium, Inc.
National Institute of
Standards &
Technology
Renishaw Inc.
RSoft Design Group, Inc.
SensArray Corp.
Star Tech Instruments

Services and Publications (Including Professional Societies)

Invarium, Inc.
KLA-Tencor Corp.
Photonics Spectra
Semiconductor
International Magazine

Software

Abeam Technologies
Anchor Semiconductor
Inc.
ASML
Cadence Design
Systems, Inc.
Invarium, Inc.
JCMwave GmbH
KLA-Tencor Corp.
OnWafer Technologies,
Inc.
RSoft Design Group, Inc.
Rudolph Technologies
Sagantec
Synopsys, Inc.

Vacuum, Cooling, Gas Handling Equipment

Invarium, Inc.
SAES Pure Gas, Inc.
Steinmeyer, Inc.
Yield Engineering
Systems, Inc.

Wafer Handling Automation

Aerotech, Inc.
CyberOptics
Semiconductor
EV Group Inc.
Invarium, Inc.
Pozzetta Products, Inc.
Steinmeyer, Inc.
Synopsys, Inc.
The Precision Alliance
Vistec Semiconductor
Systems Inc.

X-Ray Lithography

Aerotech, Inc.
Energetiq Technology,
Inc.
Invarium, Inc.
SAES Pure Gas, Inc.
Synopsys, Inc.

Corporate Sustaining Members

Companies, large and small, play a critical role in supporting the growth and vitality of optics and photonics. Through collaboration, they steer the latest innovations toward practical relevance in the global marketplace.

SPIE Corporate Member

SPIE Corporate Membership enhances your organization by providing significant discounts on:

- **SPIE exhibitions***
- **SPIE publications**
- **SPIE Digital Library subscriptions**
- **Advertising rates**
- **Mailing lists**
- **And recruitment services.**

* Corporate Members receive a 15% discount on exhibit space at events solely owned by SPIE.

4AD Enterprises, Inc./EK SMA, Ltd.
4D Technology Corp.
A&I Ltd.
Access Laser Co.
Aculight Corp.
ADE Phase Shift
Advanced Microoptic Systems GmbH
Aerotech, Inc./World Headquarters
AF Optical Inc.
Agiltron, Inc.
Alfaflight, Inc.
ALIO Industries
Alpha
Alpine Research Optics Corp./Headquarters
Alson E. Hatheway, Inc.
Altos Photonics, Inc.
Ampex Data Systems Corp.
Analytical Spectral Devices, Inc.
Anda Optec, SIA/biolitec Div/Latvia
Andor Technology Ltd./North American Office
Andover Corp.
Apollo Instruments, Inc.
Apollo Optical Systems, LLC
Aprio Technologies, Inc./Marketing & Sales
Archer OpTx, Inc.
Argyle International, Inc.
Ariel Optics, Inc.
Asahi Spectra USA Inc.
ASELSAN MGEO Div/Microelectronics, Guidance and Electro-optics Div
ASML US, Inc.
asphericon GmbH
Avo Photonics
Axsys Technologies, Inc./Imaging Systems
Ayase America Inc.
AZ Electronic Materials USA Corp./USA Corp.
Azure Photonics Co.
Barr Associates, Inc.
Beamtech Optronics Co. Ltd.
Berliner Glas U.S.
Bioptigen, Inc.
Blue Hill Optical Technologies LLC
Boston Electronics Corp.
Boston Micromachines Corp.
Boulder Nonlinear Systems, Inc.
Brandstrom Instruments, Inc.
Brandywine Optics, Inc.
Breatht Research Organization, Inc.
Brewer Science, Inc./North America Headquarters
Brighten Optics Ltd.
Brion Technologies, Inc./Corporate Headquarters
Bristol Instruments, Inc.
Calmar Optcom Inc.
Cambridge Research & Instrumentation, Inc./Headquarters
Cambridge Technology, Inc.
Cascade Technologies Ltd.
Central Astronomical Observatory at Pulkovo
Central Electronics Engineering Research Institute/CEERI Ctr
Central R&D Institute for Robotics and Technical Cybernetics
Central Research Institute Cyclone
CeramOptec Industries, Inc./biolitec Div/USA
Chernyshevsky Saratov State Univ.
China Daheng Group, Inc.
Chroma Technology Corp.
Chung Shan Institute of Science and Technology
CI Systems, Inc./California Office/Simi Valley
Clear Shape Technologies, Inc.
Cleveland Crystals, Inc./A Gooch & Housego PLC
Coastal Optical Systems Inc./Production/Shop
Cobolt AB
Coherent, Inc./Corporate Headquarters
Communication Automation Mounting Ltd.
Continuum, Inc.
CorActive High-Tech Inc.
Corning Inc.
Corning Tropel Corp.
Creative Display Systems, LLC
Creatv MicroTech, Inc.
Cristal Laser SA
Crystal Fibre A/S
Crystalaser LC
Crystaltechno Ltd.
CRYSTECH Inc.
Crytur Ltd.
Ctr. of New Technologies OPTRON
CVI Laser LLC
Cyantek Corp.
Daugavpils Univ.
gital Optics Corp.
Docter Optics Inc.
Dongjin Semichem Co., Ltd./Electronic Materials Div
DRS Technologies, Inc.
e2v technologies ltd.
Edmund Optics Inc./Main Office
ELCAN Optical Technologies
Electro-Optical Imaging, Inc.
Electro-Optical Systems Inc.
Elliot Scientific Ltd.
EM4, Inc.
Engineering Synthesis Design, Inc.
Epnor Technology Inc.
Evaporated Metal Films Corp.
Exalos AG
Exitech Inc.
F&K Delvotec, Inc.
Fairchild Imaging
Far Eastern State Technical Univ.
Federal Scientific and Production Ctr.
Federal State Unitary Enterprise RPC ISTOK
Femtochrome Research, Inc.
FemtoLasers, Inc.
Fiberguide Industries, Inc.
Fibertech Optica, Inc.
Firebird Technologies Inc.
FISBA OPTIK LLC/Rochester NY
FJW Optical Systems, Inc.
FLIR Systems, Inc./Boston Division
Foreal Spectrum, Inc.
Frankfurt Laser Co.
Fresnel Technologies Inc.
Gamma Scientific
General Physics Institute/Russian Academy of Sciences
Glass Fab, Inc.
Goodrich Corp./Optical & Space Systems Div
Graphic Security Systems Corp.
Grintech GmbH
G-S PLASTIC OPTICS/A Germanow-Simon Co.
GSI Group Inc./Corporate Office-Mfg. Ctr.
Halbo Optics
Hamamatsu Corp.
Hamatech USA Inc.
HC Photonics Corp.
Headwall Photonics Inc.
Heidelberg Instruments Inc./Service USA
Hellma International, Inc.
Heraeus Optics LLC
Hextek Corp.
High Plains Optics
HoloEye Photonics AG
Hong Kong Polytechnic Univ./Advanced Optics Manufacturing
Hong Kong Productivity Council/Manufacturing Technology Div
HORIBA Jobin Yvon Inc./OSD Div
House of Optics Scientific Ctr.
Hoya Corp.
Imperx Inc.
IMRA America, Inc./Headquarters & Research Facility
Incom Inc.
Infrared Fiber Systems, Inc.
Infrared Systems Development Corp.
Ingeneric GmbH
Institut für Mikrotechnik Mainz GmbH
Institute for Applied Physics/Russian Academy of Sciences
Institute for Automation and Control Processes
Institute for Infocomm Research, Agency for Space, Technology and Research
Institute for Laser Physics
Institute for Roentgen Optics
Institute of Atmospheric Optics/Siberian Branch of RAS
Institute of Atmospheric Physics/Russian Academy of Sciences
Institute of Fine Mechanics and Optics
Institute of Laser and Information Technologies/Russian Academy of Sciences
Institute of Microstructure Physics/Russian Academy of Sciences
Institute of Physics and Technology/Russian Academy of Sciences
Institute of Radioengineering and Electronics/Russian Academy of Sciences
Institute of Semiconductor Physics
Institute of Spectroscopy/Russian Academy of Sciences
International Radiation Detectors, Inc.
International Union of Instrument Engineers

Get complete details at
spie.org/membership

Corporate Sustaining Members

Intevac, Inc.	Mentor Graphics Corp./Design to Silicon	OPTICS 1, Inc./Commercial Systems Div.	Research Institute of Pulse Techniques	Stanford Computer Optics Inc.
IO Industries, Inc.	Metavac, Inc.	Optics For Hire	Reynard Corp.	Star Tech Instruments
Ioffe Physical Technical Institute	MetroLux Analytics, Inc.	Optics for Research, Inc.	Riga Technical Univ./Institute of Technical Physics	State Scientific-Manufacturing Assoc.
IPG Photonics Corp.	Metrosol, Inc.	Optikos Corp.	Rockwell Laser Industries, Inc.	State Univ. of Control Systems & Radioelectronics
Isomet Corp.	Micro Laser Systems, Inc.	Optikron GmbH	Rocky Mountain Instrument Co./Laser Div	StellarNet, Inc.
JDS Uniphase/Commercial and Consumer Prod	Micro Photonics, Inc.	Optilab LLC	Rolyn Optics Co.	StockerYale, Inc.
JENOPTIK Laser, Optik, Systeme GmbH/Business Unit Optics	Microelectronic Technologies Joint stock Institute	Optimax Systems, Inc.	RoMack, Inc.	Super Optronics
Jenoptik Polymer Systems, Inc.	Micromotion GmbH	OptiPro Systems	RPC Photonics, Inc.	Surface Finishes
JEOL USA Inc.	Micronic Laser Systems AB	OptiSource, LLC	RPMC	Swiss Jewel Co.
JMAR Technologies, Inc./Corporate Headquarters	Mildex Inc.	Opto Diode Corp.	RSoft Design Group, Inc.	Synopsys, Inc.
Joint Stock Co. Lytkarino Optical Glass Factory	MilSys Technologies LLC	OptoSigma Corp.	Rubicon Technology Inc.	Syntec Technologies Inc.
JSR Micro, Inc.	Mindrum Precision Inc.	OPTWARE Corp.	Russian Chapter of Society for Info Display Div	TAC/Tour Andover Controls/Precision Instruments
JT Ingram	Minsk Physics Institute/Belarus Academy of Sciences	Orion Research and Production Association	Russian Federal Nuclear Ctr.	TDISIE Siberian Branch/Russian Academy of Sciences
Jupiter	Minus K Technology Inc.	OZ Optics Ltd.	Russian Social Fund TOPEC Solid State Optoelectron	Techmetals, Inc./Optics Div.
Kapteyn-Murnane Labs., Inc.	MLD Technologies, LLC	P.N. Lebedev Physical Institute/Russian Academy of Sciences	Sacher Lasertechnik GmbH	Technical Manufacturing Corp.
Kazan Optic-Mechanic Plant Production Corp.	Model Optics, Inc.	PDF Solutions, Inc.	Saint Gobain Crystals	Technomedica Research & Manufacturing Co.
Kazan Physical-Technical Institute/Russian Academy of Sciences	Molecular Imprints, Inc./Headquarters	PerfectWave Technologies LLC	Salem Distributing Co./Precision Div.	TecOptics, Inc.
KBTEM-OMO State Research & Production Association	Moscow Engineering Physics Institute	Perm Scientific-Industrial Instrument-Making Co.	Samara Institute of Image Processing Systems/Russian Academy of Sciences	Tempo Plastic Co./Foam Boxes for Optics Div.
KEOS Optoelectronics, Inc.	Moscow Institute of Physics and Technology	Petrozavodsk State Univ./Information Measurement Systems	SCANLAB America, Inc.	TFI Telemark
KLA-Tencor Corp.	Moscow Mining Institute	PFG Optics	SCD-Semi Conductor Devices	The Cooke Corp.
Kreischer Optics, Ltd.	Moscow Power Engineering Institute Technical Univ.	PhotoMed Technologies	Schneider Optics, Inc./OEM	The Univ. of Arizona
Kuban State Univ.	Moscow Scientific Techn. Soc. of Instr. & Meas Eng	Photon Design	SCHOTT North America, Inc./Optics for Devices	Thermo Electron, CIDTEC/CIDTEC Cameras & Imagers
Kursk State Technical Univ.	Moscow State Inst. of Electronics and Mathematics	Photon Engineering, LLC	Scientific and Technological Ctr. for Unique Instrumentation	Tinsley Labs.
L-3 Communications Cincinnati Electronics	Moscow State Univ. of Geodesy and Cartography	Photon Etc. Inc.	Scientific Research Association/Astrophysics	TLC International
LaCroix Optical Co.	MPA Crystal Corp	Photonic Cleaning Technologies	Scientific Research Inst. of Precise Instruments	TopGaN Ltd.
Lafilin Ltd.	MPB Communications Inc.	Photonic Products Ltd.	Scientific Solutions, Inc.	Toppan Photomasks, Inc./Headquarters for Toppan Photomasks, Inc.
Lambda Research Corp.	mso jena Mikroschichtoptik GmbH	Photonics Industries International, Inc.	Sci-in Tech	Toptica Photonics, Inc.
Lambda Research Optics, Inc./Lasers Optics & Coatings	N.E. Bauman Moscow State Technical Univ.	Photonis-DEP B.V.	SciMeasure Analytical Systems, Inc.	Tower Optical Corp.
Land Engineering Agency	Naked Optics Corp.	Photooptics Ltd.	SensL Technologies Ltd.	Trexa Central Research and Development Labs., Inc.
Las Cumbres Observatory	NASA Marshall Space Flight Ctr./Space Optics Manufacturing Tech Ctr	Photop Technologies, Inc.	Sensors Unlimited, Inc.	Trex Advanced Materials/Materials
Laser Compact Co. Ltd.	New England Photoconductor Corp.	Photron USA, Inc.	Sensovation AG	TRUMPF Inc.
Laser Components IG, Inc.	New Focus, Inc.	Phytron Inc.	Senspex, Inc.	Tydex JS Co.
Laser Focus World	New Mexico Optics Industry Association	PI (Physik Instrumente) L.P.	SGS Slicing Solutions Inc.	U.S. Photonics Inc
Laser Physics Scientific Research Institute	New Scale Technologies, Inc./Main Office	Picarro	Shanghai Optics	Umicore Thin Film Products
Laserline Inc.	New Source Technology, LLC	Piezosystem Jena Inc.	Silicon Canvas Inc.	Unaxis Optics
Lasertec USA Inc.	Newport Corp.	PLX Inc.	Sill Optics GmbH & Co., KG	UNIQUE ICs LLC
Lasertel, Inc.	NexTech Solutions, Inc.	Poco Graphite, Inc.	Siskiyou Corp.	Univ. of Arizona/Optical Sciences Ctr.
LASOS GmbH	Nikon Precision Inc.	Point Source Ltd.	Sonoma Photonics Inc.	Univ. of Colorado/Boulder/Boulder
Lattice Electro Optics, Inc.	nLight Corp.	PolarOnyx, Inc.	Sparkle Optics Corp.	Univ. of Iowa Libraries
Latvijas Univ./Institute of Solid State Physics	North Crystals	Polymer Assembly Technology, Inc.	Special Optics Manufacture and Design, Inc.	Univ. of North Carolina/Charlotte/Atkins Library
Leica Instruments (Singapore) Pte Ltd.	Northrop Grumman Corp./Cutting Edge Optronics	POLYUS Research & Development Institute	Specim Spectral Imaging Ltd.	Universal Photonics Inc.
LEISTER Technologies LLC	Nozomi Photonics Co., Ltd.	Power Technology, Inc.	Spectralus Corp.	Ural Optical and Mechanical Plant
Leybold Optics USA, Inc.	NPO Geofizika-Cosmos Scientific & Production Enter	Precision Asphere LLC	Spectrum Scientific, Inc.	V.I. Ulyanov (Lenin) State Electrical Engineering
Light Age, Inc.	Nufern	Precision Optics Corp.	Spectrum Thin Films Corp.	Vavilov State Optical Institute/All-Russian Research Ctr.
LightPath Technologies, Inc./Corporate Office	Nutfield Technology, Inc.	Precitech, Inc.	SphereOptics, LLC	Veeco Instruments
Lightspeed Technologies	Observatorio Astronomico Nacional	Princeton Instruments/Acton	Spica Technologies, Inc.	Veeco Metrology LLC/AFMs
LightWorks Optics, Inc.	Ocean Optics, Inc.	Princeton Lightwave Corp.	Spiricon, Inc.	Veeco Tucson Inc.
Lincoln Laser Co.	Octec Ltd./The Western Ctr.	Prism Books Private Ltd.	SRC SMC Technological Ctr. MSIEE	Virtual Industries, Inc.
LINOS Photonics, Inc.	OFS	Process Materials Inc.	SRICO Inc.	Visotek Inc.
LOMO plc	Ohara Corp.	PULSAR Science Research Institute/RC Kremniy Div.	SRIPDE-Science Research Institute for Precision De	Volga State Academy of Telecommunications and Info
Louis Rudzinsky Associates, Inc./OPTemps Div.	Omega Optical, Inc./Corporate Office	PVP Advanced EO Systems, Inc.	St. Petersburg Institute of Fine Mechanics and Optics	Volga Technology Ltd.
Lumera Corp.	Ondax, Inc.	QED Technologies Inc./Corporate Headquarters	Standards Productivity and Innovation Board/National Metrology Ctr.	WaveFront Sciences, Inc.
Luxel Corp.	Ontar Corp.	QIOPTIQ		Westchester Technologies, Inc.
M.V. Lomonosov Moscow State Univ.	Ophir Optics, Inc.	Quantronix Corp.		Western Photonics Technology
M3 Measurement Solutions Inc	Opnext, Inc.	Quintessence Photonics Corp.		Wordingham Technologies
Mad City Labs, Inc.	Optical Research Associates	Ramenskoye Design Co.		Yield Engineering Systems Inc.
Market Tech, Inc.	Optical Support, Inc.	RAVE LLC		YUCO Optics Corp.
Matrix Technology Corporation	Optics 1, Inc.	Raydiance, Inc.		Zygo Corp.
Max Levy Autograph Inc.		Raytheon Co./Vision Systems		
Melles Griot		REAGENT Scientific Technical Ctr. Ltd.		
MEMS Optical, Inc.		RedShift Systems Corp.		
		Research Electro-Optics, Inc.		
		Research Institute of GOZNAK		

INNOVATION AT WORK



Join over 4,000 of your colleagues at the epicenter of semiconductor lithography, where you will see and hear the latest trends, breakthroughs, and research that will shape the direction of the semiconductor industry — and your company's performance — for years to come.

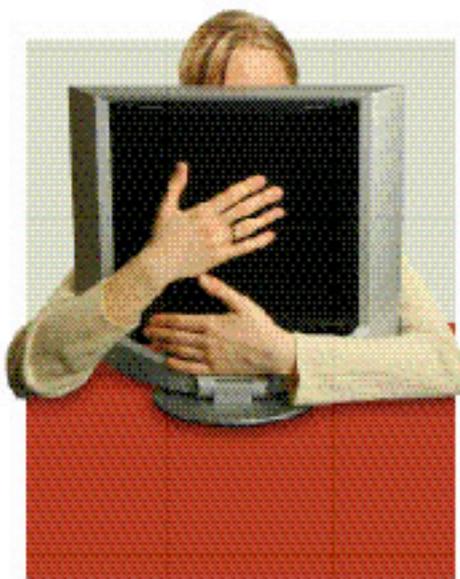
SPIE *Advanced* Lithography

24-29 February 2008
San Jose Convention Center
San Jose, California USA

Plan now to attend in 2008!
spie.org/events/al

EUV • Immersion • DPT/DFM • nano-imprint • metrology • materials

MAY 2007

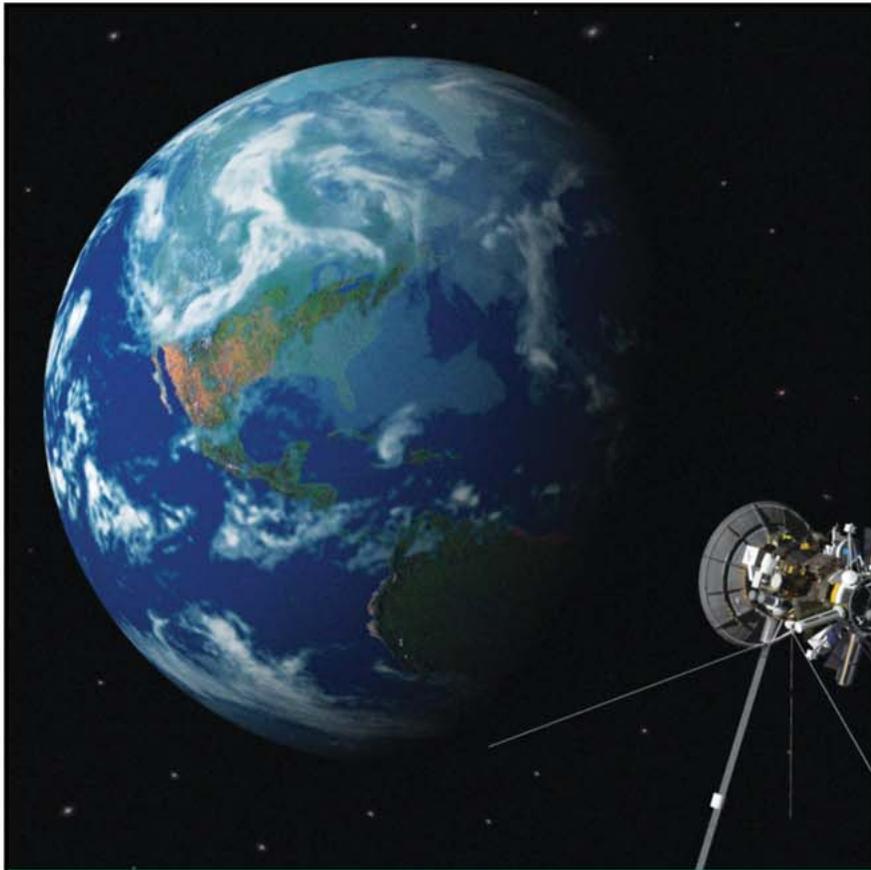


Coming to a browser near you.

spie.org 2.0

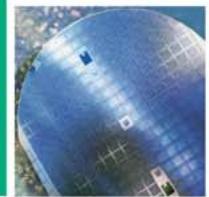
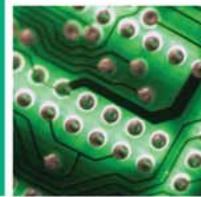
Try out the powerful new scheduling tools.
Search and find what you need.
Create an account and customize your experience.

SPIE



Advanced Chemistry Global Solutions

FUJIFILM



Successful semiconductor manufacturers move quickly, demand quality and require leading technology. FUJIFILM Electronic Materials offers the broadest line of photoresists, polyimides, thin film systems and other high purity chemicals and services to technologically demanding semiconductor customers worldwide. Wherever our customers do business, you will find FUJIFILM – thinking globally, acting locally.

FUJIFILM Electronic Materials

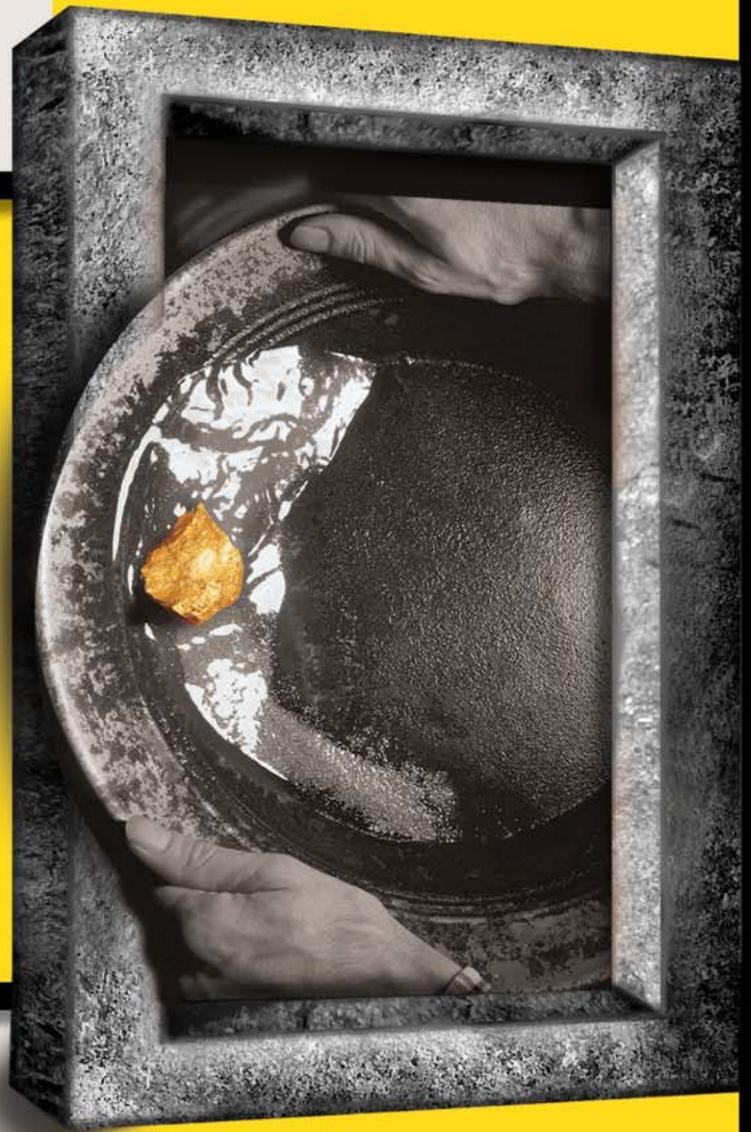
80 Circuit Drive, North Kingstown, RI 02852

Phone: 800/553-6546

Visit our website at:

www.fujifilm-ffem.com

We deliver Value Of Ownership



RAVE delivers Value Of Ownership with each system.

RAVE delivers support commitment unrivalled in the industry.

RAVE delivers manufacturing-ready 65nm photomask repair capability.

RAVE delivers increased yields on all materials, thereby reducing cycle time and costs.



Enabling Tomorrow's Technology Today™

RAVE Nanomachining

Phone: **(561) 330-0411 (x375)**
Visit us at: **www.ravenano.com**
E-mail: **sales@ravenano.com**