Optifab

EXHIBITION GUIDE

Moving technology to market™

spie.org/ofb

2019

Exhibition
15–17 October 2019

Conferences and Courses
14–17 October 2019

Rochester Riverside Convention Center, Rochester, New York, USA

Sponsored by: Co-sponsored by:
EXHIBITION GUIDE

EXHIBITION DAYS AND TIMES
Tuesday 15 October .......................... 10:00 am to 5:00 pm
Wednesday 16 October .................... 10:00 am to 5:00 pm
Thursday 17 October ....................... 10:00 am to 3:00 pm

Contents
General Information .......................... 2–4
Product Demonstrations ........................ 6
Sponsors ........................................ 8
SPIE Courses .................................. 9
Job Fair ....................................... 11
Exhibitor Index ................................. 12–13
Floor Plan/Booth Map ......................... 13
Company List/Descriptions ................. 14–44
Companies by Product Category .......... 45–48
SPIE Policies ................................ 50–51

EXHIBITION CHAIRS
Jonathan Sydor
Sydor Optics, Inc. (USA)
Justin J. Mahanna
Universal Photonics, Inc. (USA)
Michael DeMarco
QED Optics, Inc. (USA)

CONFERENCE CHAIR AND CO-CHAIR
Jessica DeGroote Nelson
Optimax (USA)
Blair Unger
Rochester Precision Optics (USA)

SPONSORED BY
SPIE
SPIE is the international society for optics and photonics, an educational not-for-profit organization founded in 1955 to advance light-based science and technology.
www.SPIE.org

CO-SPONSORED BY
APOMA
The American Precision Optics Manufacturers Association represents a broad constituency of precision optics manufacturers, and the supporting industry along with academic associates, whose mutual interest is the advancement and expansion of optics manufacturing and technology.
www.APOMA.org
General Information

Exhibition Hours
Tuesday October 15 .......................... 10:00 am-5:00 pm
Wednesday October 16 ..................... 10:00 am-5:00 pm
Thursday October 17 ........................ 10:00 am-3:00 pm

Registration
Onsite Registration and Badge Pickup Hours
Rochester Convention Center - Galleria
Monday 14 October ........................... 7:30 am-5:00 pm
Tuesday 15 October ........................... 7:30 am-5:00 pm
Wednesday 16 October ...................... 7:30 am-5:00 pm
Thursday 17 October .......................... 7:30 am-3:00 pm

CONFERENCE REGISTRATION
Registration includes admission to the exhibition, all conference sessions, plenaries, panels, and technical events.

COURSE REGISTRATION
Courses are priced separately. Course-only registration includes your selected course(s), course notes, coffee breaks, and admittance to the exhibition. Course prices include applicable taxes. Onsite, please go to Course Desk after you pick up your badge.

Multiple facilities may be used for courses; allow yourself enough time to register, pick up your materials, and possibly walk to a nearby facility before your course begins.

SPIE MEMBER, SPIE STUDENT MEMBER, AND STUDENT PRICING
• SPIE Members receive conference and course registration discounts. Discounts are applied at the time of registration.
• SPIE Student Members receive a significant discount on all courses.
• Student registration rates are available only to undergraduate and graduate students who are enrolled full time and have not yet received their Ph.D. Post-docs may not register as students. A student ID number or proof of student status is required with your registration.

PRESS REGISTRATION
For credentialed press and media representatives only. Please email contact information, title, and organization to media@spie.org.

SPIE CASHIER
Registration Area
Open during registration hours

REGISTRATION PAYMENTS
If you are paying by cash or check as part of your onsite registration, wish to add a course, workshop, or special event requiring payment, or have questions regarding your registration, visit the SPIE Cashier.

RECEIPT AND CERTIFICATE OF ATTENDANCE
Preregistered attendees who did not receive a receipt or attendees who need a Certificate of Attendance may obtain those from the SPIE Cashier at Badge Corrections and Receipts.

BADGE CORRECTIONS
Badge corrections can be made by the SPIE Cashier at Cashier. Please have your badge removed from the badge holder and marked with your changes before approaching the counter.

Food and Beverage Services

COMPLIMENTARY COFFEE SERVICE
West Corridor
Monday ................................. 10:00 am-4:00 pm
Exhibition Hall
Tuesday-Wednesday ..................... 10:00 am-4:00 pm
Thursday ................................ 10:00 am-3:00 pm
Please check the conference schedule for exact break times.

Food & Refreshments for Purchase

CAFÉ EXPRESS
Back of the Exhibition Hall
Hours of operation - As posted onsite
Hot and cold snacks, hamburgers, deli sandwiches, salads, and pastries are available for purchase. Cash and credit cards accepted.

FOOD TRUCKS
Tuesday-Wednesday ...................... 11:00 am-2:00 pm
Serving outside of the Convention Center Main Street entrance.

RESTAURANT & CITY INFORMATION
Empire Lobby, 2nd level
Monday through Wednesday ............ 9:00 am-1:00 pm

ADVERTISERS
Innolite GmbH ........................................ 21
Mildex, Inc ........................................ 15
optics.org ......................................... 5
Photonics Media/Laurin Publishing .......... 7
Trioptics .............................................. 3
Visit us at booth 223

**OptiCentric® 101**

Optical centration measurement of lenses and optical systems

- Ultra-stable, vibration-free design allows for high precision in measurement and alignment
- Fully integrated center thickness testing increases centration measurement accuracy
- Linear measurement possibilities allow for a high-speed inspection of lens systems

**PrismMaster® Flex**

Most versatile goniometer for quality assurance

- Flexible configuration as comparison or absolute goniometer
- Precise prism surface angle comparison combined with fast measurement times
- Operator-friendly measuring of spatial angular relationships in complex prism geometries, for example: roof prisms

www.trioptics.com
General Information

Onsite Services

INTERNET ACCESS
Complimentary wireless access available; instructions will be posted onsite.

SPONSORED BY

L3HARRIS

SPIE CONFERENCE AND EXHIBITION APP
Search and browse the program, special events, participants, exhibitors, courses, and more. Free Conference App available for iPhone and Android phones.

SPIE BOOKSTORE
Galleria, 1st Floor
Stop by the SPIE Bookstore to browse popular SPIE Press Books and educational materials.

SPIE EDUCATION SERVICES
Registration Area, Galleria, 1st Floor
Browse course offerings and the other education services available: SPIE courses online as well as customized in-company courses.

Car Rental
Hertz Car Rental has been selected as the official car rental agency for this Symposium. To reserve a car, identify yourself as an Optifab conference attendee using the Hertz Meeting Code CV# 029B0024. Note: When booking from International Hertz locations, the CV # must be entered with the letters CV before the number, i.e. CV029B0024.

- In the United States call +1 800-654-2240
- Book Hertz Online

CHILDCARE SERVICES
Generations – North East Rochester
+1 585-613-7500
YMCA – Lewis Street Child Care Center
+1 585-325-2572

NOTE: SPIE does not imply an endorsement nor recommendation of these services. They are provided on an “information only” basis for your further analysis and decision. Other services may be available.

URGENT MESSAGE LINE
An urgent message line is available during registration hours: +1 585-770-2361

LOST AND FOUND
Found items will be kept at Cashier until 5:00 pm each day and then turned over to Rochester Riverside Convention Center Security. At the end of the meeting, all found items will be turned over to Rochester Riverside Convention Center, +1 585-232-7200.

Parking
Rochester Riverside Convention Center Parking
$10 daily maximum, weekdays
Rochester Riverside Hotel
$17/night garage parking, free airport shuttle
Hilton Garden Inn
$10/night self-parking
Hyatt Regency Rochester
$12/night covered parking, free airport shuttle

New York Photonics www.newyorkphotonics.org
Promoting New York State’s photonics, optics, and imaging industry through cluster-based initiatives. Programs and services to help New York State companies increase visibility, grow sales, reduce costs, and attract the best talent. Group promotions, networking, information transfer, discount purchasing, government liaison, and workforce development. Host of NYS Pavilions at major trade shows.

New York State Cluster Participants at Optifab 2019

<table>
<thead>
<tr>
<th>Company</th>
<th>Booth #</th>
</tr>
</thead>
<tbody>
<tr>
<td>AccuCoat Inc.</td>
<td>#610</td>
</tr>
<tr>
<td>Applied Image, Inc.</td>
<td>#134</td>
</tr>
<tr>
<td>Bristol Instruments, Inc.</td>
<td>#613</td>
</tr>
<tr>
<td>ComTec Solutions</td>
<td>#612</td>
</tr>
<tr>
<td>EMF Corp.</td>
<td>#616</td>
</tr>
<tr>
<td>Metrology Concepts LLC</td>
<td>#132</td>
</tr>
<tr>
<td>Optimax Systems, Inc.</td>
<td>#606</td>
</tr>
<tr>
<td>QED Optics</td>
<td>#617</td>
</tr>
<tr>
<td>QED Technologies, Inc.</td>
<td>#621, #617</td>
</tr>
<tr>
<td>SlicingTech</td>
<td>#611</td>
</tr>
<tr>
<td>Swift Glass, Inc.</td>
<td>#615</td>
</tr>
<tr>
<td>Sydor Optics, Inc.</td>
<td>#608</td>
</tr>
<tr>
<td>Syntec Optics</td>
<td>#607</td>
</tr>
<tr>
<td>Wordingham Technologies</td>
<td>#607</td>
</tr>
<tr>
<td>Xactra Technologies</td>
<td>#614</td>
</tr>
</tbody>
</table>

INTERNET ACCESS
Complimentary wireless access available; instructions will be posted onsite.

SPONSORED BY

L3HARRIS

SPIE CONFERENCE AND EXHIBITION APP
Search and browse the program, special events, participants, exhibitors, courses, and more. Free Conference App available for iPhone and Android phones.

SPIE BOOKSTORE
Galleria, 1st Floor
Stop by the SPIE Bookstore to browse popular SPIE Press Books and educational materials.

SPIE EDUCATION SERVICES
Registration Area, Galleria, 1st Floor
Browse course offerings and the other education services available: SPIE courses online as well as customized in-company courses.

Car Rental
Hertz Car Rental has been selected as the official car rental agency for this Symposium. To reserve a car, identify yourself as an Optifab conference attendee using the Hertz Meeting Code CV# 029B0024. Note: When booking from International Hertz locations, the CV # must be entered with the letters CV before the number, i.e. CV029B0024.

- In the United States call +1 800-654-2240
- Book Hertz Online

CHILDCARE SERVICES
Generations – North East Rochester
+1 585-613-7500
YMCA – Lewis Street Child Care Center
+1 585-325-2572

NOTE: SPIE does not imply an endorsement nor recommendation of these services. They are provided on an “information only” basis for your further analysis and decision. Other services may be available.

URGENT MESSAGE LINE
An urgent message line is available during registration hours: +1 585-770-2361

LOST AND FOUND
Found items will be kept at Cashier until 5:00 pm each day and then turned over to Rochester Riverside Convention Center Security. At the end of the meeting, all found items will be turned over to Rochester Riverside Convention Center, +1 585-232-7200.

Parking
Rochester Riverside Convention Center Parking
$10 daily maximum, weekdays
Rochester Riverside Hotel
$17/night garage parking, free airport shuttle
Hilton Garden Inn
$10/night self-parking
Hyatt Regency Rochester
$12/night covered parking, free airport shuttle

New York Photonics www.newyorkphotonics.org
Promoting New York State’s photonics, optics, and imaging industry through cluster-based initiatives. Programs and services to help New York State companies increase visibility, grow sales, reduce costs, and attract the best talent. Group promotions, networking, information transfer, discount purchasing, government liaison, and workforce development. Host of NYS Pavilions at major trade shows.

New York State Cluster Participants at Optifab 2019

<table>
<thead>
<tr>
<th>Company</th>
<th>Booth #</th>
</tr>
</thead>
<tbody>
<tr>
<td>AccuCoat Inc.</td>
<td>#610</td>
</tr>
<tr>
<td>Applied Image, Inc.</td>
<td>#134</td>
</tr>
<tr>
<td>Bristol Instruments, Inc.</td>
<td>#613</td>
</tr>
<tr>
<td>ComTec Solutions</td>
<td>#612</td>
</tr>
<tr>
<td>EMF Corp.</td>
<td>#616</td>
</tr>
<tr>
<td>Metrology Concepts LLC</td>
<td>#132</td>
</tr>
<tr>
<td>Optimax Systems, Inc.</td>
<td>#606</td>
</tr>
<tr>
<td>QED Optics</td>
<td>#617</td>
</tr>
<tr>
<td>QED Technologies, Inc.</td>
<td>#621, #617</td>
</tr>
<tr>
<td>SlicingTech</td>
<td>#611</td>
</tr>
<tr>
<td>Swift Glass, Inc.</td>
<td>#615</td>
</tr>
<tr>
<td>Sydor Optics, Inc.</td>
<td>#608</td>
</tr>
<tr>
<td>Syntec Optics</td>
<td>#607</td>
</tr>
<tr>
<td>Wordingham Technologies</td>
<td>#607</td>
</tr>
<tr>
<td>Xactra Technologies</td>
<td>#614</td>
</tr>
</tbody>
</table>
He’s got it. Shouldn’t you?

Sign up to the free weekly newsletter and we’ll send the news to you.

optics.org/newsletter

Get the latest industry news.
PRODUCT DEMOS

Learn new possibilities at these in-booth sessions, which are free to all attendees. Exhibiting companies will be showcasing products in half-hour demonstrations.

THURSDAY 17 OCTOBER 2019 • EXHIBITION HALL IN BOOTH DEMOS

10:30 AM

SUPERIOR POLISHING AND ULTRA-PRECISE MACHINING
Schneider Optical Machines Inc. • Booth 1021
Daniel Gauch
The Schneider team presents its ultra-precise single point diamond turning center UPC 300 and the high-quality aspherical lens polisher ALP 120.

PROSURF FREEFORM CAM SOFTWARE
OptiPro Systems • Booth 820
Frank Wolfs
The flexibility and power of the freeform CAM package PROSurf will be demonstrated. Come see how PROSurf can benefit your freeform manufacturing process.

11:00 AM

SPO80 CNC ASPHERE POLISHING
OptoTech Optical Machinery Inc. • Booth 323
Lars Burghardt
OptoTech’s SPO 80 CNC is the ideal low cost version of a high speed CNC polisher. Designed for spherical optics between Ø 5 and Ø 80 mm in diameter, it can be upgraded to incorporate our patented HydroSpeed technology as well as aspheric capability. With the Aspheric upgrade, the machine also includes our patented Active Fluid Jet Polishing Technology (A-FJP), the ability to use FEM tools, as well as our patented Advanced Wheel Polishing Technology (A-WPT). Come see a demonstration of aspheric processing at our Booth #323.

USING MRF FOR SMALL, HIGHER ORDER SURFACE CORRECTIONS
QED Technologies • Booth 621
Bruce S. Forman
In this presentation we will share our latest 10 mm wheel MRF polishing tool for correcting mid spatial frequencies and making corrections on small, concave radius parts less than 10 mm.

11:30 AM

DZM 20 CNC CENTERING MACHINE FOR MICRO OPTICS
OptoTech Optical Machinery Inc. • Booth 323
Lars Burghardt
OptoTech is introducing its new DZM 20 CNC Centering Machine to the US market. The DZM 20 CNC is a compact and easy to operate CNC controlled centering machine, especially designed for super micro or endoscopic optics. Clamping can be done manually or via CNC controller, using traditional clamping bell technology or an HD 12 runner. With 2 CNC axes and 1 clamping axis in a horizontal configuration, this versatile machine is able to perform multiple grinding operations as well as CT measurement and compensation. It can be used for edging diameters, chamfers, steps and plunge cutting. Please visit the OptoTech Booth #323 to see a demonstration of this new machine.

3D OPTICAL PROFILING FOR OPTICS PRODUCTION
Zygo Corporation • Booth 423
Eric Felkel
A demonstration of the latest advancements in non-contact measurement and characterization of surface texture and micro-topography in production applications.

LATEST ADVANCEMENTS IN THIN GLASS METROLOGY
Zygo Corporation • Booth 423
Tyler Steele
Demonstration of precise optical metrology solutions for thin glass manufacturing and advanced applications, including simultaneous measurement of surface form and thickness.
Stay Up to Date with the Industry’s Leading Content

WORLDWIDE COVERAGE OF LASERS • OPTICS • POSITIONING • SENSORS & DETECTORS
IMAGING • TEST & MEASUREMENT • SOLAR • LIGHT SOURCES • MICROSCOPY
MACHINE VISION • SPECTROSCOPY • FIBER OPTICS • MATERIALS & COATINGS

Visit us in booth 1115 for the latest issues.

Available in print and digital formats.
To subscribe, visit: www.photonics.com/subscribe.
SPIE THANKS OUR OPTIFAB SPONSORS:

PROMOTIONAL PARTNERS

Electro Optics Magazine
International OptoIndex
Laser Focus World

optics.org
Photonics Media
# COURSES

**Personal Instruction. Real-time interaction.**

Effective, focused, and efficient training chosen specifically for optical manufacturing professionals. Take advantage of the unique opportunity to learn from some of the most experienced and accomplished minds in industry and research, and interact with peers who share similar challenges.

## MONDAY

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Date/Time</th>
<th>Course Level</th>
<th>Instructors</th>
<th>Price Members</th>
<th>Price Non-members</th>
<th>Price Student Member</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Proper Care of Optics: Cleaning, Handling, Storage and Shipping</td>
<td>SC1114 • 1:30 PM - 5:30 PM</td>
<td>Introductory</td>
<td>Robert Schalck (USA)</td>
<td>$435.00</td>
<td>$495.00</td>
<td>$273.00</td>
</tr>
<tr>
<td>Optical Glass – Properties and Application-oriented Specification</td>
<td>SC1179 • 8:30 AM - 5:30 PM</td>
<td>Intermediate</td>
<td>Mark J. Davis (USA)</td>
<td>$700.00</td>
<td>$790.00</td>
<td>$391.00</td>
</tr>
<tr>
<td>Optical System Design: Layout Principles and Practice</td>
<td>SC690 • 8:30 AM - 5:30 PM</td>
<td>Introductory</td>
<td>John E. Greivenkamp (USA)</td>
<td>$690.00</td>
<td>$780.00</td>
<td>$387.00</td>
</tr>
<tr>
<td>Introduction to Modern Optical Drawings – the ISO 10110 Standard</td>
<td>SC863 • 8:30 AM - 12:30 PM</td>
<td>Introductory</td>
<td>David M. Aikens (USA)</td>
<td>$390.00</td>
<td>$450.00</td>
<td>$255.00</td>
</tr>
</tbody>
</table>

## TUESDAY

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Date/Time</th>
<th>Course Level</th>
<th>Instructors</th>
<th>Price Members</th>
<th>Price Non-members</th>
<th>Price Student Member</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fundamentals of Molded Optics</td>
<td>SC1178 • 1:30 PM - 5:30 PM</td>
<td>Introductory</td>
<td>Alan Symmons, LightPath Technologies, Inc. (USA); Michael Schaub, Facebook Technologies, LLC (USA)</td>
<td>$425.00</td>
<td>$485.00</td>
<td>$269.00</td>
</tr>
<tr>
<td>Introduction to Freeform Optics: Design, Testing, and Applications</td>
<td>SC1278 • 1:30 PM - 5:30 PM</td>
<td>Introductory</td>
<td>Joseph M. Howard (USA)</td>
<td>$390.00</td>
<td>$450.00</td>
<td>$255.00</td>
</tr>
<tr>
<td>Fundamentals of Single Point Diamond Turning</td>
<td>SC848 • 1:30 PM - 5:30 PM</td>
<td>Introductory</td>
<td>John P. Schaefer, Raytheon EO Innovations (USA)</td>
<td>$390.00</td>
<td>$450.00</td>
<td>$255.00</td>
</tr>
</tbody>
</table>

## WEDNESDAY

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Date/Time</th>
<th>Course Level</th>
<th>Instructors</th>
<th>Price Members</th>
<th>Price Non-members</th>
<th>Price Student Member</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geometric Dimensioning and Tolerancing</td>
<td>SCI040 • 8:30 AM - 5:30 PM</td>
<td>Introductory</td>
<td>Walt Prystaj (USA)</td>
<td>$655.00</td>
<td>$745.00</td>
<td>$373.00</td>
</tr>
<tr>
<td>Seeing, Analyzing and Controlling Mid-Spatial Frequency (MSF) and Surface Roughness Errors on Optical Surfaces</td>
<td>SCI171 • 8:30 AM - 12:30 PM</td>
<td>Introductory</td>
<td>Jessica DeGroote Nelson (USA)</td>
<td>$390.00</td>
<td>$450.00</td>
<td>$255.00</td>
</tr>
<tr>
<td>Fundamentals of Optical Engineering</td>
<td>SCI224 • 1:30 PM - 3:30 PM</td>
<td>Introductory</td>
<td>Alexis K. S. Vogt (USA)</td>
<td>$260.00</td>
<td>$285.00</td>
<td>$189.00</td>
</tr>
<tr>
<td>Understanding Scratch and Dig Specifications</td>
<td>SC700 • 1:30 PM - 5:30 PM</td>
<td>Introductory</td>
<td>David M. Aikens (USA)</td>
<td>$390.00</td>
<td>$450.00</td>
<td>$255.00</td>
</tr>
<tr>
<td>Course for Technicians Introduction to Magnetorheological Finishing</td>
<td>SC1279 • 8:00 AM - 10:00 AM</td>
<td>Introductory</td>
<td>Paul Dumas (USA)</td>
<td>$260.00</td>
<td>$285.00</td>
<td>$189.00</td>
</tr>
</tbody>
</table>

## THURSDAY

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Date/Time</th>
<th>Course Level</th>
<th>Instructors</th>
<th>Price Members</th>
<th>Price Non-members</th>
<th>Price Student Member</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optics Surface Inspection Workshop</td>
<td>SCI017 • 8:30 AM - 12:30 PM</td>
<td>Introductory</td>
<td>David M. Aikens (USA)</td>
<td>$490.00</td>
<td>$550.00</td>
<td>$295.00</td>
</tr>
<tr>
<td>Optical Manufacturing Fundamentals</td>
<td>SCI169 • 8:30 AM - 5:30 PM</td>
<td>Introductory</td>
<td>Ray Williamson (USA)</td>
<td>$685.00</td>
<td>$775.00</td>
<td>$385.00</td>
</tr>
<tr>
<td>Course for Technicians Measuring Precision Freeform Optics</td>
<td>SCI280 • 8:00 AM - 10:00 AM</td>
<td>Introductory</td>
<td>Scott DeFisher (USA)</td>
<td>$260.00</td>
<td>$285.00</td>
<td>$189.00</td>
</tr>
</tbody>
</table>

**CONTINUING EDUCATION UNITS**

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

**MONEY-BACK GUARANTEE**

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

GET THE FREE SPIE CONFERENCE AND EXHIBITION APP

Find the best networking and information-gathering opportunities with this powerful planning tool. Schedule your time in the conferences... navigate the exhibition floor...make new connections.

Available for iOS and Android. Search: SPIE Conferences.
This program is current as of 9 September 2019. Find the latest on the SPIE conference app.

Welcome, students

All students and accompanying adults are welcome to participate in the program.

SCHEDULE

7:30 am–3:00 pm  Onsite Registration and Badge Pickup Hours
10:00–10:30 am  Introduction by industry leaders
10:30 am–12:00 pm Walk the floor and view demos
12:00–1:00 pm  Free pizza lunch—Must register by 4 October*

*Sponsored by The Institute of Optics, Univ. of Rochester

*To be included in the pizza lunch, you had to be registered for the student program by 4 October.

Check out the JOB FAIR at SPIE Optifab!

SPE. CAREER CENTER
spiecareercenter.org
Visit the Career Center Booth #514
### EXHIBITION HOURS
Rochester Convention Center
Empire Hall
Tuesday 15 October ............ 10:00 am to 5:00 pm
Wednesday 16 October ........ 10:00 am to 5:00 pm
Thursday 17 October ........... 10:00 am to 3:00 pm

### HOW TO USE THIS DIRECTORY
Exhibitors are listed in alphabetical order with details about products or services they are exhibiting on pages 14–44. Companies are additionally cross-indexed by technology areas in the Product Index on pages 45–48, to allow you to quickly shop for products for your engineering and business needs.

Booth numbers are listed below and may be cross-referenced with the map at right.

### EXHIBITOR BOOTH INDEX
Companies as of 9 September 2019

| Lit-1 | Electro Optics Magazine |
| Lit-2 | International OptoIndex |
| Lit-3 | Laser Focus World |
| 104   | Luminate |
| 106   | KrellTech |
| 112   | Naked Optics Corp. |
| 114   | Techmetals, Inc. |
| 116   | Benchmark Technologies |
| 118   | Hutchins & Hutchins, Inc. |
| 122   | IRD Glass |
| 126   | PHASICS Corp. |
| 128   | New Way Air Bearings |
| 130   | Infinite Optics Inc. |
| 132   | Metrology Concepts LLC |
| 134   | Applied Image, Inc. |
| 136   | Synopsys |
| 144   | R. Mathews Optical Works, Inc. |
| 152   | Kreischer Optics, Ltd. |
| 154   | Isuzu Glass, Inc. |
| 156   | ilis gmbh |
| 158   | Kinetic Systems, Inc. |
| 160   | EssentOptics Ltd. |
| 162   | HOYA Corp. USA |
| 168   | Gage-Line Technology, Inc. |

| 172   | Empire West, Inc. |
| 174   | Optical Perspectives Group, LLC |
| 176   | Dioptic GmbH |
| 178   | ABTech, Inc. |
| 180   | Thin-Films Research, Inc. |
| 182   | Inrad Optics |
| 184   | Spectrum Thin Films Corp. |
| 186   | IST Precision |
| 204, 206 | Kentek Corp. |
| 207   | EMD Performance Materials Corp |
| 209   | NGL Cleaning Technology SA |
| 210   | Advance Reproductions Corp. |
| 211   | NGL Nordic A/S |
| 212   | dopa diamond tools |
| 213   | Opto-Alignment Technology, Inc. |
| 216   | Apollo Optical Systems, Inc. |
| 217   | Äpre Instruments, Inc. |
| 218   | Niabraze, LLC |
| 223   | TRIOPTICS |
| 306   | Fujitok Corporation |
| 307   | Photonic Cleaning Technologies |
| 309   | Lattice Materials LLC |
| 310   | Bühler Inc. |
| 311   | K&Y Diamond Ltd. |
| 312   | Precitec, Inc. |
| 313   | Danyang Danyao Optics Co., Ltd. |
| 314   | Telemark, Inc. |
| 316   | Panasonic |
| 317   | Contour Fine Tooling Inc. |
| 318   | FLIR Systems, Inc. |
| 319   | Thorlabs, Inc. |
| 323   | OptoTech Optical Machinery Inc. |
| 406   | Mindrum Precision, Inc. |
| 407   | Technotrade International, Inc. |
| 408   | Angstrom Precision Optics Inc. |
| 409   | Eminess Technologies, Inc. |
| 410   | SmarAct Inc. |
| 412   | NKT Photonics Inc. |
| 413   | Santec USA Corp. |
| 414   | Vertex Optics, Inc. |
| 415   | DynaVac |
| 416   | InterOptics, LLC |
| 417   | MPA Crystal Corp. |
| 418   | Precision Optical |
| 419   | Reynard Corp. |
| 423   | Zygo Corporation |

| 506   | North American Coating Labs. |
| 507   | PR Hoffman Machine Products, Inc. |
| 508   | MiniTec Framing Systems, LLC |
| 510   | MPS Micro Precision Systems AG |
| 511   | Corning Incorporated |
| 512   | Norland Products Inc. |
| 513   | Esco Optics, Inc. |
| 514   | optics.org |
| 514   | SPIE Career Center |
| 514   | SPIE Digital Library |
| 515   | Ametek Taylor Hobson |
| 521   | Satisloh North America Inc. |
| 606   | Optimax Systems, Inc. |
| 607   | Syntec Optics |
| 607   | Worthingham Technologies |
| 608   | Sydor Optics, Inc. |
| 610   | AccuCoat Inc. |
| 611   | SlicingTech |
| 612   | ComTec Solutions |
| 613   | Bristol Instruments, Inc. |
| 614   | Xactra Technologies |
| 615   | Swift Glass, Inc. |
| 616   | EMF Corp. |
Tuesday 9:45 am
Opening Day and Ribbon-Cutting Ceremony

617 QED Optics
617, 621 QED Technologies, Inc.
706 Ohara Corp.
707 AMETEK Precitech, Inc.
708 ET Precision Optics Inc.
710 Fil-Tech Inc.
711 Spica Technologies, Inc.
712 Micro-LAM, Inc.
713 piezosystem jena, Inc.
715 Savvy Optics Corp.
716 4D Technology Corporation
717 LaCroix Precision Optics
806 Optikos Corporation
807 Moore Nanotechnology Systems, LLC
808 United Lens Company
810 HIWIN Corp.
811 scia Systems GmbH
813 Valtech Corp.
814 Glass Fab, Inc.
815 nPoint, Inc.
816 DCM Tech, Inc.
817 Larsen Equipment Design, Inc.
820 OptiPro Systems
906 SCHOTT North America, Inc.
907 Precision Glass & Optics
909 RedLux Ltd.
910 son-x GmbH
911 Guernsey Coating Labs., Inc.
912 Precision Tool Technologies, Inc.
913 Advanced Glass Industries
914 Mildec, Inc.
915 Microdiamant USA, Inc.
916 OPTIX Co.
917 GS Plastic Optics
921 Universal Photonics Inc.
1006 Diverse Optics Inc.
1007 Vermont Photonics Technologies Corp.
asphericon
1008 Bridger Photonics, Inc.
1010 Switzer
1011 MICRO-EPSON America
1011 OPTOCRAFT GmbH
1012 ZEISS Industrial Quality Solutions
1013 Günter Effgen GmbH
1015 Xonox Technology GmbH
1016 McVac Manufacturing Co., Inc.
1021 Schneider Optical Machines Inc.
1106 Engis Corp.
1107 JAYCO Cleaning Technologies
1109 Teapoert Optics, Inc.
1110 Intivac Thin Film
1111 Qual Diamond Hi-Tech
1112 Zeeko Ltd.
1113 Innolite GmbH
1114 Spartan Felt Co.
1115 Photonics Media
1116 attocube systems Inc.
1206 Salem Advanced Materials
1207 Zaber Technologies Inc.
1208 Imagine Optic Inc.
1210 Tower Optical Corp.
1211 Kaufman & Robinson, Inc.
1212 NTG Neue Technologien GmbH & Co. KG
1213 Chardon Tool
1214 PerkinElmer, Inc.
1215 New Scale Technologies, Inc.
1216 Andover Corporation
1217 OptoSigma Corp.
1221 Mahr Inc.
1303 LaBionicS
1305 Nikon Corporation
1306 JML Optical Industries, LLC
1307 VisiMax Technologies, Inc.
1308 M3 Measurement Solutions
1309 XL Vac Technologies, Inc.
1310 Blue Photon Technology & Workholding Systems LLC
1311 Cosmo Optics
1312 Sandvik Osprey Ltd.
1313 Jrlion, Inc.
1314 Ralph W. Earl Company
1315 Fraunhofer-Institut für Angewandte Optik und Feinmechanik IOF
1316 Cranfield Precision
1317 ALLVAR
1319 COTEC GmbH
1321 UC Components, Inc.
1322 AdValue Photonics, Inc.
1323 AdOptica Optical Systems GmbH
1325 US Centrifuge – A Division of Filtertech
1326 Novotech, Inc.
1328 Shimadzu Corp.
1329 InSync, Inc.
4D Technology Corporation #716

A Nanometrics Business, 3280 E Hemisphere Loop Ste 146, Tucson, AZ, 85706-5039 USA
+1 520 294 5600; fax +1 520 294 5601
info@4dtechnology.com; www.4dtechnology.com

Featured Product: PhaseCam Twyman-Green Dynamic Interferometer to measure surfaces and wavefronts in all environments.

Designs and manufactures dynamic laser interferometers and optical profilers, micropolarizer cameras and surface defect gauges. With vibration-insensitive dynamic measurements, customers gain size & weight-reduced portability, easy integration into robotics, and measurements in difficult/turbulent environments. space-based telescopes, flexible electronics, automotive, and in-line production measurements. A Nanometrics business. Contact: Steve Martinek, VP Sales and Marketing, smartinek@nanometrics.com; Edgar Schrock, Marketing Manager, eschrock@nanometrics.com

ABTech, Inc. #178

126 North Rte 12, Fitzwilliam, NH, 03447 USA
+1 603 585 7106; fax +1 603 585 7109
sales@abtechmfg.com; www.abtechmfg.com

Featured Product: MicroForm 100, Air Bearing Rotary Table

ABTech’s ultra-precision stainless steel air bearing rotary tables with micro-inch accuracy provides repeatable measurements with maintenance-free robustness. Our MicroForm™ software simplifies use on the shop floor, yet offers analysis capabilities for QA labs. Intuitive navigation a touch-screen monitor easily triggers measurements for runout (TIR), roundness, flatness, parallelism, perpendicularly, and concentricity. Available size range 6”-36” in diameter; up to 5,000 pounds. Contact: Tina Hoppock, Sales and Marketing, thoppock@abtechmfg.com; mark Lamoureux, Sales Manager, mlamoureux@abtechmfg.com

AccuCoat Inc. #610

111 Humboldt St Ste 8, Rochester, NY, 14609 USA
+1 585 288 2330; fax +1 585 288 2331
coatings@accucoatinc.com; www.accucoatinc.com

AccuCoat Inc. is a supplier of thin film coatings on plastic, metal, glass, and a variety of other components. Producing a wide variety of antireflective, beamsplitter, hot and cold mirror, ITO, filter, and metallic coatings as well as custom coatings to meet your dynamic applications. Experienced in handling prototype thru OEM volumes. Coatings available from the UV to the NIR. Over 90 years combined engineering experience can provide custom designed solutions. Contact: Alan Parsons Contact: Alan Parsons, Sales Manager, alan@accucoatinc.com
AdlOptica Optical Systems GmbH

Rudower Chaussee 29, Berlin, 12489 Germany
+49 305 6590 8880; fax +49 305 6590 8881
info@adloptica.com; www.adloptica.com

Featured Product: tauFRIN - set of 5"+ Transmission Spheres for Fizeau Interferometers
AdlOptica works in fields of Interferometry and Beam Shaping Optics transforming laser beams and finding numerous industrial and scientific applications. Multi-year developments are realized in variety of optics, > 70 models: almost 100% efficiency, spectrum from UV to IR, power from mW to kW, CW or pulse lasers, achromatic design, variety of flattop spot sizes, low sensitivity to misalignment. AdlOptica is locating in Adlershof, Berlin, Germany’s leading science and technology park.
Contact: Alexander Laskin, Project Manager, alex@adloptica.com; Vadim Laskin, General Manager, vladimus@adloptica.com

AdValue Photonics, Inc.

2700 E Bilby Rd, Tucson, AZ, 85706 USA
+1 520 790 5468; fax +1 520 790 1158
contact@advaluephotonics.com; www.advaluephotonics.com

Advance Reproductions Corp.

100 Flagship Dr, North Andover, MA, 01845-6117 USA
+1 978 685 2911; fax +1 978 685 1771
sales@advancerepro.com; www.advancerepro.com

Featured Product: Photomasks
Advance Reproductions Corporation is a leading supplier of superior, large-area and optical Photomasks and Phototools. Innovative by nature we strive tirelessly to collaborate with our customers on their complex requirements. Our seasoned staff of experts and our creative approach to each and every request is what sets us apart. Working with unique requirements and complex patterning requests as well as offering prototypes and high volume patterning we welcome the challenge.
Contact: Don Robinson, Director of Sales, d.robinson@advancerepro.com

Advanced Glass Industries

1335 Emerson St, PO Box 60467, Rochester, NY, 14606 USA
+1 585 458 8040; fax +1 585 458 8087
agi@advancedglass.net; www.advancedglass.net

Manufacturer of Molded and precision machined glass products. Services include precision custom molding, annealing, slumping, sawing, grinding, CNC machining, generating, edging, cutting and machining. Products include optical and filter glass, Fused Quartz, Fused Silica, and industrial glass. Prototype to production quantities.
Contact: Henry Louis, Sales Manager, agi@advancedglass.net; Alicia Gionta, Office Manager, agi@advancedglass.net

ALLVAR

501 Graham Rd, College Station, TX, 77845-9662 USA
+1 956 789 3723
www.allvaralloys.com

Featured Product: ALLVAR Negative Thermal Expansion Alloys
ALLVAR introduces our revolutionary family of metals that have a Negative Coefficient of Thermal Expansion (CTE). Our Alloy 30 offers a -30 ppm/C CTE and comes in tube up to 3" OD and Bar up to 2.5" OD. The unique properties of our metal offer Opto-mechanical Engineers a way to athermalize optic assemblies in environments from 100 C all the way down to cryogenic, and offer a constant load spacer system to keep assemblies tight and at peak performance under extreme temperature changes.
Contact: Jay Zgarba, Vice President of Business Development, jayzgarba@allvaralloys.com

Optisonic 1150X mill: ultrasonic lightweighting and curve generation for up to 20" diameter optics.
AMETEK Precitech, Inc. #707
44 Blackbrook Rd, Keene, NH, 03431-5040 USA
+1 603 357 2511; fax +1 603 358 6174
sales@precitech.com; www.precitech.com

**Featured Product: Precision Turning Machines**
Precitech is a global manufacturer of innovative ultra precision machining solutions for diamond turning, milling, and grinding. Precitech machines are used to produce optical lenses, mold inserts, mirrors, and precision mechanical components. With 50+ years of experience, an installed base of 1,500 systems in 46 countries, and sales, service, and application engineers located throughout North America, Europe and Asia, we have the global reach to quickly solve your complex machining challenge. Contact: Kirk Rogers, North American Sales Manager, kirk.rogers@ametek.com; Mike Tanniru, Business Director, mike.tanniru@ametek.com

Fast tool servo accessory for Precitech machines that has 5mm travel and up to 40g acceleration.

---

Ametek Taylor Hobson #515
2775 Diehl Rd Ste 300, Warrenville, IL, 60555-4035 USA
+1 630 621 3099; fax +1 630 231 1739
taylor-hobson.usa@ametek.com; www.taylor-hobson.com/global-offices.html

**Featured Product: LUPHOScan**
LUPHOScan is designed for ultra precision non-contact 3D form measurements on optic applications.

---

Andover Corporation #1216
4 Commercial Dr, Salem, NH, 03079-2800 USA
+1 603 893 6888; fax +1 603 893 6508
info@andcorp.com; www.andovercorp.com

**Featured Product: High-Quality Optical Filters And Coatings**
Andover Corporation was established in 1976 with the purpose of designing and manufacturing high-quality optical filters and coatings. Over the years as the company has grown, the focus has remained on quality. Our current facility spans 44,000 square feet on 17 acres of land in Salem, NH. Our facility is custom-designed and state-of-the-art, and includes automated coating, glass polishing, and fabrication equipment. Our testing capabilities are as extensive as you can imagine. Contact: Michael Tiner, Chief Operating Officer, mtiner@andovercorp.com; Mark Kfoury, Director of Technical Sales, mark.kfoury@andovercorp.com

---

Angstrom Precision Optics Inc. #408
1321 Emerson St, Rochester, NY, 14606 USA
+1 585 663 7230; fax +1 585 663 7236
info@apoptics.com; www.apoptics.com

**Featured Product: Flat Optical Components**
Angstrom Precision Optics specializes in double side plano polishing, coring, dicing, and machining of finished optical components. For IR applications, we excel at the fabrication of Silicon and Germanium window substrates. Please also consider us for any filter requirements using Schott, Hoya, Kopp, or equivalent materials. Depending on the application, we are often able to offer quick turn deliveries so please consider APO for your future needs! Contact: Scott Walker, Sales Manager, scott@apoptics.com; John O’Herron, General Manager, johnny@apoptics.com

---

Apollo Optical Systems, Inc. #216
925 John St, West Henrietta, NY, 14586-9780 USA
+1 585 272 6170; fax +1 585 272 6177
info@apollooptical.com; www.apollooptical.com

Manufacturer of custom precision optical components specializing in injection molded polymer optics and single point diamond turning, both in prototype and production volumes. In-house capabilities include injection molding, SPDT, extensive metrology, coating, optical/mechanical design and engineering. AOS specializes in design and manufacturing of diffractive and refractive optics. Contact: Daniel McGarry, President, McGarry@ApolloOptical.com; Claude Tribastone, COO, Tribastone@ApolloOptical.com
Applied Image, Inc. #134

1653 E Main Street, Rochester, NY, 14609-7090 USA
+1 585 482 0300; fax +1 585 288 5989
info@appliedimage.com; www.appliedimage.com

Featured Product: NIST Traceable Color Transmission Calibration Slide

Applied Image Inc. is a world leader in the design and manufacture of precision-imaged optical components and standards for a wide range of applications and industries that require NIST-traceable standards and/or precision-imaged components to test, calibrate, align, control or measure their optical or photonics systems. We work every day with executives, product managers, and engineers to support the design, evaluation, and calibration of photonics-based systems. Contact: Darren Dixon, Sales Manager, ddixon@appliedimage.com; Sean Pratt, Marketing Manager, spratt@appliedimage.com

Blue Photon Technology & Workholding Systems LLC #1310

1002 Industrial Park Dr, Shelby, MI, 49455 USA
+1 855 878 2040
info@bluephotongrip.com; www.bluephotongrip.com

Featured Product: BlueGrip Workholding Adhesive cures to surfaces for hard-to-hold machining with easy removal.

Blue Photon manufacturers a patented photo-activated adhesive workholding system. Blue Photon’s grip technology solves workholding problems associated with current workholding devices. The technology allows for complete photo-activated adhesive curing on all glass and ceramic surfaces without the use of clamps, wax or pitch. Offering fixture design and engineering for milling, turning, grinding, laser, inspection, and assembly applications, including aerospace, medical, optics and photonics. Contact: Shannon Osborn, Marketing Manager, shannon@bluephotongrip.com; John Joyce, National Sales Manager, john@bluephotongrip.com

asphericon #1008

5500 Bee Ridge Rd Ste 104, Sarasota, FL, 34233 USA
+1 941 564 0890
sales@asphericon.com; www.asphericon.com

Featured Product: Fast lane prototyping; Reduced lead time of up to 3 weeks for optical elements including coating

As an independent and recognized specialist, asphericon is among the technological leaders in the field of asphere manufacture. The basis for manufacture is a specially developed and patented technology to control CNC grinding and polishing machines. asphericon assists its customers from the initial optic design, via manufacturing and coating, full-surface interferometric measuring and documentation, through to the assembly of optical modules and their optical characterization. Contact: Steffen Schneider, President, s.schneider@asphericon-inc.com; Laura House, Sales Assistant, l.house@asphericon-inc.com

attocube systems Inc. #1116

2020 Stuart St, Berkeley, CA, 94703 USA
+1 510 649 9245
info@attocube.com; www.attocube.com

attocube is the technology leader for ultra precise motion and sensing solutions compatible with extreme environmental conditions such as UHV, magnetic field, radiation exposure, as well as cryogenic to elevated operating temperatures. The portfolio also includes integrated measurement systems, such as the attoDRY800 cryo-optical table and a Photonic Probe Station, an ultra-stable, extremely compact and easy to use table top setup for nanophotonic device characterization.

Benchmark Technologies #116

Bldg E, 7 Kimball Ln, Lynnfield, MA, 01940-2654 USA
+1 781 246 3303; fax +1 781 246 0308
contact@benmarktech.com; www.benmarktech.com

Featured Product: Grating and nano-imprint master fabrication services for display and optics applications.

Benchmark is a leading provider of custom fabrication services utilizing micro and nanoscale lithography and advanced etching. Benchmark can provide micro-and nano structures for photonic and bio applications on a variety of substrates. The company also provides mask design and fabrication services, standard and custom lithography test masks, and imprint molds. Benchmark also offers grayscale mask design and fabrication services for customers wishing to implement grayscale lithography. Contact: Andrew Zanzal, VP Sales, azanzal@benchmarktech.com
Bridger Photonics, Inc. #1009
2310 University Way Bldg 4-4, Bozeman, MT, 59715 USA
+1 406 585 2774; fax +1 406 587 0808
www.bridgerphotonics.com

Featured Product: Thickness Metrology Station™ measures lens center thickness and refractive index without contact.
Bridger Photonics is a recognized world leader in high-resolution, coherent distance measurement and lidar technologies. We create innovative and sound solutions together with our customers and partners to meet their Metrology and Imaging objectives. We are driven by a desire to create innovative products that advance society and significantly enhance our customers’ measurement capabilities.

Bristol Instruments, Inc. #613
SPIE Member
770 Canning Pkwy, Victor, NY, 14564-8983 USA
+1 585 924 2620; fax +1 585 924 2623
info@bristol-inst.com; www.bristol-inst.com

Bristol Instruments is known as a world leader in optical interferometer-based instrumentation. Its family of Optical Thickness Gauges offer high accuracy and exceptional repeatability, for the most reliable non-contact thickness measurement available. Precision thickness information is critical in the development and production of a variety of materials, including ophthalmic products, medical tubing, OLED, AMOLED, and LCD displays, as well as optical components and lens assemblies. Contact: Don Jarvie, Business Development Manager, Optical Metrology, djarvie@bristol-inst.com

Bühler Inc. #310
SPIE Member
Business Area Leybold Optics, 539 James Jackson Ave, Cary, NC, 27513-8101 USA
+1 919 657 7100; fax +1 919 657 7101
leyboldoptics.cary@buhlergroup.com; www.buhlergroup.com

Corning Incorporated #511
SPIE Member
1 Riverfront Plz, Corning, NY, 14831 USA
+1 607 974 9000; fax +1 585 377 6332
www.corning.com/specialtymaterials

Corning Advanced Optics (www.corning.com/advanced-optics) is a global leader in providing cutting-edge material and optical solutions that serve a variety of commercial markets including semiconductor manufacturing, consumer electronics, and more. We provide trusted capabilities to see a project through from design to testing. Corning’s unmatched expertise in specialty glass and optical physics results in a diverse set of products from industry-leading materials to full optical systems. Contact: Mary Katherine Cornfield, Marketing Communications | Advanced Optics, CornfieldMJ@corning.com

ComTec Solutions #612
100 Elmgrove Pk, Rochester, NY, 14624 USA
+1 585 621 9303; fax +1 585 621 6214
info@comtecsolutions.com; www.comtecsolutions.com

Featured Product: Epicor ERP, IT managed services, cloud hosting, disaster recovery
ComTec is a leading provider of IT Managed Services and Epicor Services in the Eastern US. We are an Epicor Platinum Partner, an ITAR compliant company, and have been providing IT and Epicor services for almost 25 years. We work with manufacturing companies of all sizes to meet their business objectives, utilizing technology as a tool to support the business. We are a privately held company headquartered in Rochester, NY, with a second office in Hartford, CT. Contact: Colleen McDermott, Business Development Executive, cmcdermott@comtecsolutions.com; Steve Stellwagen, Business Development Executive, sstellwagen@comtecsolutions.com

Cosmo Optics #1311
75 Benjamin St, Albany, NY, 12202 USA
+1 518 729 2100
info@cosmooptics.com; www.cosmooptics.com

Featured Product: Large Optical Components
Cosmo Optics manufactures Large Spherical and Flat Optical Components for the Photonics Industry. Our 62 year history in optical fabrication now includes volume production. We utilize state of the art CNC machining and Double-Sided processes to deliver high quality, fair priced components on time. Contact us for more information about our capabilities. Contact: Brian Sebastian, brians@cosmooptics.com; Brian Sebastian, brians@cosmooptics.com

Contour Fine Tooling Inc. #317
143 Jaffrey Rd, Marlborough, NH, 03455-2517 USA
+1 603 876 4908; fax +1 603 876 4911
info@contour-diamonds.us; www.contour-diamonds.com

Featured Product: High Quality Single Crystal Diamond Turning and Milling Tools
Contour Fine Tooling is a pioneer and a global manufacturer of world-class application-oriented precision diamond tools used in the ultra-precision manufacturing of Ophthalmic lenses and Electro-Optical components used in the life sciences, semiconductor, automotive, defence and aerospace industries. Founded in 1982, Contour is a Dutch-based company with an impressive heritage dating back to 1930. Originated from Philips, Contour has established itself as the leader in innovative diamond tool. Contact: Bob Cassin, VP Sales and Marketing, Bob@contour-diamonds.us; Dennis Kearing, dlkeating1290@gmail.com

Cosmo Optics #1311
75 Benjamin St, Albany, NY, 12202 USA
+1 518 729 2100
info@cosmooptics.com; www.cosmooptics.com

Featured Product: Large Optical Components
Cosmo Optics manufactures Large Spherical and Flat Optical Components for the Photonics Industry. Our 62 year history in optical fabrication now includes volume production. We utilize state of the art CNC machining and Double-Sided processes to deliver high quality, fair priced components on time. Contact us for more information about our capabilities. Contact: Brian Sebastian, brians@cosmooptics.com; Brian Sebastian, brians@cosmooptics.com
COTEC GmbH #1319
Frankenstr 19, Karlstein, 63791 Germany
+49 6188 994 62 0; fax +49 6188 994 62 62
sales@cotec-gmbh.com; www.cotec-gmbh.com

SPONSOR
Cranfield Precision #1316
Woburn House, 3 Adams Cl, Kempston Bedford, MK42 7JE United Kingdom
+44 1234 754222; fax +44 1234 754223
CranfieldPrecision@fivesgroup.com; www.cranfieldprecision.com

Danyang Danyao Optics Co., Ltd. #313
Douzhuang Fangxian Town, No.183 Yongsheng Road, Danyang City, 212325 China
+86 511 8641 7186; fax +86 511 8641 8663
ddona.lin@ddoptics.com; www.ddoptics.com

Featured Product: spherical lenses, prisms, flat works, coating, cementing, lacquering, mechanics and sub-assemblies.
Danyang Danyao Optics (DDO) is an elite manufacturer of loose optics, subassemblies and mechanics which are widely used in sports hunting, industry, medical instrument and consumers. Established in 1975, now our existing product range covers optical lenses, prisms, windows, mirror, filter, Reticle, doublet & triplet, cylindrical, sub-assemblies and mechanics. We are ISO 9001:2015 and ISO 14001:2015 certified company. Contact: Hua Li, Planning & Customer Service Dept Manager, ddohua.li@ddoptics.com; Jianhua Liu, Planning & Customer Service Dept Manager, ddojianhua.liu@ddoptics.com

Dioptic GmbH #176
Bergstr 92A, Weinheim, 69469 Germany
+49 6201 65040 00; fax +49 6201 65040 01
info@dioptic.de; www.dioptic.de

Featured Product: ARGOS, the automated surface quality inspection system.
Our computer-generated holograms (CGH) for aphere and free-form optics testing, the devices from our ARGOS family for inspecting surfaces for defects and scratches and our infrared lenses are world leaders in their fields. True to our motto “thinking your optics”, we also offer tailor-made solutions for your trickiest tasks with our services in the fields of optical design and custom optical systems. Contact: Daniel Kiefhaber, Division Head ARGOS, kiefhaber@dioptic.de

Diverse Optics Inc. #1006
10310 Regis Ct, Rancho Cucamonga, CA, 91730 USA
+1 909 593 9330; fax +1 909 596 1452
info@diverseoptics.com; www.diverseoptics.com

Featured Product: Your Polymer Optics Perfected.
We know that your optics are as unique as you are. You can reduce cost, trim weight, simplify design, and improve the performance of your optics using polymers. For 30 years, we’ve manufactured the most challenging polymer optic components and assemblies for leading defense, medical, and commercial applications with advanced technology and an experienced team of professionals. With our knowledge of injection molding and diamond turning, we’ll show you how polymer optics are perfected. Contact: Letty Treviño, Sales Engineer, info@diverseoptics.com

dopa diamond tools #212
Zu den Krugwiesen 1, Berlin, 13057 Germany
+49 0 30 58584280; fax +49 0 30 58584289
info@dopa-diatoools.com; www.dopa-diatools.com

DynaVac #415
110 Industrial Park Rd, Hingham, MA, 02043-4369 USA
+1 781 740 8600; fax +1 781 740 9996
sales@dynavac.com; www.dynavac.com

Alignment CGH: Ultra precise alignment of optical systems with a relative accuracy down to 1 µm.
Exhibitor Listing

**Electro Optics Magazine** #1-LIT
4 Signet Crt, Cambridge, CB5 8LA United Kingdom
+44 1223 221030
sales@europascience.com; www.electrooptics.com

**Featured Product: Electro Optics**
Electro Optics is the premier European Optics and Photonics magazine. Published by Europa Science, we offer up to date and in-depth news, features and information about the European photonics industry. Contact: Jon Hunt, Head of Business Development, jon.hunt@europascience.com; Charlie Mitchell, Partnership and Events Executive, charliemitchell@europascience.com

**EMD Performance Materials Corp** #207
1200 Intrepid Ave Ste 300, Philadelphia, PA, 19112-1230 USA
+1 978 944 4815; fax +1 484 652 5668
photronicsUS@emggroup.com; www.patalin.com

EMD Performance Materials is the North American high-tech materials business of Merck KGaA, Darmstadt, Germany. The Patalin® portfolio offers high quality evaporation materials for optical applications comprising of more than 40 materials including fluorides, oxides, sulfides, & metals. The Optipur® portfolio offers a broad range of high purity anhydrous metal halides for single crystal growth. EMD is also a leading supplier of organometallic precursors for ALD & MOCVD.

**EMF Corp.** #616
239 Cherry St, Ithaca, NY, 14850-5024 USA
+1 800 456 7070; fax +1 800 456 3227
information@emf-corp.com; www.emf-corp.com

**Featured Product: Infrared Optical Components & Coatings, High Efficiency Anti Reflective & Hard Carbon Coatings**
EMF is the most established thin film coating house in US-founded in 1936. Get the EMF Edge *On time delivery > 99% *Product Quality > 99% *Application/Technical Engineering Support *Precision Custom coatings, Very High Volume coatings and Large Optic capability. Capability to coat both small & large optics ranging from 2mm to 2.6 meters. We coat Glass, Metal, Ceramic, Composite & Plastic substrates. Now coating for IR - Ge, ZnS, ZnSe, CaF2, Si, & Chalcogenides Contact: Michelle Henderson, Sales Account Manager, michelle@emf-corp.com; Frank Minich, IR Business Development, fminich@dynasil.com

**Esco Optics, Inc.** #513
95 Chamberlain Rd, Oak Ridge, NJ, 07438-8853 USA
+1 973 697 3726; fax +1 973 697 3011
sales@escooptics.com; www.escooptics.com

**Featured Product: Custom and catalog precision optics:**
Windows, Lenses, Prisms, Mirrors, Witness Samples, Filters
We are an ITAR registered optical component manufacturer that has been producing optics in the U.S. for over 60 years. With veteran opticians and engineers using state-of-the-art technology, Esco supplies superior optics that are used in UV, Visible, and IR applications throughout various industries including: defense, aerospace, biomedical, automotive, and photonics. We work with customers on single prototypes, high volume orders, or through a wide range of catalog optics. Contact: stephen rowe, Director of Marketing, steve@escooptics.com; Ron Schulmerich, Business Development Manager, ron@escooptics.com

**Eminess Technologies, Inc.** #409
7272 E Indian School Rd, Scottsdale, AZ, 85251-3951 USA
+1 480 505 3409; fax +1 480 951 3842
sales@eminess.com; www.eminess.com

**Featured Product: PET-G Optics Packaging**
Empire West designs and manufactures thermoformed PET-G optics packaging containers for the full range of today’s optical lenses, filters, and mirrors. Our Safe-Guard line of unique, slip-fit, low outgassing optics containers are the industry standard for value and performance. Designed to contact optics on only the bevels, these container eliminate the need for lens paper and foam liners, and greatly reduce the opportunity for handling-generated surface degradation. Contact: Liz Faolain, info@empirewest.com

**Empire West, Inc.** #172
9270 Graton Rd, Graton, CA, 95444-9375 USA
+1 707 823 1190; fax +1 707 823 8531
info@empirewest.com; www.opticspackaging.com

**Engis Corp.** #1106
105 W Hintz Rd, Wheeling, IL, 60090-6038 USA
+1 847 808 9400; fax +1 847 808 9430
info@engis.com; www.engis.com

**Featured Product: Hypezrap Lapping and Polishing Systems**
At Engis, our teams have extensive expertise in the fundamental science of industrial diamond and related super abrasives. This knowledge, coupled with our three process development labs, permits us to develop leading-edge super abrasives products of superior quality such as diamond slurry, engineered diamond compound, and electroplated grinding wheels. Our engineering staff also design and kit out machine tool systems which go hand-in-hand with our consumables; we are unique in this capability. Contact: Alicia Walters, Hypezrap Product Manager, awalters@engis.com; Monica Fisher, Marketing Manager, mfisher@engis.com

**Exhibitor Listing**
EssentOptics Ltd. #160
23A-81 40 let Pobedy St, Borovlyany, Minsk,
223053 Belarus
+375 17 5112025; fax +375 17 5112026
office@essentoptics.com; www.essentoptics.com

Featured Product: PHOTON RT
Spectrophotometer for Coaters
EssentOptics develops high accuracy PHOTON RT and LINZA 150 spectrophotometers for coaters focusing exclusively on optical measuring needs. We serve globally leading companies and deliver meaningful results for transmittance/reflectance measurements of flats, complex cemented prisms and all types of lenses. Our instruments cover UV, VIS and MWIR range from 185 nm up to 5200 nm. Contact: Taras Lisouski, Director, lisouski@essentoptics.com

ET Precision Optics Inc. #708
33 Curlew St, Rochester, NY, 14606-2535 USA
+1 585 254 2560; fax +1 585 254 2966
sales@etprecision.com; www.etprecision.com

Fil-Tech Inc. #710
6 Pinckney St, Boston, MA, 02114 USA
+1 617 227 1133; fax +1 617 742 0686
sales@filtech.com; www.filtech.com

Featured Product: Quality Crystals and sensor hardware. Ebeam and ion source parts. FT704 fluids and vacuum gauges.
Fil-Tech celebrates 50 years of supplying the coating industry. Quality Crystals in Gold, Silver, & Stress Relieving Alloy in 6MHz & 5MHz. NEW Extreme Temperature Crystals operate to 200C & Liquid Plating Crystals. Rate monitors, sensor heads, Crystal 6 Changer, sputter heads, feedthroughs & custom hardware. We have ebeam multi pocket & high performance emitters, crucibles, liners & ion source parts, FT704 & FT705, hydrocarbons, Krytox fluids & greases, Ionization, convection, & TC gauges. Contact: Paula Becker, President, paula@filtech.com

FLIR Systems, Inc. #318
Surveillance, 183 Northpointe Boulevard, Freeport, PA, 16229 USA
+1 503 498 3547; fax +1 503 498 3153
sales@flir.com; www.flir.com

Featured Product: Precision Optics, Optical / Mechanical Assemblies and Sub-Assemblies
FLIR’s Precision Optics group is a premier provider of high-quality precision optics, optical / mechanical assemblies and sub-assemblies, serving the commercial imaging and defense industries for more than thirty years. Our focus on quality has earned us a reputation as a world-class manufacturer of precision optical products and solutions supporting a wide array of market applications. Contact: Paul Barber, Director of Operations, Paul.Barber@FLIR.com; Reed Titus, Quality / Assembly Production Manager, Reed.Titus@FLIR.com

Meet us at Optifab Booth #1113
15-17 October 2019
Rochester, NY USA

Fil-Tech’s Extreme Temperature Crystals 6MHz more stable to 200C in Gold & Stress Relieving Alloy.
Exhibitor Listing

Fraunhofer-Institut für Angewandte Optik und Feinmechanik IOF
Albert-Einstein-Str 7, Jena, Thuringia, 07745 Germany
+49 36 41 807 273; fax +49 36 41 807 600
info@iof.fraunhofer.de; www.iof.fraunhofer.de

Featured Product: Ultra-precision machining of freeform metal mirrors & systems for space applications

The Fraunhofer IOF develops innovative optical systems to control light from the generation to the application. Our service range covers the entire photonic process chain from optomechanical and optoelectronic system design to the manufacturing of customized solutions and prototypes. The institute works in the business fields of precision engineering components & systems, optical components & systems, functional optical surfaces & layers, photonic sensors, and Measuring systems & lasers. Contact: Matthias Beier, Group Leader UPM / Freeform Optics, Matthias.Beier@iof.fraunhofer.de; Kevin Füchsel, Head of Department Strategy & Marketing, Kevin.Fuechsel@iof.fraunhofer.de

Fujitok Corporation
1-9-16 Kami-Jyu-Jyo Kita-ku, Tokyo, 114-0034 Japan
+81 3 3909 1791; fax +81 3 3908 6450
sales@fujitok.co.jp; www.fujitok.com

Featured Product: Optical-grade glasses and substrates 3-D glass works such as lenses, cells, tubes, prisms and wedges

We are Fujitok Corporation, who is one of the leading suppliers of precision glasses, substrates and custom optical parts and components. Fujitok offers the best selection of optical-grade glasses and substrates, from plano to curved substrates in a variety of shapes. We can supply various optical components. Contact: Yasuhiro Yamashita, Assistant Manager, yamashita@fujitok.co.jp

Gage-Line Technology, Inc.
121 LaGrange Ave, Rochester, NY, 14613-1577 USA
+1 585 458 2000; fax +1 585 458 0524
sales@gage-line.com; www.gage-line.com

Featured Product: Dimensional & Comparison Scratch Dig Standard Model GL-01A ANSI/OEOSC

Manufacturer: Custom/standard gaging, optical, calibration & imaged products; e.g. vision & comparator calibration kits, scratch-dig comparison standards; calibration glass scales & grids, reticles, inspection gages, optical comparator charts, test patterns, sight-gages, hard gaging, overlay sight-gages, in-process gaging, contour tracers, inspection & calibration services. Contact: Nancy Renke, General Manager, nancyr@gage-line.com; John Widmer, Manager of Eng./ Mfg., johnw@gage-line.com

Glass Fab, Inc.
257 Ormond St, Rochester, NY, 14605-3024 USA
+1 585 262 4000; fax +1 585 454 4305
info@glassfab.com; www.glassfab.com

Manufacture of custom blanks. Products include fused quartz, fused silica, optical glasses, filter glasses and low/ultra low expansions glasses. Capabilities include annealing, slumping, sawing, grinding, edging, drilling, waterjet cutting, CNC shaping, CNC generating and wire saw slicing. Contact: Daniel Saltzman, President, d_saltzman@glassfab.com; George Dean, Sales, g_dean@glassfab.com

GS Plastic Optics
408 St. Paul Street, Rochester, NY, 14605-1788 USA
+1 585 295 0200; fax +1 585 232 2314
gspartners@gsoptics.com; www.gsoptics.com

Featured Product: Precision Polymer Optics

GS Plastic Optics works with executives and program managers to solve complex optical challenges. We manufacture high-performance injection molded polymer optics specifically designed to help customers improve their competitiveness and market share. Our in-house team consists of experts in diamond turning, thin film coating, mold fabrication, and opto-mechanical assembly. We have all of the advanced metrology equipment needed to control performance and quality. Contact: Bob Podlena, Director of Sales and Marketing, rpodlena@gsoptics.com; Steve Orth, Sales Executive, sorth@gsoptics.com

We work with program leaders on complex optical challenges by providing innovative polymer solutions.
Guernsey Coating Labs., Inc. #911

1788 Goodyear Ave, Ventura, CA, 93003-8080 USA
+1 805 642 1508; fax +1 805 642 1554
sales@guernseycoating.com; www.guernseycoating.com

Featured Product: Optical coatings. Thin film deposition on glass, metal, plastic and fiber optics.

Adding our hydrophobic coating to most thin-films protects the surface from debris and repels water.

Günter Effgen GmbH #1013

Am Teich 3-5, Herrstein, Rhineland-Palatinate, 55756 Germany
+49 6785 180; fax +49 6785 99
info@effgen.com; www.effgen.com

Featured Product: New manufacturing technologies, diamond polishing tools reaching commercial polishing on CNC machine

Hutchins & Hutchins, Inc. #118

39 Huttock Lane, Waynesboro, VA, 22980-7336 USA
+1 540 949 6663; fax +1 540 943 9803
sales@yourcleanroomsupplier.com; www.yourcleanroomsupplier.com

Featured Product: Biotechnology, Optic, Tissue Bank, Pharmaceutical, Medical, Aerospace, Corrections, Govt. Agency

HOYA Corp. USA #162

Optics Division, 680 N McCarthy Blvd Ste 120, Milpitas, CA, 95035-5120 USA
+1 408 654 2200; fax +1 408 654 2270
opticsales.hoyausa@hoya.com; www.hoyaoptics.com

HOYA Corp USA Optics Division is a leading supplier of filter, optical and specialty glasses in semi-finished and finished forms. We operate around a worldwide network of R&D, precision manufacturing and mass scale production facilities, enabling HOYA to offer end-to-end solutions unmatched by our competitors. Large selection of standard stock and custom components. UV-VIS-NIR ND color filters, optical & specialty glasses in various forms: lenses, blanks, strips & blocks. Contact: Brett Martin, General Manager, brett.martin@hoya.com; Naoko Sato-Tazuma, Account Manager of Sales, naoko.sato@hoya.com

HIWIN Corp. #810

12455 Jim Damer Dr, Huntley, IL, 60142-8065 USA
+1 847 827 2270; fax +1 847 827 2291
info@hiwin.com; www.hiwin.com

Hiwin Corp. manufactures an extensive line of both linear motion components and complete solutions. With a goal of supplying superior quality at the most competitive prices, the company offers a variety of precision ground and rolled ball screws, linear guideways, electric actuators, ball screw-driven stages, and linear motors, with many fully integrated value-added features. Contact: Shawn Lawrence, Marketing Manager, s.lawrence@hiwin.com; Roxanna Rosca, Business Services, tradeshow@hiwin.com
ilis gmbh #156
Henkestr. 91, Erlangen, 91052 Germany
+ 49 9131 9747790; fax + 49 9131 9747799
info@ilis.de; www.ilis.de

Featured Product: StrainScope Flex Real-Time Polarimeter

ilis gmbh develops, produces and distributes software, measuring technology and automatic testing equipment for quality assurance in the glass and optics industry. Since 1998 we supply customers in Europe and around the world. That are 20 years of precision in the areas of stress measurement and color spectroscopy. Many well-known industrial companies and research institutions have already decided to use our products and services. Contact: Daniel Schreinert, Sales Manager, daniel.schreinert@ilis.de

The StrainScope Flex real-time polarimeter is the ideal solution for varying measuring tasks.

Imagine Optic Inc. #1208
16th Fl, 50 Milk St, Boston, MA, 02109-5002 USA
+1 617 401 2198; fax +1 617 588 0460
contact@imagine-optic.com; www.imagine-optic.com

Featured Product: Large Aperture RFLEX metrology system for interferometer-like applications at multiple wavelengths

Imagine Optic/Axiom Optics is a leading distributor of optical instrumentation for advanced imaging and optical metrology in North America. We offer: Optical metrology solutions (aberration measurements, MTF, alignment, 3D surface, thickness), Wavefront sensors, deformable mirrors and adaptive optics solutions, Fluorescence, Low-light, high speed & SWIR Cameras (InGaAs & MCT), Laser Beam Profiling solutions for UV, Visible & NIR Lasers. Fluorescence microscopy attachments. Contact: Philippe Clemenceau, Sales Manager, p.clemenceau@axiomoptics.com; Jerome Ballesta, Sales manager, j.ballesta@imagine-optic.com

Infinite Optics Inc. #130
1712 Newport Cir Ste F, Santa Ana, CA, 92705-5118 USA
+1 714 557 2299; fax +1 714 557 2170
info@infiniteoptics.com; www.infiniteoptics.com

Featured Product: Optical Thin-Film Coatings ranging from 193nm’s to 20 microns; High Efficiency AR Coatings from .9-14

Infinite Optics specializes in optical thin-film coatings ranging from 193nm’s to 20 microns. We support astronomical, industrial, medical and military markets by fabricating and coating optics required for telescopes, lasers and optoelectronic devices. Our services include special applications, development, production runs and quality control. We are DDTC registered and ITAR compliant. Contact: Stan King, Sales Manager, stan@infiniteoptics.com; Geza Keller, Sales, geza@infiniteoptics.com

Innolite GmbH #1113
Campus-Boulevard 79, Aachen, North Rhine-Westphalia, 52074 Germany
+49 241 475708 0; fax +49 34189046220
info@innolite.de; www.innolite.de

Featured Product: Driving Productivity in Ultra Precision Technology

Driving Productivity in Ultra Precision Technology is the core focus for Innolite while serving customers in generating optical surface finishes for the past 10 years. Covering ultra-precision machine tool development, diamond machining process development and advanced metrology for optical surface characterization, our experience and background is broad and highly valuable for our customers. Contact: Mareike Püster, mareike.puesterr@innolite.de

The new IL600 is a leading edge ultra-precision machining center for advanced and highly productive.

Inrad Optics #182
181 Legrand Ave, Northvale, NJ, 07647-2498 USA
+1 201 767 1910; fax +1 201 767 9644
sales@inradoptics.com; www.inradoptics.com

Inrad Optics grows nonlinear crystals including BBO, DKDP, LiNbO3, and ZGP; UV Filter crystals; and Scintinel™ stilbene, a scintillation crystal for fast neutron detection. With a wide range of capabilities we provide precision optics including large windows and transmission flats, toroid shaped X-ray monochromators, lightweight aspheric mirrors and electro-opto-mechanical assemblies. Contact: Sales Team, sales@inradoptics.com

InSync, Inc. #1329
2511 Broadbent Pkwy NE Ste C, Albuquerque, NM, 87107-1646 USA
+1 505 345 2660; fax +1 505 345 2589
inq@insyncoptics.com; www.insyncoptics.com

International OptoIndex #2-LIT
Alte Koelner Strasse 33, Ratingen, 40885 Germany
+49 2102 1678 0; fax +49 2102 1678 28
info@opto-index.de; www.opto-index.com

Featured Product: International OptoIndex

MediaWelt’s competence lies in the production of national as well as international printed products. They mainly focus on reference works such as product and company catalogues like “OptoIndex for Photonics”, “OphthalmolIndex” for German Eye Specialists and “OptolnIndex” for German Opticians. Also the international trade magazines “MAFO - Ophthalmic Labs and Industry” with its associated annual conference at MIDO in Milan and global contact for the contact lens industry. Contact: Constanze Classen, Media Consultant, constanze.classen@opto-index.de
<table>
<thead>
<tr>
<th>Company</th>
<th>Booth #</th>
<th>Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Email</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>InterOptics, LLC</td>
<td>#416</td>
<td>4854 N Shamrock Pl Ste 100, Tucson, AZ, 85705-1535 USA</td>
<td>+1 520 344 7786</td>
<td></td>
<td><a href="mailto:sales@inter-optics.com">sales@inter-optics.com</a></td>
<td><a href="http://www.irdglass.com">www.irdglass.com</a></td>
</tr>
<tr>
<td><strong>Featured Product:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prism Award Finalist, OptoFlat, low coherence flatness Interferometer</td>
<td></td>
<td>InterOptics was founded by industry veterans Dr. Chris Koliopoulos, Dr. Klaus Freischlad, and Matt Boston to create a new optical metrology instrumentation company offering value-engineered high precision interferometric equipment to manufacturers or users of precision surfaces, such as hard disks, plano optics, polished valves, and Silicon and glass wafers. OptoFlat uses a unique LED illumination system to allow surface isolation of plane parallel optics for sub-nanometer measurement precision. Contact: Klaus Freischlad, Directing Member - Optics, <a href="mailto:klaus@inter-optics.com">klaus@inter-optics.com</a>; Chris Koliopoulos, Directing Member, <a href="mailto:chrisk@inter-optics.com">chrisk@inter-optics.com</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>OptoFLAT Flatness Interferometer - Production ready to measure coated and uncoated surfaces.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intlvac Thin Film</td>
<td>#1110</td>
<td>1401 Duff Dr Ste 600, Fort Collins, CO, 80524-4751 USA</td>
<td>+1 800 959 5517; fax +1 716 284 0842</td>
<td></td>
<td><a href="mailto:sales@intlvac.com">sales@intlvac.com</a>; <a href="http://www.intlvac.com">www.intlvac.com</a></td>
<td></td>
</tr>
<tr>
<td><strong>Featured Product:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Molded Micro Lens Arrays, Heat absorbing Filter, Super IR cut Filter</td>
<td></td>
<td>Supplier of integrated lens arrays, micro lens arrays, aspheric lens and condenser lenses by glass molding. Heat absorbing, laser protection glass and UV absorbing filters, ND filters and color correction filters. Head office in Japan has been developing original techniques, know-how and supplying a variety of optical lens using unique manufacturing methods over 110 years. Contact: Hiro Yokoi, President, <a href="mailto:sales@isuzuglass.com">sales@isuzuglass.com</a>; Naoko Kaga, Advanced Engineer, <a href="mailto:nkaga@isuzuglass.com">nkaga@isuzuglass.com</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Isuzu Glass, Inc.</td>
<td>#154</td>
<td>23505 Crenshaw Blvd Ste 130, Torrance, CA, 90505-5225 USA</td>
<td>+1 310 517 1866; fax +1 310 517 1869</td>
<td></td>
<td><a href="mailto:sales@isuzuglas.com">sales@isuzuglas.com</a>; <a href="http://www.isuzuglass.com">www.isuzuglass.com</a></td>
<td></td>
</tr>
<tr>
<td><strong>Featured Product:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prism Award Finalist, OptoFlat, low coherence flatness Interferometer</td>
<td></td>
<td>InterOptics was founded by industry veterans Dr. Chris Koliopoulos, Dr. Klaus Freischlad, and Matt Boston to create a new optical metrology instrumentation company offering value-engineered high precision interferometric equipment to manufacturers or users of precision surfaces, such as hard disks, plano optics, polished valves, and Silicon and glass wafers. OptoFlat uses a unique LED illumination system to allow surface isolation of plane parallel optics for sub-nanometer measurement precision. Contact: Klaus Freischlad, Directing Member - Optics, <a href="mailto:klaus@inter-optics.com">klaus@inter-optics.com</a>; Chris Koliopoulos, Directing Member, <a href="mailto:chrisk@inter-optics.com">chrisk@inter-optics.com</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>OptoFLAT Flatness Interferometer - Production ready to measure coated and uncoated surfaces.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JML Optical Industries, LLC</td>
<td>#1306</td>
<td>820 Linden Ave, Rochester, NY, 14625-2710 USA</td>
<td>+1 585 248 8900; fax +1 585 248 8924</td>
<td></td>
<td><a href="http://www.jmloptical.com">www.jmloptical.com</a></td>
<td></td>
</tr>
<tr>
<td><strong>Featured Product:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Molded Micro Lens Arrays, Heat absorbing Filter, Super IR cut Filter</td>
<td></td>
<td>Supplier of integrated lens arrays, micro lens arrays, aspheric lens and condenser lenses by glass molding. Heat absorbing, laser protection glass and UV absorbing filters, ND filters and color correction filters. Head office in Japan has been developing original techniques, know-how and supplying a variety of optical lens using unique manufacturing methods over 110 years. Contact: Hiro Yokoi, President, <a href="mailto:sales@isuzuglass.com">sales@isuzuglass.com</a>; Naoko Kaga, Advanced Engineer, <a href="mailto:nkaga@isuzuglass.com">nkaga@isuzuglass.com</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JAYCO Cleaning Technologies</td>
<td>#1107</td>
<td>8812 Beckett Rd, West Chester, OH, 45069-2902 USA</td>
<td>+1 513 737 9600</td>
<td></td>
<td><a href="mailto:info@jaycoclean.com">info@jaycoclean.com</a>; <a href="http://www.jaycoclean.com">www.jaycoclean.com</a></td>
<td></td>
</tr>
<tr>
<td><strong>Featured Product:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Molded Micro Lens Arrays, Heat absorbing Filter, Super IR cut Filter</td>
<td></td>
<td>Supplier of integrated lens arrays, micro lens arrays, aspheric lens and condenser lenses by glass molding. Heat absorbing, laser protection glass and UV absorbing filters, ND filters and color correction filters. Head office in Japan has been developing original techniques, know-how and supplying a variety of optical lens using unique manufacturing methods over 110 years. Contact: Hiro Yokoi, President, <a href="mailto:sales@isuzuglass.com">sales@isuzuglass.com</a>; Naoko Kaga, Advanced Engineer, <a href="mailto:nkaga@isuzuglass.com">nkaga@isuzuglass.com</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IST Precision</td>
<td>#186</td>
<td>207 Byers Creek Rd Ste A, Mooresville, NC, 28117-6988 USA</td>
<td>+1 704 957 7785</td>
<td></td>
<td><a href="mailto:info@istprecision.com">info@istprecision.com</a>; <a href="http://www.istprecision.com">www.istprecision.com</a></td>
<td></td>
</tr>
<tr>
<td><strong>Featured Product:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Precision engineering and manufacturing services - Optomechanics, motion, sensor, automation</td>
<td></td>
<td>IST provides advanced precision engineering design and prototyping services. We support clients R&amp;D and product development in automation, opto-mechanics, machine design, sensors, metrology, motion, electronics and general mechatronics. We make available engineering resources to clients in advanced design and development to meet project timelines. Industries we serve include telecommunications, metrology, medical and aerospace. Follow us @ linkedin <a href="http://www.linkedin.com/company/ist-precision">www.linkedin.com/company/ist-precision</a> Contact: Shane Woody, Senior Engineer Manager, <a href="mailto:shane@istprecision.com">shane@istprecision.com</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This program is current as of 9 September 2019. Find the latest on the SPIE Conference App.
Kinetic Systems, Inc. #158
20 Arboretum Rd, Boston, MA, 02131-1102 USA
+1 617 522 8700; fax +1 617 522 6323
sales@kineticsystems.com; www.kineticsystems.com

Featured Product: Vibration Isolation Workstation, Optical Table
Kinetic Systems, Inc. produces vibration isolation products to provide vibration-free work environments for users and manufacturers of sensitive equipment. Our vibration isolation accessories allow customization of all systems. Contact: Sergey Mozgovoy, Sales Engineer, smozgovoy@kineticsystems.com; Tony Kallas, Director of Sales, tkallas@kineticsystems.com

Kreischer Optics, Ltd. #152
1729 Oak Dr, McHenry, IL, 60050-0306 USA
+1 815 344 4220; fax +1 815 344 4221
optics@kreischer.com; www.kreischer.com

Featured Product: Vibration Isolation Workstation, Optical Table
Kreischer Optics, Ltd. produces vibration isolation products to provide vibration-free work environments for users and manufacturers of sensitive equipment. Our vibration isolation accessories allow customization of all systems. Contact: Sergey Mozgovoy, Sales Engineer, smozgovoy@kineticsystems.com; Tony Kallas, Director of Sales, tkallas@kineticsystems.com

KrellTech #106
11-13 Evergreen Ave, Neptune City, NJ, 07753 USA
+1 732 775 7355; fax +1 732 775 7356
sales@krelltech.com; www.krelltech.com

Featured Product: NOVA Polishing System for Optical Fibers, Connectors, Waveguides and Photonic Components
KrellTech manufactures advanced polishing systems and equipment for processing photonic components for markets ranging from telecom/datacom to industrial, and bio-medical to avionics. Our innovative approach to optical processing incorporates polishing with in-line inspection techniques for immediate quality feedback, reduced material handling and increased throughput, encompassing all facets of optical termination. Contact: Al Cheswick, President, acheswick@krelltech.com

NOVA Polishing System for Optical Fibers, Connectors, Waveguides and Photonic Components

Kentek Corp. #204, 206
Laser Safety Div, 32 Broadway St, Pittsfield, NH, 03263-3800 USA
+1 603 223 4900; fax +1 603 435 7441
info@kenteklaserstore.com; www.kenteklaserstore.com

Established in 1983, Kentek Corporation is a globally trusted provider of comprehensive laser products and laser services to thousands of end-users across segments including Industrial, Government, Military, Research, Education, and Medical. Our team is dedicated to helping customers address their unique light management needs.
LaBionicS #1303
IESL, PO Box 1527, Heraklion Crete, 711 10 Greece
+30 81 391 300; fax +30 81 391 305
iesl@iesl.forth.gr; www.iesl.forth.gr

Featured Product: Anti-reflective Multi-functional Laser Structured Coating
LaBionicS is a spinoff technology of the Institute of Electronic Structure and Laser of the Foundation for Research and Technology-Hellas (IESL-FORTH) which has been founded in 1983. It has since established its international presence in the areas of Laser Science, Micro/nano-electronics, Polymer Science, Materials Science and Astrophysics. Nowadays, IESL occupies a distinct position in the international scientific map in several of these fields. Contact: Alexios Pagkozidis, Innovation Manager and Business Developer, alexios.pagkozidis@iesl.forth.gr

Anti-reflective Multi-functional Laser Structured Coating.

Laser Focus World #3-LIT
61 Split Brook Rd Ste 501, Nashua, NH, 03060 USA
+1 603 891 0123
info@laserfocus.com; www.laserfocusworld.com

Featured Product: Media
Published since 1965, Laser Focus World is a global resource for engineers, researchers, scientists and technical professionals providing comprehensive coverage of optoelectronics and photonics technologies, applications and markets. Each month, Laser Focus World reports on and analyzes the latest developments and significant trends in both technology and business in the worldwide optoelectronics and photonics industry. Laser Focus World offers greater technical depth than any other publication. Contact: Jeff Nichols, National Sales Manager, jeffn@pennwell.com; Anne Marie St. John, Regional Sales Manager, annemarie@pennwell.com

Lattice Materials LLC #309
516 E Tamarack St, Bozeman, MT, 59715-3050 USA
+1 406 586 2122; fax +1 406 587 9055
marketing@latticematerials.com; www.latticematerials.com

Featured Product: Domestically Grown Silicon and Germanium
Lattice Materials is an American company that produces infrared optics, thin film coating sources and custom machined parts out of silicon and germanium. The company has the ability to machine to extremely precise tolerances and grow Czochralski crystals to virtually any orientation, optical transmission and electrical resistivity. Contact: Karl Moritz, President, karlm@latticematerials.com; Patti Lee, Customer Service Supervisor, pattil@latticematerials.com

Luminate #104
260 E Main St Ste 6000, Rochester, NY, 14604 USA
+1 585 214 2400; fax +1 585 327 7931
info@luminate.org; www.luminate.org

Featured Product: Luminate Accelerator
Luminate is the world’s largest business accelerator for startups that have optics, photonics, and imaging-enabled technologies. The program accepts ten companies per year, which each receive seed investment funding ($100,000 at program start and the chance to compete for $2 million in follow on funding), mentoring from CEOs and industry experts, OPI-focused education, equipped lab facilities and access to investors. Applications accepted from June through Sept. Go to luminate.org. Contact: Andrew Simon, Operations Director, andrew.simon@nextcorps.org; Sujatha Ramanujan, Managing Director, sujatha.ramanujan@nextcorps.org

Luminate is the world’s largest startup accelerator for OPI enabled applications.

M3 Measurement Solutions #1308
938 S Andreasen Dr Ste I, Escondido, CA, 92029-1920 USA
+1 760 561 1400; fax +1 760 561 1400
sales@m3msi.com; www.m3msi.com

Laser Focus World
LaBionicS
Lattice Materials LLC
M3 Measurement Solutions
Mahr Inc.

150 N Tucson Blvd, Tucson, AZ, 85716-4740 USA
+1 520 296 3068
MarOpto@mahr.com; www.mahr.com

Featured Product: The AVT 300 M is a customized Mahr solution for RoC & Tool Offset measurements in SPDT applications.

Mahr Inc., a member of the Mahr Group, has been providing dimensional measurement solutions to fit customer application needs for more than 150 years. The company manufactures and markets a wide variety of dimensional metrology equipment, from simple and easy-to-use handheld gages to technically advanced measurement systems for form, contour, surface finish and length. Mahr provides optical metrology solutions for aerospace, automotive, and optical production applications.

McVac Manufacturing Co., Inc.

7030 Fly Rd, East Syracuse, NY, 13057-112 USA
+1 315 432 9257; fax +1 315 432 1634
sales@mcvac.com; www.mcvac.com

Micro-LAM, Inc.

5960 S Sprinkle Rd, Portage, MI, 49002-9712 USA
+1 269 288 4100
info@micro-lam.com; www.micro-lam.com

Featured Product: OPTIMUS T+1, Laser Assisted Machining system

Micro-LAM Inc. offers cutting edge technology, through a state of the art, retrofitable accessory for ultra-precision machine tools. The Optimus T+1, laser assisted machining device mounts conveniently in place of a standard tool post, to preferentially heat the work piece material at the point of diamond contact. This process improves surface quality, figure accuracy and throughput for conventionally diamond turned optics and enables machining of conventionally ground and polished materials. Contact: Christopher Stroshine, Global Sales Manager, chris.stroshine@micro-lam.com; Deepak Ravindra, CEO, deepak.ravindra@micro-lam.com

Mildex, Inc.

1388 Crittenden Rd, Rochester, NY, 14623-2308 USA
+1 585 473 6540; fax +1 585 475 1971
mildex@eznet.net; www.mildex.com

Featured Product: Automatic Lens Edging and Beveling machine Model SPCM-M1-AT50 includes Robot for lens handling.

US distributor of Precision Optical Machinery, including grinding, polishing, lens generating and lens centering machinery, serving the US optical industry since 1975. Contact: Harvey Miller, Pres., mildex@eznet.net

Micro-Epsilon offers the largest range of high precision displacement sensors, infrared temperature sensors, color sensors as well as dimensional measurement devices and systems for industrial applications. Whether your field is research and development, manufacturing automation or machine building, we offer solutions that meet the specific requirements of your individual measurement task. Contact: Martin Dumberger, Managing Director, martin.dumberger@micro-epsilon.com; Josh Jones, Technical Director, josh.jones@micro-epsilon.com

Micro-Epsilon America

8120 Brownleigh Dr, Raleigh, NC, 27617-7410 USA
+1 919 787 9707; fax +1 919 787 9706
info@micro-epsilon.com; www.micro-epsilon.com

Featured Product: Optical displacement and thickness sensor for lenses and transparent materials

Micro-Epsilon offers the largest range of high precision displacement sensors, infrared temperature sensors, color sensors as well as dimensional measurement devices and systems for industrial applications. Whether your field is research and development, manufacturing automation or machine building, we offer solutions that meet the specific requirements of your individual measurement task. Contact: Martin Dumberger, Managing Director, martin.dumberger@micro-epsilon.com; Josh Jones, Technical Director, josh.jones@micro-epsilon.com

Metrology Concepts LLC

Bldg E, 3495 Winton Pl Ste 120, Rochester, NY, 14623-2824 USA
+1 585 427 9155; fax +1 585 427 9026
info@metrologyconcepts.com; www.metrologyconcepts.com

Microdiamant USA, Inc.

1101 Mountain View Dr, Smithfield, PA, 15478-1641 USA
+1 724 564 2630; fax +1 724 564 2631
sales.us@microdiamant.com; www.microdiamant.com
Mindrum Precision, Inc. #406

10004 4th St, Rancho Cucamonga, CA, 91730-5723 USA
+1 909 989 1728
sales@mindrum.com; www.mindrum.com

Custom machining and polishing of ultra-precision components and assemblies. Complex shaping ability with 5-axis CNC milling, CNC turning and CNC surface grinding. Plano, spherical and cylindrical polishing using spindle, continuous and double-sided equipment. We work with hard materials ie: glass, quartz, sapphire and ceramics etc. Also work with conventional materials ie: aluminum, steel and titanium etc. Other capabilities include glassblowing, acid etching, soldering, wire EDM and dicing. Contact: Linda Kondris, Technical Sales, linda@mindrum.com; Adam Pohl, VP Engineering, adam@mindrum.com

MiniTec Framing Systems, LLC #508

5602 County Road 41, Farmington, NY, 14425-9101 USA
+1 585 924 4690; fax +1 585 924 4821
sales@minitecframing.com; www.minitecframing.com

Moore Nanotechnology Systems, LLC #807

230 Old Homestead Hwy, Swanzey, NH, 03446 USA
+1 603 352 3030; fax +1 603 352 3363
sales@nanotechsys.com; www.nanotechsys.com

Featured Product: NanoCAM4 ultra precise optical CAM software package

Moore Nanotechnology Systems, LLC is a leading global supplier of ultra-precision machining systems for diamond turning, micro-milling, micro-grinding, and glass press molding. With machine installations in 36 different countries, Nanotech’s 2 - 5 axes symmetric and freeform optical machining systems offer the flexibility and reliability to cover R&D or production needs in a broad range of current and emerging markets. Sub-nanometer finish and sub-micron form is possible directly off machine. Contact: Jeff Perra, Sales Engineer, perra@nanotechsys.com; Samrad Bukovcan, Sales Engineer, bukovcan@nanotechsys.com

MPA Crystal Corp. #417

1702 Meridian Ave Ste 234, San Jose, CA, 95125-5586 USA
+1 408 300 0301; fax +1 408 300 0282
pmpa@mpa-crystal.com; www.mpa-crystal.com

Featured Product: Sapphire, Fused silica, optical glass. Windows, lenses, rods, micro-optics, special shapes and more.

MPA Crystal is the US Office of our manufacturer-Nanjing Sapphire Electro-Optics Co. in China. We specialize in producing crystal optics mainly made of sapphire, fused silica, glass, silicon. Coating is also available as request. Products include windows, lenses (plano-convex, plano-concave, bio-convex, bio-concave), ball lenses, rods, tips, waveguides, lightguides, micro-optics and more, all custom made to your drawings and design. Email: pmpa@mpa-crystal.com, Ph.: +1 408 300 0301 Contact: Pauline Liang, Director, pmpa@mpa-crystal.com

Naked Optics Corp. #112

1090 Delacroix Cir, Nokomis, FL, 34275-4563 USA
+1 908 685 0352; fax +1 908 325 0250
sales@nakedoptics.com; www.nakedoptics.com

Supplier of optical glass, IR materials and optical components including IR Chalcogenide Glass, ZnS, Si, optical glass strip; molded and CNC-machined blanks of all optical materials. Lenses with aspheric, diffractive & free-form surfaces in IR materials, plastics and metals; optical design services; Polished & coated windows and substrates from prototype to high-volume production. Contact: Buzz Nesti, buzz@nakedoptics.com; Nancy Darbee, nancy.darbee@nakedoptics.com

Optomechanical system for the linear displacement of several lens groups over a long stroke.

25UPLv2 - Compact Diamond Turning System with up to 4 axes. Sub-nanometer finish, sub-micron form.
New Scale Technologies, Inc. #1215

New Scale Robotics Division, 121 Victor Heights Pkwy, Victor, NY, 14564-8938 USA
+1 585 924 4450; fax +1 585 924 4468
NSTsales@newscaletech.com; www.newscalerobotics.com

**Featured Product:** Precision gripper + multi-tool mount for collaborative robots: automate optics handling, inspection

New Scale Robotics creates small, precise and smart grippers and end-of-arm tooling for the smallest collaborative robots. Manufacturing and research facilities improve productivity with automated small part handling, inspection & metrology. New Scale Technologies creates M3 Smart Modules: precision rotary and linear micro stages and focus modules with built-in controllers for smallest size and fastest integration into handheld and portable instruments.

Contact: Heidi Quinlivan, Sales Manager, NSTsales@newscaletech.com; Stefan Friedrich, Industrial Automation Sales, NSTsales@newscaletech.com

---

Niabraze, LLC #218

675 Ensminger Rd, Tonawanda, NY, 14150-6609 USA
+1 716 447 1082; fax +1 716 447 1084
sales@niabraze.com; www.niabraze.com

**Featured Product:** NIABRAZE - Diamond & CBN Tools for industry & emerging applications.

NIABRAZE manufactures long-life diamond and CBN (Cubic Boron Nitrade) coated cutting tools for high production cutting, grinding, machining, and slicing of hard materials. We also partner with companies in the development of new products requiring superabrasive coatings. With over 30 years experience in superabrasive cutting tools, you can trust that NIABRAZE tools will outperform. All of our products are made in the USA. Contact: Brett Fisher, Sales, bfisher@niabraze.com; Dave Gardner, Operations Manager, dgardner@niabraze.com

---

New Way Air Bearings #128

50 McDonald Blvd, Aston, PA, 19014 USA
+1 610 494 6700; fax +1 610 494 0911
sales@newwayairbearings.com; www.newwayairbearings.com

**Featured Product:** New Way® Air Spindles deliver a degree of precision not achievable with conventional roller bearings

New Way® Air Bearings, Inc. is the world’s leading independent designer and manufacturer of modular air bearing products and the recognized provider of porous media air bearing solutions. The company manufactures a standard line of modular, off-the-shelf components including: flat round and rectangular air bearings; vacuum preloaded air bearings; radial air bearings; air bushings; air slides; conveyor air bearings and precision chucks. The company is ISO 9001:2015 certified. Contact: Richard Hesse, Technical Sales Manager, rhesse@newwayairbearings.com

---

Nikon Corporation #1305

Precision Components and Modules Business Unit, 1399 Shoreway Rd, Belmont, CA, 94002-4107 USA
+1 650 454 7360; fax +1 650 508 4600
npicom@nikon.com; www.nikonprecision.com

**Featured Product:** Optical materials, components, optical and mechanical design, assembly/adjustments of optical module

Nikon Precision Components &Module Business Unit provides a wide range of one-stop solutions from design to mass production and also from raw material to modules. 1. Raw materials, lens elements, polishing & coating; 2. Lens assembly, mass production, optical and mechanical design. Contact: Naoyasu Uehara, US Office Manager, naoyasu.uehara@nikon.com

---

NKT Photonics Inc. #412

3514 N Vancouver Ave Ste 310, Portland, OR, 97227-2026 USA
+1 503 444 8404; fax +1 503 914 1664
sales-us@nkt photonics.com; www.nkt photonics.com

**Featured Product:** SuperK EXTREME/ FIANIUM Supercontinuum Lasers

NKT Photonics is the leading supplier of high performance fiber lasers and photonic crystal fibers. We make ultrafast lasers, supercontinuum white light lasers, low noise fiber lasers, and a wide range of specialty fibers for imaging and material processing. We have lasers in space and deep under the oceans. Our products run in both clean rooms and on oil rigs at sea. We seed the World’s largest laser fusion experiment and power hundreds of the most advanced microscopes on the globe. Contact: Chris Meyers, Senior Sales Manager, christopher.meyers@nkt photonics.com

---

NGL Cleaning Technology SA #209

Ultrasonic Cleaning Processes, 7 Chemin de la Vuarpilliere, Nyon, 1260 Switzerland
+41 22 365 4666; fax +41 22 361 8103
info@ngl-cleaning-technology.com; www.ngl-cleaning-technology.com

---

NGL Nordic A/S #211

Industriskellet 10, Ishoej, 2635 Denmark
+45 4817 6970

Contact: Gary Andreski, Senior Sales Manager, g.andreski@ngl-group.com; Birger Krogh, General Manager, b.krogh@ngl-group.com

---

---
High-resolution, sub-nanometer precision for optics, semiconductor, loop translation in the X, XY, XYZ and tip/tilt. Enables high-speed, digital control electronics. Nano-positioning systems provide closed-applications. Products include piezo-actuated flexure stages and nPoint designs and manufactures nano-positioning tools for OEM applications. Products include piezo-actuated flexure stages and digital control electronics. Nano-positioning systems provide closed-loop translation in the X, XY, XYZ and tip/tilt. Enables high-speed, high-resolution, sub-nanometer precision for optics, semiconductor, defense, aerospace and bio-industries. Contact: Tom Rocko, Technical Sales Engineer, tom.rocko@npoint.com

nPoint’s nPFocus400 is a newly released 400µm objective scanner for fast and repeatable Z-focusing.

nPoint designs and manufactures nano-positioning tools for OEM applications. Products include piezo-actuated flexure stages and digital control electronics. Nano-positioning systems provide closed-loop translation in the X, XY, XYZ and tip/tilt. Enables high-speed, high-resolution, sub-nanometer precision for optics, semiconductor, defense, aerospace and bio-industries. Contact: Tom Rocko, Technical Sales Engineer, tom.rocko@npoint.com

nPPoint’s nPFocus400 is a newly released 400µm objective scanner for fast and repeatable Z-focusing.

North American Coating Labs. #506
9450 Pine needle Dr, Mentor, OH, 44060-1828 USA
+1 440 357 7000; fax +1 440 357 7001
info@nacl.com; www.nacl.com

Featured Product: Coating solutions for polymeric & glass optics including ITO, hydrophobic, AR and Infrared coatings
North American Coating Laboratories provides coatings for a variety of customers in the polymer and glass optics markets. Our experience in both dip and vacuum-applied processes make NACL one of the most respected organizations in the optical coatings industries. Our coating competencies include protective, scratch-resistant, reflective, anti-reflective, filter, conductive, ITO, chemically resistive, and infrared coated. North American Coating Laboratories is an ISO 9001 certified organization Contact: Dan Fiore, Director of Business Development, dfiore@nacl.com; Brian Wilson, President/CEO, bwilson@nacl.com

Novotech, Inc. #1326
916 Main St, Acton, MA, 01720-5808 USA
+1 978 929 9458; fax +1 978 929 9459
contact@novotech.net; www.novotech.net

nPoint, Inc. #815
3030 Laura Ln Ste 100, Middleton, WI, 53562-1872 USA
+1 608 824 1770; fax +1 608 824 1774
info@npoint.com; www.npoint.com

Featured Product: nPoint’s new nPFocus400 objective scanner provides 400µm of fast and repeatable motion.

nPoint designs and manufactures nano-positioning tools for OEM applications. Products include piezo-actuated flexure stages and digital control electronics. Nano-positioning systems provide closed-loop translation in the X, XY, XYZ and tip/tilt. Enables high-speed, high-resolution, sub-nanometer precision for optics, semiconductor, defense, aerospace and bio-industries. Contact: Tom Rocko, Technical Sales Engineer, tom.rocko@npoint.com

nPoint’s nPFocus400 is a newly released 400µm objective scanner for fast and repeatable Z-focusing.

Optical Perspectives Group, LLC #174
7011 E Calle Tolosa, Tucson, AZ, 85750-2532 USA
+1 520 529 2950
reparks@optiper.com; www.optiper.com

Featured Product: Axicon Centering Station
Optical Perspectives Group is an opto-mechanical engineering consulting company with expertise in the practical, hardware side of optics. OPG can help with issues such as test and inspection of components as well as alignment and assembly of optical systems. In addition, OPG sells the Point Source Microscope (PSM), an autoastigmatic microscope that aids in optical system alignment and the Axicon Centering Station: center optics without the need of a rotary table. Contact: Robert Parks, President, reparks@optiper.com

Optics offers national laboratory traceable line width and thin prism artifacts to calibrate the PSM.

Ohara Corp. #706
50 Columbia Rd, Branchburg, NJ, 08876-3519 USA
+1 908 218 0100; fax +1 908 218 1685
sales@oharacorp.com; www.oharacorp.com

NTG Neue Technologien GmbH & Co. KG #1212
Im Steigenigen Graben 12-14, Gelnhausen, 63571 Germany
+49 6051 6003 0; fax +49 6051 6003 55
info@ntg.de; www.ntg.de

Featured Product: Ion Beam Figuring IBF, (Reactive-) Ion Beam Etching R-IBE, Vacuum Technology, Particle Accelerators
Know-how from more than 30 years of practical experience in Ion Beam Processing. The world’s most renowned manufacturers of precision optics rely on: Systems for the ultra-precise shape correction of surfaces using ion beams IBF & R-IBE. Turnkey plant engineering for all dimensions from <1mm to > 2000mm work piece diameter. Low-maintenance, almost wear-free machines with low operating costs. In-house development. R&D and job order production in our own IBF / IBE lab. We push the limits. Contact: Thomas Franz, CEO, t.franz@ntg.de; David Schäfer, R & D Ion Beam Processing, d.schaefer@ntg.de

Parks, President, reparks@optiper.com

Optics.org #514
Ffordd Pengam, 2 Alexandra Gate, Cardiff, CF24 2SA United Kingdom
+44 29 2089 4747; fax +44 29 2089 4750
sales@optics.org; www.optics.org

Optics.org is the No.1 online resource for professionals working and using photonics based technologies. Targeted towards OEM markets, Optics.org delivers the latest photonics business news, market trends and product applications. You can also find the latest photonics jobs, events and a comprehensive buyers guide. Visit optics.org to day to get the information you need or to get your products to market. Contact the optics.org sales team for promotion in the SPIE Photonics West show daily. Contact: Janet Patton, Sales Exec, janet.patton@optics.org; Rob Fisher, Head of Sales & Marketing - optics.org, rob.fisher@optics.org

nPoint’s new nPFocus400 objective scanner provides 400µm of fast and repeatable motion.
Optikos Corporation #806

SPIE Corporate Member
107 Audubon Rd, Bldg 3, Wakefield, MA, 01880-1245 USA
+1 617 354 7557; fax +1 617 354 5946
sales@optikos.com; www.optikos.com

Featured Product: OpTest® Thermal Chamber Module for Lens Temperature Testing

The Optical Engineering Experts®—Optikos develops and manufactures standard and custom metrology products for measuring lenses, camera systems and ophthalmic components; and offers in-house IQ Lab™ testing and qualification services. Our engineering teams provide expert design and manufacturing for optically-based product development in any industry or application, including medical devices and diagnostics, aerospace and defense, automotive and consumer electronics. Contact: Jim Scott, Key Account Manager, jscott@optikos.com; Bill Marshall, Key Account Manager, wmarshall@optikos.com

Optikos Corporation

Optikos Corporation #806

SPONOR
Optimax Systems, Inc. #606

SPIE Corporate Member
6367 Dean Pkwy, Ontario, NY, 14519-8939 USA
+1 585 265 1020; fax +1 585 265 1033
sales@optimaxsi.com; www.optimaxsi.com


OPTIX Co. #916

SPONOR
OptiPro Systems #820

SPIE Corporate Member
6368 Dean Pkwy, Ontario, NY, 14519-8970 USA
+1 585 265 0160; fax +1 585 265 9416
sales@optipro.com; www.optipro.com

Featured Product: Automation Solutions: Increase throughput with robots assisting your optical fabrication technicians

OptiPro Systems, located in Rochester, NY, has over 35 years of experience designing and manufacturing precision optical fabrication machines and metrology systems. OptiPro develops cutting edge machines for a variety of precision optics, including spheres, aspheres, freeforms, aspheric cylinders, torics, and more. These solutions are designed to yield prototype to high volume production of parts manufactured from a range of materials including optical glasses, ceramics, crystals, and alloys. Contact: Mike Bechtold, President, mike@optipro.com; Ron Colavecchia, Director of Optics Technology, rcolavecchia@optipro.com

OptiPro Systems

Opto-Alignment Technology, Inc. #213

SPONOR
Opto-Alignment Technology, Inc. #213

SPIE Corporate Member
1034-A Van Buren Ave, Indian Trail, NC, 28079-5541 USA
+1 704 893 0399; fax +1 704 893 0403
sales@optoalignment.com; www.optoalignment.com

Featured Product: New Lens Alignment System (LAS) with DMI demo, plus 3D-Profiler metrology for production line QA/QC

Opto Alignment is a leading manufacturer of ultra-precision alignment, assembly and inspection optical systems. Our flagship product, the Laser Alignment & Assembly Station (LAS), employs latest generation illumination and vision technologies, along with computer automation, to achieve sub-micron centering precision. New in 2019 is our most advanced product offering, 3D Profiling tools developed with a high performance-to-price ratio for a wide range of production line QA/QC applications Contact: Ron Garden, CTO, ron.garden@optoalignment.com; Scott Harmon, Sales & Marketing Manager, scott.harmon@optoalignment.com

Exhibitor Listing

Optimax Systems, Inc. #606

OptiPro Systems #820

Optio-Alignment Technology, Inc. #213

OptiPro Systems, located in Rochester, NY, has over 35 years of experience designing and manufacturing precision optical fabrication machines and metrology systems. OptiPro develops cutting edge machines for a variety of precision optics, including spheres, aspheres, freeforms, aspheric cylinders, torics, and more. These solutions are designed to yield prototype to high volume production of parts manufactured from a range of materials including optical glasses, ceramics, crystals, and alloys. Contact: Mike Bechtold, President, mike@optipro.com; Ron Colavecchia, Director of Optics Technology, rcolavecchia@optipro.com

Automation Solutions: Increase throughput with robots assisting your optical fabrication technicians.

New LAS-BT: Same centration and tilt accuracy as large models. Granite column, mapped linear encoder.

OptiPro Systems

OptiPro Systems, located in Rochester, NY, has over 35 years of experience designing and manufacturing precision optical fabrication machines and metrology systems. OptiPro develops cutting edge machines for a variety of precision optics, including spheres, aspheres, freeforms, aspheric cylinders, torics, and more. These solutions are designed to yield prototype to high volume production of parts manufactured from a range of materials including optical glasses, ceramics, crystals, and alloys. Contact: Mike Bechtold, President, mike@optipro.com; Ron Colavecchia, Director of Optics Technology, rcolavecchia@optipro.com

Automation Solutions: Increase throughput with robots assisting your optical fabrication technicians.

New LAS-BT: Same centration and tilt accuracy as large models. Granite column, mapped linear encoder.
**OptoTech Optical Machinery Inc.**

**Address:** PO Box 7, Palm, PA, 18070 USA  
**Phone:** +1 215 679 2091; fax +1 215 679 2013  
**Email:** info@optotech.us; www.optotech.us

OptoTech is a German based company of the Schunk Group, offering the most comprehensive product range in the field of optics manufacturing equipment. We supply optics processing centers and machines, measuring technology, as well as alignment and joining technologies. Whether round optics, plano optics, aspherics, cylinders or freeform surfaces from Ø 1 mm to 2000mm. OptoTech offers cutting edge technology, tooling and service. Contact: John Meyer, Sales Manager Precision Optics North America, j.meyer@optotech.us; Matthias Pfaff, Division Manager Precision Optics, m.pfaff@optotech.de

**Featured Product:**  
OEI 150 KT invers: High precision workshop interferometer for testing of spheres and aspheres.

**Contact:** Dr. Christian Brock, Sales Manager, sales@optotech.de

---

**OptoSigma Corp.**

**Address:** 3210 S Croddy Way, Santa Ana, CA, 92704 USA  
**Phone:** +1 949 851 5881; fax +1 949 851 5058  
**Email:** sales@optosigma.com; www.optosigma.com

OptoSigma is a leader in optics, opto-mechanics, manual and motorized positioning components and thin film coating. OptoSigma supplies standard and custom optical thin film coatings, locally, from our USA facility.

**Featured Product:**  
Optics, opto-mechanics, laser safety, fiber optics, vibration isolation, Thin film coating

**Contact:** Dan Denison, Sales Manager, sales@optosigma.com

---

**PerkinElmer, Inc.**

**Address:** 710 Bridgeport, Shelton, CT, 06484 USA  
**Phone:** +1 800 762 4000; fax +1 203 944 4914  
**Email:** ehevents@perkinelmer.com; www.perkinelmer.com

PerkinElmer offers metrology solutions for laser and optics. From standalone wavefront sensors to fully integrated machines, we offer high resolution TWE, WFE and MTF measurements of optics at their design wavelength from UV to far-IR. Based on Quadriwave Lateral Shearing Interferometry our solutions combine high accuracy, best-in-class dynamic range and ease of use. Expert software packages provide insightful analysis for R&D and manufacturing Contact: Valentin Genuer, Business developer, genuer@phasics.com

**Featured Product:**  
The LAMBDA 1050 UV-Vis-NIR spectrophotometer with two large sampling compartments and accessories

---

**Optocraft GmbH**

**Address:** Am Weichselgarten 7, Erlangen, 91058 Germany  
**Phone:** +49 9131 69 15 00; fax +49 9131 69 15 11  
**Email:** info@optocraft.de; www.optocraft.de

Optocraft manufactures and develops high-quality optical measurement devices based on Shack-Hartmann wavefront technology. The goal is to prove the quality of your products like e.g. lenses, microscope objectives or laser systems. With its substantial know-how, Optocraft’s team opens up innovative solutions for advances in metrology and for individual customer requests. In this way, it is possible to provide efficient standardized systems as well as perfectly customized solutions. Contact: Dr. Christian Brock, Sales Manager, sales@optocraft.de

**Featured Product:** SHSLab HR2-088-GE: High resolution Shack-Hartmann wavefront sensor with high repeatability

---

**Panasonic**

**Address:** 1701 Golf Rd Ste 3-1200, Rolling Meadows, IL, 60008 USA  
**Phone:** +1 847 637 9600  
**Email:** PFSAmarketing@us.panasonic.com; www.panasonicfa.com

Panasonic System Solutions Company of North America – Process Automation (PSSNA-PA) develops and supports innovative manufacturing processes that contribute to the growth and prosperity of our customers’ businesses regardless of their mix or volume. Contact: Tae Yi, Sr. Account Manager, Sales, tae.yi@us.panasonic.com; Mike Wohlner, Marketing, mike.wohlner@us.panasonic.com

**Featured Product:**  
Panasonic UA3P measures freeform mirrors, aspherical lens and its mold to an accuracy of 0.05µm.

---

**Phasics Corp.**

**Address:** 11th Fl, 600 California St, San Francisco, CA, 94109 USA  
**Phone:** +1 415 610 9741  
**Email:** contact@phasics.com; www.phasicscorp.com

Phasics offers metrology solutions for laser and optics. From standalone wavefront sensors to fully integrated machines, we offer high resolution TWE, WFE and MTF measurements of optics at their design wavelength from UV to far-IR. Based on Quadriwave Lateral Shearing Interferometry our solutions combine high accuracy, best-in-class dynamic range and ease of use. Expert software packages provide insightful analysis for R&D and manufacturing Contact: Valentin Genuer, Business developer, genuer@phasics.com

**Featured Product:**  
Kaleo MultiWave - Polychromatic interferometer for TWE and RWE measurements from UV to far-IR

---

**Exhibitor Listing**
Photonic Cleaning Technologies

Bldg 1, 1895 Short Ln, Platteville, WI, 53818-8977 USA
+1 608 467 5396; fax +1 608 467 5397
sales@photoniccleaning.com; www.photoniccleaning.com

Featured Product: First Contact Polymers™. Only no-residue strip coat available to clean & protect sensitive surfaces
Manufacturer of First Contact Polymers®. The cleaning and protection system. Apply liquid polymer and peel the dried film leaving the surface nearly atomically clean. Independent XPS/ESCA and Laser damage threshold testing shows no residue to the molecular level! Safe with high power laser optics. Remove dust & fingerprints. Reduce waste: non-toxic inert polymers. Clean nanostructures, gratings & phase masks! Protect and clean microscope objectives & CCD sensors. Safe. Low adhesion. No residue. Contact: David Giesen, Operations and Manufacturing Manager, davidg@photoniccleaning.com; James Hamilton, CTO, hamiltonj@photoniccleaning.com

First Contact Polymers™. Only no-residue strip coat available to clean & protect sensitive surfaces.

Photons Media

100 West St, 2nd Floor, Pittsfield, MA, 01201 USA
+1 413 499 0514; fax +1 413 442 3180
info@photonics.com; www.photonics.com

Featured Product: Photonics Spectra covers the science, industry and business of photonics.
Photonics Media brings you the latest research, product information, and business news for the entire photonics industry. Our extensive resources include four magazines - Photonics Spectra, Biophotonics, Vision Spectra and EuroPhotonics available in print and digital; the Photonics Buyer’s Guide available in print and online; e-newsletters; webinars; and our website. Visit www.photonics.com for more information and to subscribe for Free. Contact: Timothy Dupree, Sales Account Manager, tim.dupree@photronics.com; Susan Petrie, Editor, susan.petrie@photronics.com

Vision Spectra covers the machine vision industry’s transformation of the manufacturing landscape.

piezosystem jena, Inc.

2B Rosenfeld Dr, Hopedale, MA, 01747 USA
+1 508 634 6688; fax +1 508 634 6868
usa@piezojena.com; www.piezosystem.com

Piezosystem jena for 20+ years has provided high precision nano-positioning solutions in up to 5 axis of travel. X, XY, XYZ, tip/tilt positioning with sub-nm resolution can be achieved, with high resonant frequencies which allow for fast scanning. Using a closed loop feedback we can eliminate any hysteresis and drift. Complete digital systems are also readily available with micro manager and LabVIEW drivers. A leader for R&D and OEM solutions. Contact: Peter Viglas, Sales Manager, pviglas@piezojena.com

PR Hoffman Machine Products, Inc.

1517 Commerce Ave, Carlisle, PA, 17015-9166 USA
+1 717 243 9900; fax +1 717 243 4542
prhoff@prhoffman.com; www.prhoffman.com

Featured Product: Lapping & Polishing Machines; Lapping & Polishing Carriers; Polishing Templates
PR Hoffman is widely recognized as a lapping and polishing machine innovator with patents dating back to our inception in 1938. PR Hoffman offers a full line of double-sided machines ranging from our first model PR-1 to our newest and largest Servo 6600 machine. Carriers designed & manufactured for any machine in a variety of raw materials. Polishing templates. PR Hoffman is a leader in single side polishing templates offering solutions for the most challenging polishing environments. Contact: Kerry Woods, Sales Manager, kwoods@prhoffman.com; Ashley Pennabaker, Sales, apennabaker@prhoffman.com

PR Hoffman Counter-Rotating Plates/ 4-Way Machine Motion now available on most Servo Series Machines.
Precision Glass & Optics #907
3600 W Moore Ave, Santa Ana, CA, 92704-6835 USA
+1 714 540 0126; fax +1 714 540 1482
info@pgo.com; www.pgo.com

Featured Product: New! PG&O fabricates finished optics out of infrared (IR) materials that operate from 0.75µm - 15µm.
PG&O delivers high-quality, cost-effective precision glass, reliable optics & advanced optical coatings for biomed, mil/aero, imaging, scanning, lasers, avionics & more. Celebrating its 33rd year, the company has an extremely large inventory of glass substrates, expert engineering staff and a full optical fabrication shop to provide superior optical coatings and to manufacture large mirror blanks. Other services include CNC machining, polishing, slicing, sawing, scribing, grinding, edging & assembly. Contact: Dan Bukaty, Jr., President, info@pgo.com

New! PG&O fabricates finished optics out of infrared (IR) materials that operate from 0.75µm - 15µm.

Precitec, Inc. #312
28043 Center Oaks Ct, Wixom, MI, 48393 USA
+1 248 446 8100; fax +1 248 446 9409
info@precitec.com; www.precitec.us

Featured Product: Precitec’s CHR line scan camera uses chromatic optics for 2D imaging eliminating any autofocusing.
Precitec is the specialist for optical measuring technology. The CHRocodile sensors and probe systems are technology and quality leaders for distance and layer thickness measurements. They stand for robustness, dynamics and the highest precision. The preferred application is in the nanometer to centimeter range. So we measure very accurately, and even “inline” during the production process. That means that our measurements are not only absolutely accurate, but also extremely fast. Contact: Scott Riedinger, Sales Manager, s.riedinger@precitec.com

QED Optics #617
APOMA
1040 University Ave, Rochester, NY, 14607 USA
+1 585 758 0130; fax +1 585 256 3211
qedoptics@qedmrf.com; www.qedoptics.com

QED Optics is your go-to resource for a combination of large, challenging or highly precise optical components. Our engineering, manufacturing expertise and collaborative work process ensure the optical components we produce will meet spec and contribute to a successful project. Contact: Mike DeMarco, QED Optics Business Manager, demarco@qedmrf.com; Chris Hall, QED Optics Senior Engineer, hall@qedmrf.com

QED Technologies, Inc. #617, 621
1040 University Ave, Rochester, NY, 14607-1282 USA
+1 585 256 6540; fax +1 585 256 3211
info@qedmrf.com; www.qedmrf.com

Featured Product: Q-flex, Q22 MRF machines, ASI(Q) metrology machines
QED delivers solutions to optics manufacturers: MRF polishing machines bring efficiency and confidence to manufacturing processes. Polish large optics, up to 1200 mm, with the new Q22 family of MRF machines. Production-oriented Q-flex MRF machines finish optical components from plano to complex geometries, up to 300 mm, with repeatable precision. With SSI metrology machines measure plano to freeform geometries, up to 500 mm. Contact QED: info@qedmrf.com or visit QED at Optifab, booth 621. Contact: Scott Summerson, Director of Global Sales and Operations, summerson@qedmrf.com; Paul Dumas, Customer Service, Applications Engineering Mgr., dumas@qedmrf.com

QED's new 10 mm MRF wheel polishes parts with short concave radii.
Qual Diamond Hi-Tech
12707 High Bluff Dr Ste 200, San Diego, CA, 92130-2037 USA
+1 858 350 4253
info@qualdiamond.com; www.qualdiamond.com

R. Mathews Optical Works, Inc.
26280 Twelve Trees Ln, Poulsbo, WA, 98370 USA
+1 360 697 7417
bob@mathewsoptical.com; www.mathewsoptical.com
R. Mathews Optical Works has been manufacturing prototype and production aspheric lenses in the US since 1978. Utilizing all glass types available, we can produce your designs cost-effectively in sizes ranging from 10mm to 265mm in diameter. Whether you require one or thousands of aspheric parts, we can produce them using our proprietary methods with form certification. Contact: Bob Mathews, President, bob@mathewsoptical.com

Ralph W. Earl Company
5930 East Molloy Road, Syracuse, NY, 13211 USA
+1 315 454 4431
rwearl@rwearl.com; www.rwearl.com
Featured Product: Universal Robots
Est. in 1954 the Ralph W. Earl Company is a leading automation solutions distributor in Syracuse, NY, covering Upstate NY and Northern PA. RWE specializes in the design and assembly of complete electronic, hydraulic, pneumatic, process and automation solutions, partnering with over 50 industry leaders. We focus on innovation and strengthening the automation capabilities of our clients, offering a seamless and cost-effective project completion, on-site support, and certified training staff. Contact: Stephanie Gullen, Sales and Marketing Coordinator, sgullen@rwearl.com; Jason Horn, Sales Engineer, jhorn@rwearl.com

RedLux Ltd.
Unit 5 Quadrangle Abbey Park Industrial Estate, Romsey, SO51 9DL United Kingdom
+44 23 80263095
info@redlux.net; www.redlux.net
Featured Product: OptiLux SD - The Complete Solution for Automated Scratch Dig Inspection Measurement
RedLux Ltd is a UK based metrology company. We provide high precision, non-contact measurement systems used in optics, orthopaedics, automotive, and aerospace. Our OptiLux SD offers a new solution to automated inspection, raising the bar in quality control. As an innovation leader in metrology, our high precision metrology systems offer new levels of technology and perfection. Contact: John Nesbitt, Production Manager, j.nesbitt@redlux.net

Reynard Corporation
1020 Calle Sombra, San Clemente, CA, 92673-6227 USA
+1 949 366 8866; fax +1 949 498 9528
sales@reynardcorp.com; www.reynardcorp.com
Featured Product: Diamond Point Turning in-house capabilities of infrared and exotic materials.
Reynard Corporation manufactures Custom Precision Optical Components and Thin Film Coatings 0.2µm to 50µm (UV-VIS-IR) to demanding specifications for aerospace and defense, commercial and industrial and medical applications. Other in-house capabilities include: diamond point turning, optical and mechanical fabrication, photolithography patterns, environmental testing and design services. Prototype to production, ISO 9001:2015 & ITAR. We'll work with you in Perfecting Your Light™ Contact: Sales Department, sales@reynardcorp.com

Salem Advanced Materials
5901 Gun Club Rd, Winston Salem, NC, 27103 USA
+1 336 766 1104
sales@salemdist.com; www.salemdist.com
Featured Product: Eclipse Cerium Oxide- Eclipse is a suspension treated cerium oxide that works with pitch or pads to produce excellent surface quality optics.
Salem Advanced Materials is a premier supplier of polishes and abrasives to the precision optics industry. Cerium oxide, aluminum oxide, pads, coolants, colloidal solutions and Pitch round out our core products. Our focus is to help our customers achieve the best processes and practices on optical materials and ceramics. Contact: Steve Albright, salbright@salemdist.com

Sandvik Osprey Ltd.
Red Jacket Works, Millands Rd, Neath W Glamorgan, SA11 1NJ United Kingdom
+44 1639 634121; fax +44 1639 630100
cellaneous.osprey@sandvik.com; www.smt.sandvik.com/osprey
Featured Product: CE-Alloys - A range of Si-Al controlled expansion alloys. Tailored thermal expansion: 5-17ppm/k
Here at Sandvik Osprey we manufacture and sell components made from a range of Si-Al alloys called Controlled Expansion (CE) Alloys. By changing the ratio of silicon and aluminium we can tune the CTE anywhere from 5 to 17 ppm/k. Allowing us to CTE match other components and materials in your assembly. CE-Alloys are exceptionally light and stiff and are fully machinable and plateable. Contact: Stuart Sillars, Sales and Marketing Manager, CEAlloys.Osprey@Sandvik.com
Santec USA Corp. #413
SPIE Corporate Member APOMA
433 Hackensack Ave, Hackensack, NJ 07601 USA
+1 201 488 5505; fax +1 201 488 7702
info@santec.com; www.santec.com

Featured Product: IVS-2000 Optical inspection tool for fast, high resolution 3D profiling and thickness measurements
Santec is a global photonics engineering company and a leading manufacturer of Tunable Lasers and Swept Source OCT equipment used in a range of optical manufacturing and metrology applications. An innovator in tunable lasers, Santec products deliver high performance for process control, nondestructive testing, 3D profiling, thickness monitoring and gas sensing. New of 2019, Santec introduces real-time optical monitoring of laser welding. 40-Years Creating Optopia. Contact: Jonathan Evans, VP, Global Sales Group, jonathan@santec.com; Max Chang, Director, Global Sales Group, mchickey@santec.com

Satisloh North America Inc. #521
SPIE Corporate Member APOMA
N106 W13131 Bradley Way Ste 200, Germantown, WI 53022 USA
+1 262 255 6001; fax +1 262 255 6002
precision@satislohusa.com; www.satisloh.com

Featured Product: SPM/SPS-10: grinding & polishing machines for micro lenses & micro optics aspheres up to 10 mm.
The Satisloh line includes generators, polishers, laser centering, and coating machines for all applications. A supplier of diamond wheels and pellets, spherometer rings, and spare parts, we offer a complete range of consumable products – including diamonds, polishing pads, and Borrer Chemical ultrasonic cleaning products. Satisloh provides both consulting and tool services. Contact: Tom Godin, Sales Director, tom.godin@satislohusa.com; Andrew Bagley, Sales Engineer, andrew.bagley@satislohusa.com

Savvy Optics Corp. #715
SPIE Corporate Member APOMA
35 Gilbert Hill Rd, Chester, CT, 06412 USA
+1 860 878 0722
contact@savvyoptics.com; www.savvyoptics.com

Featured Product: SavvyInspector® systems are taking the guesswork out of scratch and dig measurements worldwide.
Founded in 2007, Savvy Optics Corp is an optical engineering and design company dedicated to practical solutions to optical problems. Savvy Optics Corp provides on-site training and education for scratch and dig, waviness, texture, inspection, and ISO 10110 specifications. Since 2009, Savvy Optics Corp. has produced and sold the SavvyInspector®, the only Army-traceable line of surface inspection tools that take the guesswork and subjectivity out of scratch and dig inspection. Contact: David Aikens, Chief Executive Officer, daikens@savvyoptics.com

Schneider Optical Machines Inc. #1021
SPIE Corporate Member APOMA
6644 All Stars Ave Ste 100, Frisco, TX, 75033-2203 USA
+1 972 247 4000; fax +1 972 247 4060
info-us@schneider-om.com; www.schneider-om.com

Featured Product: SCHNEIDER’s ultra precise single point diamond turning center UPC 300 provides highest accuracy.
Schneider is one of the world’s leading machine manufacturers in the area of ophthalmics, precision and ultra-precision optics. The product portfolio comprises grinding, polishing and centering machines for various spherical, aspherical and freeform precision optics applications. The diamond turning machines enable ultra-precision manufacturing of freeform optics, IR-optics, IOL’s and off-axis mirrors. The solutions cover a wide spectrum of optics sizes ranging from 5 to 1500 mm in diameter. Contact: Dan Gauch, Manager Precision Optics, d.gauch@schneider-om.com

SCHOTT North America, Inc. #906
SPIE Corporate Member APOMA
400 York Ave, Duryea, PA, 18642-2036 USA
+1 570 457 7485; fax +1 570 457 7330
info.optics@us.schott.com; www.us.schott.com

Featured Product: IRG-27 glass with excellent IR transmission from 680 nm and minimal absorption at 12.5 μm.
SCHOTT Advanced Optics, with its deep technological expertise, is a valuable partner for its customers in developing products and customized solutions for applications in optics, lithography, astronomy, opto-electronics, architecture, life sciences, and research. With a product portfolio of more than 120 optical glasses, special materials and components, we master the value chain: from customized glass development to high-precision optical product finishing and metrology. Contact: David Schimmel, Marketing Manager, david.schimmel@us.schott.com

scia Systems GmbH #811
SPIE Corporate Member APOMA
Annaberger Str 240, Chemnitz, Saxony, 09125 Germany
+49 371 5347 780; fax +49 371 5347 781
info@scia-systems.com; www.scia-systems.com

Featured Product: scia Coat 200/500 for homogeneous multilayers and scia Cube 750 for large area structuring/coating.
scia Systems is a full range supplier of advanced ion beam and plasma processing equipment. The systems are applicable for coating and etching processes in the production of microelectronics, MEMS and precision optical components. Due to their flexible and modular design, the systems can be configured according to customer specific requirements. Amongst others by combining several vacuum process chambers into cluster or in-line solutions.
Spectrum Thin Films Corp. #184

APOMA
135 Marcus Blvd, Hauppauge, NY, 11788 USA
+1 631 901 1010; fax +1 631 236 4309
sales@spectrumthinfilms.com; www.spectrumthinfilms.com
Advanced manufacturing of thin film coatings and optics for science, medical, aerospace, astronomy, research, cinematography and military applications. Multiple internally designed advanced coating systems utilizing Ion Assisted deposition and Ion beam sputtering. ISO 9001:2015 Certified. ITAR Registered. Contact: Derek Schomburg, Project Manager & Technical Sales Engineer, sales@spectrumthinfilms.com

Spica Technologies, Inc. #711

APOMA
18 Clinton Dr #3, Hollis, NH, 03049 USA
+1 603 882 8233
sales@spicatech.com; www.spicatech.com
Spica Technologies provides a broad range of optical test and measurement services for manufacturers and end users of optical components. Founded in 1989, Spica has evolved as the premier source for laser damage testing, optical density measurements, environmental exposure, telecomm testing, and general optical component metrology. Relying on numerous laser sources, a host of specialized optical instruments, and years of experience, Spica can support a broad range of optical test and meas. Contact: Michael Thomas, President, sales@spicatech.com

SmarAct Inc. #410

2140 Shattuck Ave Ste 1103, Berkeley, CA, 94704 USA
+1 415 766 9006
info-us@smaract.com; www.smaract.com

Featured Product: The Hybrid-Drive Technology combines a stick-slip drive and a piezo scanner in a single device
SmarAct is a fast-growing and innovative company, specialized in the development and production of customizable micro- and nano-positioning systems. Our broad portfolio, from single stages to miniaturized robots and easy-to-use control systems, is completed by sophisticated metrology based on our powerful laser interferometer. With our in-house production, we can ensure an outstanding level of product quality and flexibility. We are ready to help you find the best solution for your projects. Contact: Jorge Miguel, CEO, info-us@smaract.com

son-x GmbH #910

Steinbachstr 17, Aachen, 52074 Germany
+49 241 8904 122; fax +49 241 8904 6122
info@son-x.com; www.son-x.com/en/home

Featured Product: Metal mirrors, Optical mould inserts, Infrared lenses, Ultrasonic Tooling System
son-x is a leading edge technology and component supplier in the field of ultra precision machining. The technology developed and commercialized by son-x enables direct machining of stainless steel with single crystal diamond tools. A consistent surface quality of Ra=3nm and a form accuracy of 150 nm can be achieved. We offer contract manufacturing of optical mould inserts, mirrors up to 1000 mm in diameter and plastic lenses. Contact: Benjamin Bulla, Managing Director, bulla@son-x.com; Marius Doetz, Head of Production, marius.doetz@son-x.com

SlicingTech #611

SPIE Member
432 Mt Bethel Hwy, Bangor, PA, 18013 USA
+1 610 588 7884; fax +1 610 588 7885
www.slicingtech.com

Featured Product: The Hybrid-Drive Technology combines a stick-slip drive and a piezo scanner in a single device
The Hybrid-Drive Technology combines a stick-slip drive and a piezo scanner in a single device.

Spartan Felt Co. #1114

APOMA
151 Felt Dr, Roebuck, SC, 29376 USA
+1 864 576 7919; fax +1 864 574 4507
info@spartanfelt.com; www.spartanfelt.com

Spectrum Thin Films Corp. #184

APOMA
135 Marcus Blvd, Hauppauge, NY, 11788 USA
+1 631 901 1010; fax +1 631 236 4309
sales@spectrumthinfilms.com; www.spectrumthinfilms.com
Advanced manufacturing of thin film coatings and optics for science, medical, aerospace, astronomy, research, cinematography and military applications. Multiple internally designed advanced coating systems utilizing Ion Assisted deposition and Ion beam sputtering. ISO 9001:2015 Certified. ITAR Registered. Contact: Derek Schomburg, Project Manager & Technical Sales Engineer, sales@spectrumthinfilms.com

Spica Technologies, Inc. #711

APOMA
18 Clinton Dr #3, Hollis, NH, 03049 USA
+1 603 882 8233
sales@spicatech.com; www.spicatech.com
Spica Technologies provides a broad range of optical test and measurement services for manufacturers and end users of optical components. Founded in 1989, Spica has evolved as the premier source for laser damage testing, optical density measurements, environmental exposure, telecomm testing, and general optical component metrology. Relying on numerous laser sources, a host of specialized optical instruments, and years of experience, Spica can support a broad range of optical test and meas. Contact: Michael Thomas, President, sales@spicatech.com

SmarAct Inc. #410

2140 Shattuck Ave Ste 1103, Berkeley, CA, 94704 USA
+1 415 766 9006
info-us@smaract.com; www.smaract.com

Featured Product: The Hybrid-Drive Technology combines a stick-slip drive and a piezo scanner in a single device
SmarAct is a fast-growing and innovative company, specialized in the development and production of customizable micro- and nano-positioning systems. Our broad portfolio, from single stages to miniaturized robots and easy-to-use control systems, is completed by sophisticated metrology based on our powerful laser interferometer. With our in-house production, we can ensure an outstanding level of product quality and flexibility. We are ready to help you find the best solution for your projects. Contact: Jorge Miguel, CEO, info-us@smaract.com

son-x GmbH #910

Steinbachstr 17, Aachen, 52074 Germany
+49 241 8904 122; fax +49 241 8904 6122
info@son-x.com; www.son-x.com/en/home

Featured Product: Metal mirrors, Optical mould inserts, Infrared lenses, Ultrasonic Tooling System
son-x is a leading edge technology and component supplier in the field of ultra precision machining. The technology developed and commercialized by son-x enables direct machining of stainless steel with single crystal diamond tools. A consistent surface quality of Ra=3nm and a form accuracy of 150 nm can be achieved. We offer contract manufacturing of optical mould inserts, mirrors up to 1000 mm in diameter and plastic lenses. Contact: Benjamin Bulla, Managing Director, bulla@son-x.com; Marius Doetz, Head of Production, marius.doetz@son-x.com

SlicingTech #611

SPIE Member
432 Mt Bethel Hwy, Bangor, PA, 18013 USA
+1 610 588 7884; fax +1 610 588 7885
www.slicingtech.com

Featured Product: The Hybrid-Drive Technology combines a stick-slip drive and a piezo scanner in a single device
The Hybrid-Drive Technology combines a stick-slip drive and a piezo scanner in a single device.
Swift Glass, Inc. #615

APOMA
131 22nd St, Elmira, NY, 14903-1329 USA
+1 607 733 7166; fax +1 607 732 5829
quality@swiftglass.com; www.swiftglass.com

Featured Product: Upgraded QC department with Multi Surface Profiler and Ultrasonic Cleaning System.
Swift Glass Company specializes in double side lapping and polishing down to .3mm. Other capabilities include Chem Strengthening up to 30" x 40", heat tempering, CNC machining, OD grinding, edge polishing, single side lapping and polishing, water-jet cutting, and silk screening. Material include Borofloat, Corning 7980 Fused Silica, Heraeus TSC-3 Quartz, Gorilla glass, Corning Eagle XG, Schott color filters, Hoya color filters and Kopp color filters, Schott D263, B-270, and Soda lime glass. Contact: Charlie Burke, VP, cburke@swiftglass.com; Kevin Wheeler, Project Manger, kwheeler@swiftglass.com

Switzer #1010
4020 Jeffrey Blvd, Buffalo, NY, 14219 USA
+1 716 821 9393; fax +1 716 821 9399
start@switzermfg.com; www.switzermfg.com

Switzer manufactures custom metal components and assemblies with our proven photochemical etching expertise and a suite of complementary forming and finishing capabilities. Our diverse customers appreciate our incredible accuracy, the quality of the things we make and the honest, straightforward way we make them.

Sydor Optics, Inc. #608

SPIE Corporate Member
31 Jetview Dr, Rochester, NY, 14624-4903 USA
+1 585 271 7300; fax +1 585 271 7301
sales@sydor.com; www.sydor.com

Featured Product: Precision Windows, from ultraviolet to the infrared
Sydor Optics is a custom manufacturer of precision flat-surfaced, parallel and wedged optics specializing in double-sided polishing, continuous pad & pitch polishing, CNC machining and laser machining. Custom optical components manufactured with a variety of optical glass substrates include wafers, windows, filters, mirrors, optical flats, wedge prisms, light pipes, plate beamsplitters, and coating witness samples. ITAR Registered and ISO 9001:2015 Certified. Contact: Matthew Sydor, Program Manager, mikesydor@sydor.com; Michael Naselaris, Account Manager, miken@sydor.com

Optical windows, made up to 600mm.

Synopsys #136

SPIE Corporate Member
690 E Middlefield Rd, Mountain View, CA, 94043-4010 USA
+1 650 584 5000
optics@synopsys.com; www.synopsys.com/optical-solutions

Featured Product: CODE V, LightTools, RSsoft, LucidShape, OptoDesigner
Synopsys' Optical Solutions Group (OSG) is one of the world's leading developers of optical design and analysis tools, with CODE V imaging design software, LightTools illumination design software, LucidShape products for automotive lighting, RSsoft products for photonic component and optical communications design, and OptoDesigner for photonic integrated circuit layout and verification. OSG is also an independent supplier of optical systems design services.

Syntec Optics #607

SPIE Corporate Member
515 Lee Rd, Rochester, NY, 14606-4236 USA
+1 585 768 2513; fax +1 585 464 8043
sales@syntecoptics.com; www.syntecoptics.com

Featured Product: Custom manufactured polymer optics & optical assemblies.
Syntec Optics is North America's largest private manufacturer of custom plastic optics serving the medical, defense and biometric industries by producing "precision plastic optics for tomorrow's technologies" from our location in Rochester, NY. We specialize in design for manufacturability, precision plastic optics, diamond turning, coating, electro-optical assembly, opto-mechanical assembly, photonic assembly and metrology. Contact: Sara Burke, Sales Manager, sburke@syntecoptics.com; Rob Parada, President/GM, rparada@syntecoptics.com

Techmetals, Inc. #114

SPIE Corporate Member
Optics Div, 345 Springfield St, Dayton, OH, 45403-1240 USA
+1 937 253 5311; fax +1 937 253 5096
info@techmetals.com; www.techmetals.com

Featured Product: Optakoat and Optic Nickel Alloys for precision machining and SPDT
Techmetals developed Optakoat and optic nickel alloys for precision machining and SPDT of critical optics, mirrors, optic molding applications, BEF and solar panel film production. Also offered are aluminum anodize, titanium anodize, silver, gold as well as TM-Rx medical grade chrome, medically approved electro polish, passivation and PVD coatings. See our complete list of custom designed coatings since 1968 at www.techmetals.com Contact: Andrea Ferguson, Inside Sales Manager, aferguson@techmetals.com; Steve Deisher, Director of Business Development, sdeisher@techmetals.com
<table>
<thead>
<tr>
<th>Company Name</th>
<th>Booth Number</th>
<th>Address</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>TechnoTrade International, Inc.</td>
<td>#407</td>
<td>7 Perimeter Rd, Manchester, NH, 03103 USA</td>
<td>+1 603 622 5011; fax +1 603 622 5211; <a href="mailto:sales@technotradeinc.com">sales@technotradeinc.com</a>; <a href="http://www.technotradeinc.com">www.technotradeinc.com</a></td>
</tr>
<tr>
<td><strong>Featured Product:</strong> Borer Chemie's Deconex OP Product line will help you with your Optics cleaning needs!**</td>
<td></td>
<td></td>
<td>The optics industry requires a wide range of cleaning tasks, from polishing magnetic heads to fingerprints. The aqueous cleaning products by Borer Chemie for this application are the result of many years of intensive research and development. Their comprehensive, in-house facilities offer the latest ultrasonic and spray cleaning system to run practical aqueous cleaning trials with your substrates. Take advantage of Borer Chemie’s products that work in any step of the manufacturing process. Contact: Markus Auwaerter, COO, <a href="mailto:Markus@technotradeinc.com">Markus@technotradeinc.com</a></td>
</tr>
<tr>
<td>Tecport Optics, Inc.</td>
<td>#1109</td>
<td>6457 Hazeltine National Dr Ste 140, Orlando, FL, 32822-5162 USA</td>
<td>+1 407 855 1212; fax +1 407 855 1213; <a href="mailto:sales@tecportoptics.com">sales@tecportoptics.com</a>; <a href="http://www.tecportoptics.com">www.tecportoptics.com</a></td>
</tr>
<tr>
<td><strong>Featured Product:</strong> Rock: Multilayer Infrared coating with Top DLC layer coating system; IBS, Reactive Sputtering Coating**</td>
<td></td>
<td></td>
<td>Tecport is an industry-leading manufacturer of state-of-the-art thin film vacuum deposition systems. Sophisticated systems employ leading edge technology such as IBS, HD Plasma Source, and Reactive Magnetron Sputtering, Ion Plasma DLC; achieving coating characteristic which has never been achieved before. Dedicated to excellence in customer service and technical innovation, Tecport has built a loyal customer base that benefits from its corporate motto, “We serve to serve to serve again”. Contact: Joseph Kim, VP, <a href="mailto:jkim@tecportoptics.com">jkim@tecportoptics.com</a>; Frank Helmes, Director of Sales, <a href="mailto:fhelmes@tecportoptics.com">fhelmes@tecportoptics.com</a></td>
</tr>
<tr>
<td>Telemark, Inc.</td>
<td>#314</td>
<td>1801 SE Commerce Ave, Battle Ground, WA, 98604 USA</td>
<td>+1 360 723 5360; fax +1 360 723 5368; <a href="mailto:sales@telemark.com">sales@telemark.com</a>; <a href="http://www.telemark.com">www.telemark.com</a></td>
</tr>
<tr>
<td><strong>Featured Product:</strong> Optical Monitor, 861 Deposition Controller, ebeam sweeps, and Sheet Resistance Monitor**</td>
<td></td>
<td></td>
<td>Telemark is a leading supplier of cryochillers, magnetic fluid feedthroughs, electron beam sources and power supplies, ion beam sources, optical instrumentation, quartz crystal deposition controllers, and other related accessories. Telemark's cryochillers provide high-speed in-chamber water vapor trapping, Instrumentation offered includes the Model 861 deposition controller, a unique in-situ sheet resistance monitor and an affordable in-situ optical film measurement instrument. Contact: Joshua Gurian, Process Engineer, <a href="mailto:joshg@telemark.com">joshg@telemark.com</a>; Brad Hanford, Sales, <a href="mailto:brad.hanford@aotavac.com">brad.hanford@aotavac.com</a></td>
</tr>
<tr>
<td>Thin-Films Research, Inc.</td>
<td>#180</td>
<td>270 Littleton Rd, Westford, MA, 01886 USA</td>
<td>+1 978 692 9530; fax +1 978 692 9531; <a href="mailto:sales@thinfilmsresearch.com">sales@thinfilmsresearch.com</a>; <a href="http://www.thinfilmsresearch.com">www.thinfilmsresearch.com</a></td>
</tr>
<tr>
<td><strong>Featured Product:</strong> High Performance Protected Silver &amp; Gold Mirrors**</td>
<td></td>
<td></td>
<td>Thin-Films Research, Inc is a manufacturer of Optical Filters and provider of custom thin film coating services for Electro-Optics, Medical Electronics, Sensors and Semiconductor Industries. Our products include filters for UV, Visible and IR regions up to 15 microns, Dichroic Filters, metallized and AR coated Optical Fibers, Manually Tunable Filters and Attenuators. The company was established in 1988 with the state-of-the art equipment and is celebrating its 32nd year of excellence! Contact: Thirumani Raghunath, President, <a href="mailto:tr@thinfilmsresearch.com">tr@thinfilmsresearch.com</a>; Rumya Raghunath, Marketing &amp; Customer relations, <a href="mailto:rumya@thinfilmsresearch.com">rumya@thinfilmsresearch.com</a></td>
</tr>
<tr>
<td>Thorlabs, Inc.</td>
<td>#319</td>
<td>56 Sparta Ave, Newton, NJ, 07860-2402 United States</td>
<td>+1 973 300 3000; fax +1 973 300 3600; <a href="mailto:sales@thorlabs.com">sales@thorlabs.com</a>; <a href="http://www.thorlabs.com">www.thorlabs.com</a></td>
</tr>
<tr>
<td><strong>Featured Product:</strong> Borer Chemie’s Deconex OP Product line will help you with your Optics cleaning needs!**</td>
<td></td>
<td></td>
<td>As a member of the photonics community for 30 years, Thorlabs strives to be the ultimate resource for the photonics community-a place to find the products you need to enable your experiments, as well as the information you need to get your application working. We design, develop, and manufacture system level solutions as well as building blocks for the industry; including optomechanics, motion control, optical components, laser diodes, tunable lasers, and vibration isolation systems.</td>
</tr>
<tr>
<td>Tower Optical Corp.</td>
<td>#1210</td>
<td>3600 S Congress Ave Ste J, Boynton Beach, FL, 33426-8488 USA</td>
<td>+1 561 740 2525; fax +1 561 740 2518; <a href="mailto:sales@toweroptical.com">sales@toweroptical.com</a>; <a href="http://www.toweroptical.com">www.toweroptical.com</a></td>
</tr>
<tr>
<td><strong>Featured Product:</strong> Waveplates, Prisms, Lenses, Laser Windows, Laser Mirrors, Beam Splitters, Filters, Optical Flats**</td>
<td></td>
<td></td>
<td>Specializing in Waveplates from 5mm to 4&quot;, Stock and Custom Shapes and Styles. 10,000 pcs in stock in 60 different Wavelengths for fast delivery. Prisms from 0.5mm to 1&quot; as well as Laser Windows, Mirrors, Filters, Optical Flats, Lenses. Build to Print Optics for Prototype to Production quantities. Offering High Quality, fast turnaround Single and Double Side Polishing and lapping. High speed Somos machines deliver both quality and speed. Over 40 years in business. Contact: Yoany Rodriguez Ph.D., Director of Engineering &amp; Sales, <a href="mailto:Yrodriquez@TowerOptical.com">Yrodriquez@TowerOptical.com</a>; Ruben Nazario, Sales Associate, <a href="mailto:Rnazario@TowerOptical.com">Rnazario@TowerOptical.com</a></td>
</tr>
</tbody>
</table>

**Thin Films Research, Inc.**

**Featured Product:** High Performance Protected Silver & Gold Mirrors

Thin-Films Research, Inc is a manufacturer of Optical Filters and provider of custom thin film coating services for Electro-Optics, Medical Electronics, Sensors and Semiconductor Industries. Our products include filters for UV, Visible and IR regions up to 15 microns, Dichroic Filters, metallized and AR coated Optical Fibers, Manually Tunable Filters and Attenuators. The company was established in 1988 with the state-of-the art equipment and is celebrating its 32nd year of excellence! Contact: Thirumani Raghunath, President, tr@thinfilmsresearch.com; Rumya Raghunath, Marketing & Customer relations, rumya@thinfilmsresearch.com

**Custom thin-film coatings for the Electro-Optics, Semiconductor, and Medical Electronics industries.**
UC Components, Inc. #1321
18700 Adams Ct, Morgan Hill, CA, 95037-2804 USA
+1 408 782 1929; fax +1 408 782 7995
sales@uccomponents.com; www.uccomponents.com

Featured Product: Vented Screws and Baked O-rings for Vacuum & Critically Clean Environments
For High and Ultra High Vacuum environments, UC Components’ “RediVac®” vented screws provide a path for trapped air to be pumped away from the bottoms, sides and shoulders of blind-tapped holes resulting in faster and cleaner pump-down of vacuum systems. Venting eliminates virtual leaks caused by trapped air, combined with UC’s propriety cleaning procedure removes potential contaminants from voids resulting in higher throughput and yields. The “RediVac®” label says it all. Contact: Chris Malocsay, Director of Sales and Marketing, chris@uccomponents.com

US Centrifuge–A Division of Filtertech #1325
113 Fairgrounds Dr, Manlius, NY, 13104 USA
+1 317-299-2020
info@uscentrifuge.com; www.uscentrifuge.com

US Centrifuge–A Division of Filtertech utilizes specific system design and technology for a full-range of industrial applications that require liquid-liquid and liquid-solid centrifuge separation technology, solids dewatering, and centrifuge liquid filtration and fluid clarification. Cutting-edge engineering technology and traditional craftsmanship are blended into networks of equipment and services provided by US Centrifuge Systems. Contact: Danny Seals, Sales & Service, dseals@uscentrifuge.com; Greg Stamps, Service, gstamps@uscentrifuge.com

Universal Photonics Inc. #921
85 Jetson Ln, Central Islip, NY, 11722 USA
+1 516 935 4000
info@universalphotonics.com; www.universalphotonics.com

Featured Product: Somos High-Speed, Double-Sided Lapping & Polishing Machines
Universal Photonics is a world-leader in critical surfacing preparation materials. Our dedication to the advancement of surfacing technology in all phases of fabrication spans nearly a century, and is supported with state-of-art laboratory, manufacturing and distribution facilities throughout the United States, Europe, and the Far East. Contact: Angelika Criscione, VP, Marketing, angelika@universalphotonics.com; Jen Laico, Sr. Director, Sales, jenl@universalphotonics.com

Somos TPM: Internally-cooled, temperature-controlled, double-sided polishing and lapping.

Universal Lens Company #808
259 Worcester St, Southbridge, MA, 01550-1376 USA
+1 508 765 5421; fax +1 508 765 0500
info@unitedlens.com; www.unitedlens.com

Featured Product: ULC provides a broad range of optical coating services, ranging from 250nm to 25 microns.
A vertically integrated manufacturer of custom optical components specializing in thin-film coatings, precision machined and polished optical elements. ULC is ISO 9001:2015 certified and ITAR registered and features state-of-the-art metrology. Our commitment to quality provides you a one-stop solution to all of your optical component requirements. Visit our website at www.UnitedLens.com or contact us at info@UnitedLens.com for additional information. Contact: Samantha Briggs, Sales & Marketing Manager, SBriggs@unitedlens.com; Tara King, Director of Marketing & Sales, TKing@unitedlens.com

ULC provides custom optics from precision machined blanks to thin film coatings. Contact us today!

US Centrifuge–A Division of Filtertech #1325
113 Fairgrounds Dr, Manlius, NY, 13104 USA
+1 317-299-2020
info@uscentrifuge.com; www.uscentrifuge.com

US Centrifuge–A Division of Filtertech utilizes specific system design and technology for a full-range of industrial applications that require liquid-liquid and liquid-solid centrifuge separation technology, solids dewatering, and centrifuge liquid filtration and fluid clarification. Cutting-edge engineering technology and traditional craftsmanship are blended into networks of equipment and services provided by US Centrifuge Systems. Contact: Danny Seals, Sales & Service, dseals@uscentrifuge.com; Greg Stamps, Service, gstamps@uscentrifuge.com

Valtech Corp. #813
2113 Sanatoga Station Rd, Pottstown, PA, 19464-3275 USA
+1 610 705 5900; fax +1 610 705 0300
info@valtechcorp.com; www.valtechcorp.com

Featured Product: Formulated detergents, temporary bonding epoxy adhesives, molded polymer beams, liquid wax
Valtech Corporation, a global specialty chemical company, has manufactured specialty chemicals for a variety of high-technology markets worldwide for over 30 years. Our VALTRON® brand of formulated detergents for precision cleaning, temporary bonding epoxy adhesives, and specialty molded polymers have proven to be a fundamental component within these industries. Contact: Daniel Kucer, Salesperson, d.kucer@valtechcorp.com

VALTRON® AD4000 series heat release epoxy adhesives.
**Vermont Photonics Technologies Corp.**

**#1007**

PO Box 1398, Brattleboro, VT, 05302-1398 USA  
+1 802 275 5210; fax +1 802 275 5215  
mail@vermontphotonics.com; www.vermontphotonics.com

**Featured Product: GONIOMAT M:** A semiautomatic goniometer with robust, innovative, and easy to use software.  
We offer expertise in angle measurement, precision alignment, and optical testing as the exclusive U.S. distributor for Möller-Wedel Optical for over 30 years. Our line of autocollimators, telescopes, goniometers, and more is well-known around the world as the industry standard. The ELCOMAT 3000 is the most well-regarded autocollimator out there. The GONIOMAT line has established itself in a similar position for measuring prism geometry and other optical systems. See both of these at our booth. Contact: Misha Mross, Engineering Physics, mbmross@vermontphotonics.com

---

**Vertex Optics, Inc.**

**#414**  
90 Victor Heights Pkwy, Victor, NY, 14564-9010 USA  
+1 585-398-7756  
sales@vertexoptics.com; www.vertexoptics.com

**Featured Product: ceramic, crystal, and components, custom Lenses, acylinders, aspheres, planos, spheres, and domes**  
Vertex Optics is a privately held manufacturer of high precision custom components made from a wide variety of substrate materials utilizing cutting edge technology with artisan techniques. The company specializes in components that are 150mm - 500mm in diameter for the astronomical, defense, & semi-con markets. Vertex’s strong ties to Rochester’s community optics manufacturing innovators helps them deliver products that have remarkable craftsmanship with dependable deliveries. Contact: Jay Tierson, President, jay@vertexoptics.com; Joe Serio, VP, joe@vertexoptics.com

---

**VisiMax Technologies, Inc.**

**#1307**

9177 Dutton Dr, Twinsburg, OH, 44087-1981 USA  
+1 330 405 8330; fax +1 330 405 8332  
info@visimaxtechnologies.com; www.visimaxtechnologies.com

**Featured Product: VisiClear Series Broadband Anti-Reflection Coatings / Statistical Process Control**  
VisiMax is a leading manufacturer of thin film coatings, specializing in Anti-Reflection. Our commitment to tracking data in our design & manufacturing processes allows us to deliver superior value compared to the competition. Come say hi at Table #1307 to find out how VisiMax has become an invaluable extension of so many of our customers’ operations. Contact: Gino Giammo, Sales Engineer, ggiammo@visimaxtechnologies.com; Chris Murphy, CEO, cbmurphy@visimaxtechnologies.com

---

**VM-TIM GmbH**

**#160**

Hans-Knoell-Str 6, Jena, Thuringia, 07745 Germany  
+49 3641 384859; fax +49 3641 384860  
marketing@vm-tim.de; www.vm-tim.de

**Featured Product: optical components, polishing slurries, evaporation materials, spectrophotometers**  
VM-TIM GmbH is the manufacturer of optical components for industrial and scientific applications. We have experience of processing and coating of glasses and crystals in the wavelength range from 157nm up to 12µm and offer polishing slurries and evaporation materials. Essentoptics GmbH is the manufacturer of the spectrophotometers PHOTON RT designed for automatic measurements of Rp,s, Tp,s at AOI 0°-75° at wavelengths 185-5200nm without manual adjustment.

---

**Wordingham Technologies**

**#607**  
515 Lee Rd, Rochester, NY, 14606 USA  
+1 585 924 2294; fax +1 585 464 8043  
sales@wordingham.com; www.wordingham.com

**Featured Product: Precision machined metal components for optical assemblies.**  
Wordingham Technologies has built a solid foundation in manufacturing Optical Barrels, Housings, Mounts and Retainer components for optical sub-assemblies. We focus our services on custom components for the Laser, Imaging, Machine Vision, Consumer, Bio instrument and Opto-Mechanical industries; producing intricate parts with the utmost aesthetics & non-symmetric geometries. Wordingham produces components with Ultel, Titanium, Stainless Steel, and most non-ferrous materials. Contact: Tim Bechtold, Sales Manager, tbechtold@wordingham.com; Rob Parada, President/GM, rparada@syntecoptics.com

---

**Xactra Technologies**

**#614**  
105 McLaughlin Rd Ste F, Rochester, NY, 14615-3762 USA  
+1 585 283 6400  
sales@xactra.com; www.xactra.com

Xactra Technologies produces custom precision machined components exclusively for the photonics marketplace. Our meticulous attention to detail and high quality standards are well known to many major OEM optical companies. We provide precision components for all optical devices: Lenses, laser instrumentation, military/defense, machine vision, positioning systems, and medical devices. Xactra is ITAR registered. Xactra Technologies: Quality obsessed, Schedule driven and Competitively focused. Contact: Michael Grady, President, sales@xactra.com; Kevin Yackel, Sales, sales@xactra.com
**XL Vac Technologies, Inc.**
9979 Spook Woods Rd, Port Byron, NY, 13140 USA  
+1 315 730 1634; fax +1 315 776 4884  
Bill@xlvactech.com; www.xlvactech.com

**Featured Product:** Sales Representative for optical coating and manufacturing technologies.

XL Vac Technologies represents some of the best technologies available on the market for the manufacture of optical components. We have been in operation for over 32 years and have a wide array of technologies to support the manufacturing community. Contact: William Branagan, President, bill@xlvactech.com

---

**Xonox Technology GmbH**

**Featured Product:** XONOX VT1200 - Vertical Interferometer System

XONOX Technology GmbH, Germany, develops and manufactures metrology systems for optics manufacturing and testing. Products include innovative devices and software tools for testing thickness, diameter and centration of optical components. In addition, advanced Interferometer systems and Transmission Spheres allow easy, precise testing of RoC and form accuracy. The X-metroLINK system features fully interlinked and automated QC, from job planning to final documentation of complete production lots. Contact: Frank DeWitt, General Manager, f.dewitt@xonox-tec.com; Peter Flug, President, peter.flug@xonox-tec.com

---

**Zaber Technologies Inc.**

**Featured Product:** Zaber's X-LDA-AE Series: 200 nm repeatability, 1 µm accuracy, 0.8 m/s speed in a compact package.

At Zaber, we design and manufacture precision positioning devices such as linear actuators, linear stages, and multi-axis systems that are affordable, integrated, and easy to use. Our devices are used in many different applications and markets, such as photonics and optics, life sciences, and industrial automation. Since introducing our first series, our product offering has grown to include over 100 motion control products, which are distributed worldwide. Contact: Sofia Moreno, Applications Engineering Team, contact@zaber.com

---

**Zeeko Ltd.**

**Featured Product:** ZephyrCAM

Zeeko increases optics polishing efficiency - check out its robot prepolishers + ZephyrCAM software  
Contact: Richard Freeman, Managing Director, info@zeeko.co.uk

---

**ZEISS Industrial Quality Solutions**

**Featured Product:** ZEISS MICURA is the ideal measuring system for tactile inspection of high-precision components.

ZEISS MICURA is the ideal measuring system for tactile inspection of high-precision components.

Contact: Sofia Moreno, Applications Engineering Team, contact@zaber.com

---

**This Program is current as of 9 September 2019. Find the latest on the SPIE Conference App.**
Zygo Corporation designs and manufactures superior noncontact measuring instruments and systems, providing productivity and yield improvement worldwide. ZYGO provides a wide range of inspection, surface analysis, and precision displacement measurement solutions, as well as precision optics, optical design, and opto-mechanical assembly. Our precision noncontact measuring instruments and systems enable manufacturers to increase their operating efficiencies and product yields. Contact: David Melton, Director Sales & Support, savid.melton@ametek.com; Steve Kobak, Senior Account Manager, skobak@zygo.com

ZYGO’s ZeGage PRO, our newest bench-top optical profiler for precision surface analysis.
ASTRONOMY
ALLVAR
Andover Corporation
Dioptic GmbH
EMF Corp.
Fraunhofer-Institut für Angewandte Optik und Feinmechanik IOF
Fujitok Corporation
Imagine Optic Inc.
Isuzu Glass, Inc.
MPS Micro Precision Systems AG
Naked Optics Corp.
New Way Air Bearings
Nikon Corporation
NTG Neue Technologien GmbH & Co. KG
Optical Perspectives Group, LLC
PHASICS Corp.
Photonic Cleaning Technologies
Precision Glass & Optics
QED Optics
QED Technologies, Inc.
Sandvik Osprey Ltd.
Satisloh North America Inc.
Sandvik Osprey Ltd.
Santec USA Corp.
sca Systems GmbH
SmarAct Inc.
Spectrum Thin Films Corp.
Sydor Optics, Inc.
Techmetals, Inc.
United Lens Company
Vertex Optics, Inc.

BASIC RESEARCH, SCIENCE
attocube systems Inc.
Bristol Instruments, Inc.
EMF Corp.
Fraunhofer-Institut für Angewandte Optik und Feinmechanik IOF
ilis gmbh
Inrad Optics
Intlvac Thin Film
Kentek Corp.
OptoSigma Corp.
Photonics Media
piezosystem jena, Inc.
QED Technologies, Inc.
sca Systems GmbH
SmarAct Inc.
Spectrum Thin Films Corp.
SPIE Career Center
Thorlabs, Inc.
Zaber Technologies Inc.

BIOMEDICAL, MEDICAL IMAGING, HEALTH CARE
Andover Corporation
attocube systems Inc.
Chardon Tool
Danyang Danyao Optics Co., Ltd.
Dioptic GmbH
Diverse Optics Inc.
Fil-Tech Inc.
HOYA Corp. USA
Hutchins & Hutchins, Inc.
Imagine Optic Inc.
Isuzu Glass, Inc.
JML Optical Industries, LLC
Kentek Corp.
Luminate
MPA Crystal Corp.
New Scale Technologies, Inc.
Nikon Corporation
Norland Products Inc.
OptoSigma Corp.
PHASICS Corp.
Photonics Media
piezosystem jena, Inc.
R. Mathews Optical Works, Inc.
Santec USA Corp.
scia Systems GmbH
SmarAct Inc.
Spectrum Thin Films Corp.
Sydor Optics, Inc.
Syntec Optics
Precitec, Inc.
R. Mathews Optical Works, Inc.
Syntec Optics

CHEMICAL AND BIOLOGICAL ANALYSIS
AMETEK Precitech, Inc.
Hutchins & Hutchins, Inc.
Intlvac Thin Film
Norland Products Inc.
OptoSigma Corp.
PerkinElmer, Inc.
Photonic Cleaning Technologies
piezosystem jena, Inc.

COMMUNICATIONS & NETWORKING
Bristol Instruments, Inc.
New Scale Technologies, Inc.
Santec USA Corp.
SPIE Career Center

COMPUTING SYSTEMS, DATA PROCESSING
attocube systems Inc.
FLIR Systems, Inc.

CONSULTING SERVICES
AMETEK Precitech, Inc.
Åpre Instruments, Inc.
Benchmark Technologies
Dioptic GmbH
GS Plastic Optics
North American Coating Labs.
Optical Perspectives Group, LLC
Optokos Corporation
Opto-Alignment Technology, Inc.
PerkinElmer, Inc.
Savvy Optics Corp.
SPIE Career Center
Synopsys
Techmetals, Inc.
Teport Optics, Inc.
Xenon Technology GmbH

CONSUMER ELECTRONICS
AMETEK Precitech, Inc.
Danyang Danyao Optics Co., Ltd.
HOYA Corp. USA
Imagine Optic Inc.
LaBionics
North American Coating Labs.

DEFENSE, SECURITY, LAW ENFORCEMENT
ALLVAR
Andover Corporation
Bridge Photonics, Inc.
Chardon Tool
Danyang Danyao Optics Co., Ltd.
Diverse Optics Inc.
EMF Corp.
EssentOptics Ltd.
Fujitok Corporation
Hutchins & Hutchins, Inc.
Isuzu Glass, Inc.
Luminate
MPA Crystal Corp.
Naked Optics Corp.
New Scale Technologies, Inc.
North American Coating Labs.
Optokos Corporation
Photonic Cleaning Technologies
Photonics Media
piezosystem jena, Inc.
QED Optics
QED Technologies, Inc.
R. Mathews Optical Works, Inc.
Reydon Corp.
Sandvik Osprey Ltd.
Satisloh North America Inc.
Syntec Optics
Tecport Optics, Inc.

DISPLAYS
Chardon Tool
EMD Performance Materials Corp
HOYA Corp. USA
Nortland Products Inc.
North American Coating Labs.

DISPLAYS: CONSUMER, INFORMATION, ENTERTAINMENT
Diverse Optics Inc.
EMD Performance Materials Corp
EssentOptics Ltd.
Luminate
New Way Air Bearings
Norland Products Inc.
North American Coating Labs.
Precision Glass & Optics
Raydon Corp.
Sydor Optics, Inc.
Syntec Optics
Tecport Optics, Inc.
VisiMax Technologies, Inc.

DISTRIBUTOR, RESELLER, INTEGRATOR
Günter Effgen GmbH
Hutchins & Hutchins, Inc.
Imagine Optic Inc.
Photonics Cleaning Technologies
Technotrade International, Inc.
Tower Optical Corp.
UC Components, Inc.
Universal Photonics Inc.
Xenon Technology GmbH

EARTH SCIENCES, ENVIRONMENTAL MONITORING, CLIMATE
Hutchins & Hutchins, Inc.
New Scale Technologies, Inc.

EDUCATION AND TRAINING
Kentek Corp.
Savvy Optics Corp.
SPIE Career Center

ELECTRONIC COMPONENTS
Thin-Films Research, Inc.
Product Index

**ELECTRONIC, DIGITAL IMAGING**
New Way Air Bearings
piezosystem jena, Inc.
Precision Glass & Optics

**EMERGING PHOTONICS TECHNOLOGIES**
EMF Corp.
Luminate
Santec USA Corp.
Spectrum Thin Films Corp.

**FIBER OPTICS AND ACCESSORIES**
Benchmark Technologies
Bristol Instruments, Inc.
Diverse Optics Inc.
Guernsey Coating Labs., Inc.
Hutchins & Hutchins, Inc.
Intravc Thin Film
Isuzu Glass, Inc.
KrellTech
Luminate
MICRO-EPSILON America
New Way Air Bearings
PerkinElmer, Inc.
Photonic Cleaning Technologies
piezosystem jena, Inc.
Reynard Corp.
Santec USA Corp.
SmaAct Inc.
Spectrum Thin Films Corp.
Tecport Optics, Inc.
Thorlabs, Inc.
UC Components, Inc.

**INDUSTRIAL SENSING AND MEASUREMENT**
ALLVAR
Apére Instruments, Inc.
attoe systems Inc.
Bridge Photonics, Inc.
Bristol Instruments, Inc.
Corning Incorporated
Diopptic GmbH
EssentOptics Ltd.
Fil-Tech Inc.
Gage-Line Technology, Inc.
HOYA Corp. USA
iiis gmbh
Imagine Optic Inc.
JML Optical Industries, LLC
MICRO-EPSILON America
MPA Crystal Corp.
New Way Air Bearings
North American Coating Labs.
Optical Perspectives Group, LLC
Opto-Alignment Technology, Inc.
OPTOCRAFT GmbH
OptoSigma Corp.
PerkinElmer, Inc.
piezosystem jena, Inc.
Precitec, Inc.
Santec USA Corp.
SmaAct Inc.
Syntec Optics

**LASERS AND SYSTEMS**
Bridge Photonics, Inc.
Photonics Media
Sandvik Osprey Ltd.
Santec USA Corp.
Spectrum Thin Films Corp.
United Lens Company

**LED, OLED, NON-LASER LIGHT SOURCES**
Advance Reproductions Corp.
Chardon Tool
Diopptic GmbH
Norland Products Inc.
Valtech Corp.

**LIGHTING AND ILLUMINATION**
Chardon Tool
Diverse Optics Inc.
Fraunhofer-Institut für Angewandte Optik und Feinmechanik IOF
HOYA Corp. USA
Infinite Optics Inc.
Isuzu Glass, Inc.
Reynard Corp.
Synopsys
Vertex Optics, Inc.
VisiMax Technologies, Inc.

**LITHOGRAPHIC EQUIPMENT**
Advance Reproductions Corp.
Benchmark Technologies
Corning Incorporated
New Way Air Bearings
Nikon Corporation
NTG Neue Technologien GmbH & Co. KG
SCHOTT North America, Inc.

**MACHINE VISION, FACTORY AUTOMATION**
ABTech, Inc.
Advance Reproductions Corp.
Apére Instruments, Inc.
Blue Photon Technology & Workholding Systems LLC
ComTec Solutions
Diopptic GmbH
FLIR Systems, Inc.
Gage-Line Technology, Inc.
iiis gmbh
JML Optical Industries, LLC
Luminate
Naked Optics Corp.
Opto-Alignment Technology, Inc.
Precitec, Inc.
R. Mathews Optical Works, Inc.
RedLux Ltd.
Reynard Corp.
Wordingham Technologies
Zaber Technologies Inc.
ZEISS Industrial Quality Solutions

**MATERIALS PROCESSING, LASERS IN MANUFACTURING**
attoe systems Inc.
Blue Photon Technology & Workholding Systems LLC
Corning Incorporated
Gage-Line Technology, Inc.
Inrad Optics
IRD Glass

**MATERIALS, ABRASIVES, CHEMICALS**
EMD Performance Materials Corp
Fil-Tech Inc.
Günter Effgen GmbH
HOYA Corp. USA
Infinite Optics Inc.
Inrad Optics
IntVac Thin Film
Kentek Corp.
MA Crystal Corp.
Naked Optics Corp.
Naibraze, LLC
OptoTech Optical Machinery Inc.
Photonic Cleaning Technologies
PR Hoffman Machine Products, Inc.
Sandvik Osprey Ltd.
Satisloh North America Inc.
SCHOTT North America, Inc.
Sydor Optics, Inc.
Techno trade International, Inc.
Universal Photonics Inc.

**MICROMECHANICAL SYSTEMS**
attocube systems Inc.
Bridger Photonics, Inc.
Danyang Danyao Optics Co., Ltd.
Gage-Line Technology, Inc.
Imagine Optic Inc.
Luminate
Norland Products Inc.
Optical Perspectives Group, LLC
PerkinElmer, Inc.
PHASICS Corp.
piezosystem jena, Inc.
SmaAct Inc.
ZEISS Industrial Quality Solutions

**MORPHOLOGY, MICROSCOPES, MATERIALS, ABRASIVES, CHEMICALS**
EMD Performance Materials Corp
Fil-Tech Inc.
Günter Effgen GmbH
HOYA Corp. USA
Infinite Optics Inc.
Inrad Optics
IntVac Thin Film
Kentek Corp.
MA Crystal Corp.
Naked Optics Corp.
Naibraze, LLC
OptoTech Optical Machinery Inc.
Photonic Cleaning Technologies
PR Hoffman Machine Products, Inc.
Sandvik Osprey Ltd.
Satisloh North America Inc.
SCHOTT North America, Inc.
Sydor Optics, Inc.
Techno trade International, Inc.
Universal Photonics Inc.

**MATERIALS PROCESSING, LASERS IN MANUFACTURING**
attoe systems Inc.
Blue Photon Technology & Workholding Systems LLC
Corning Incorporated
Gage-Line Technology, Inc.
Inrad Optics
IRD Glass

**MATERIALS, ABRASIVES, CHEMICALS**
EMD Performance Materials Corp
Fil-Tech Inc.
Günter Effgen GmbH
HOYA Corp. USA
Infinite Optics Inc.
Inrad Optics
IntVac Thin Film
Kentek Corp.
MA Crystal Corp.
Naked Optics Corp.
Naibraze, LLC
OptoTech Optical Machinery Inc.
Photonic Cleaning Technologies
PR Hoffman Machine Products, Inc.
Sandvik Osprey Ltd.
Satisloh North America Inc.
SCHOTT North America, Inc.
Sydor Optics, Inc.
Techno trade International, Inc.
Universal Photonics Inc.

**MICROSCOPES**
attoe systems Inc.
Danyang Danyao Optics Co., Ltd.
Gage-Line Technology, Inc.
Imagine Optic Inc.
Luminate
Norland Products Inc.
Optical Perspectives Group, LLC
PerkinElmer, Inc.
PHASICS Corp.
piezosystem jena, Inc.
SmaAct Inc.
ZEISS Industrial Quality Solutions

**MATERIALS, ABRASIVES, CHEMICALS**
EMD Performance Materials Corp
Fil-Tech Inc.
Günter Effgen GmbH
HOYA Corp. USA
Infinite Optics Inc.
Inrad Optics
IntVac Thin Film
Kentek Corp.
MA Crystal Corp.
Naked Optics Corp.
Naibraze, LLC
OptoTech Optical Machinery Inc.
Photonic Cleaning Technologies
PR Hoffman Machine Products, Inc.
Sandvik Osprey Ltd.
Satisloh North America Inc.
SCHOTT North America, Inc.
Sydor Optics, Inc.
Techno trade International, Inc.
Universal Photonics Inc.

**MICROSCOPES**
attoe systems Inc.
Danyang Danyao Optics Co., Ltd.
Gage-Line Technology, Inc.
Imagine Optic Inc.
Luminate
Norland Products Inc.
Optical Perspectives Group, LLC
PerkinElmer, Inc.
PHASICS Corp.
piezosystem jena, Inc.
SmaAct Inc.
ZEISS Industrial Quality Solutions

**MAPPING, MACHINES, MEASUREMENTS, MANUFACTURING**
attoe systems Inc.
Blue Photon Technology & Workholding Systems LLC
Corning Incorporated
Gage-Line Technology, Inc.
Inrad Optics
IRD Glass

**MAPPING, MACHINES, MEASUREMENTS, MANUFACTURING**
attoe systems Inc.
Blue Photon Technology & Workholding Systems LLC
Corning Incorporated
Gage-Line Technology, Inc.
Inrad Optics
IRD Glass

**MAPPING, MACHINES, MEASUREMENTS, MANUFACTURING**
attoe systems Inc.
Blue Photon Technology & Workholding Systems LLC
Corning Incorporated
Gage-Line Technology, Inc.
Inrad Optics
IRD Glass

**MAPPING, MACHINES, MEASUREMENTS, MANUFACTURING**
attoe systems Inc.
Blue Photon Technology & Workholding Systems LLC
Corning Incorporated
Gage-Line Technology, Inc.
Inrad Optics
IRD Glass

**MAPPING, MACHINES, MEASUREMENTS, MANUFACTURING**
attoe systems Inc.
Blue Photon Technology & Workholding Systems LLC
Corning Incorporated
Gage-Line Technology, Inc.
Inrad Optics
IRD Glass

**MAPPING, MACHINES, MEASUREMENTS, MANUFACTURING**
attoe systems Inc.
Blue Photon Technology & Workholding Systems LLC
Corning Incorporated
Gage-Line Technology, Inc.
Inrad Optics
IRD Glass
Thorlabs, Inc.
Zaber Technologies Inc.

NANOTECHNOLOGY PRODUCTS
Benchmark Technologies
NTG Neue Technologien GmbH & Co. KG

OPTICAL COATINGS, THIN FILMS
AccuCoat Inc.
Andover Corporation
Corning Incorporated
Cosmo Optics
Danyang Danyao Optics Co., Ltd.
EMF Corp.
Esco Optics, Inc.
Fil-Tech Inc.
FLIR Systems, Inc.
Fujitok Corporation
Gage-Line Technology, Inc.
GS Plastic Optics
Guernsey Coating Labs., Inc.
Infinite Optics Inc.
Inrad Optics
Intlvac Thin Film
IRD Glass
Isuzu Glass, Inc.
JML Optical Industries, LLC
LaBionicS
LaCroix Precision Optics
MAA Crystal Corp.
Naked Optics Corp.
North American Coating Labs.
OptoSigma Corp.
OptoTech Optical Machinery Inc.
Precision Glass & Optics
Precision Tool Technologies, Inc.
Reynard Corp.
Satisloh North America Inc.
SCHOTT North America, Inc.
scia Systems GmbH
Spectrum Thin Films Corp.
TechnoTrade International, Inc.
Tecport Optics, Inc.
Thin-Films Research, Inc.
Tower Optical Corp.
United Lens Company
VisiMax Technologies, Inc.
Zygotech Corporation

OPTICAL COMPONENTS - LENSES
Chardon Tool
Corning Incorporated
Cosmo Optics
Danyang Danyao Optics Co., Ltd.
Diverse Optics Inc.
EMF Corp.
Esco Optics, Inc.
FLIR Systems, Inc.
Fujitok Corporation
Gage-Line Technology, Inc.
GS Plastic Optics
Guernsey Coating Labs., Inc.
Infinite Optics Inc.
Inrad Optics
Intlvac Thin Film
IRD Glass
JML Optical Industries, LLC
LaBionicS
LaCroix Precision Optics
Mindrum Precision, Inc.
MPA Crystal Corp.
Naked Optics Corp.
Norland Products Inc.
North American Coating Labs.
NTG Neue Technologien GmbH & Co. KG
OptoSigma Corp.
PR Hoffman Machine Products, Inc.
Precision Glass & Optics
QED Optics
QED Technologies, Inc.
R. Mathews Optical Works, Inc.
Reynard Corp.
sun-x GmbH
Sydor Optics, Inc.
Syntec Optics
Thin-Films Research, Inc.
Thorlabs, Inc.
Tower Optical Corp.
United Lens Company

OPTICAL COMPONENTS - FILTERS, MIRRORS, OTHER
AccuCoat Inc.
Andover Corporation
Chardon Tool
Cosmo Optics
Danyang Danyao Optics Co., Ltd.
Dioptic GmbH
Diverse Optics Inc.
EMF Corp.
Esco Optics, Inc.
FLIR Systems, Inc.
Fraunhofer-Institut für Angewandte Optik und Feinmechanik IOF
Fujitok Corporation
Gage-Line Technology, Inc.
GS Plastic Optics
HOYA Corp. USA
Hutchins & Hutchins, Inc.
Inrad Optics
IRD Glass
LaCroix Precision Optics
Luminate
MAA Crystal Corp.
Naked Optics Corp.
OptoSigma Corp.
Precision Glass & Optics
QED Optics
Reynard Corp.
Sandvik Osprey Ltd.
sun-x GmbH
Spectrum Thin Films Corp.
Sydor Optics, Inc.
Syntec Optics
Thin-Films Research, Inc.
Thorlabs, Inc.
Tower Optical Corp.
United Lens Company
Valtech Corp.
Vertex Optics, Inc.

OPTICAL DATA STORAGE
InterOptics, LLC

OPTICAL DESIGN AND ENGINEERING
ALLYVAR
Andover Corporation
Chardon Tool
Corning Incorporated
Danyang Danyao Optics Co., Ltd.
Dioptic GmbH
EMF Corp.
Fil-Tech Inc.
FLIR Systems, Inc.
Fraunhofer-Institut für Angewandte Optik und Feinmechanik IOF
Fujitok Corporation
Gage-Line Technology, Inc.
GS Plastic Optics
Hutchins & Hutchins, Inc.
Innolite GmbH
InterOptics, LLC
JML Optical Industries, LLC
KrellTech
MPS Micro Precision Systems AG
Naked Optics Corp.
New Way Air Bearings
Optical Perspectives Group, LLC
Optikos Corporation
Opto-Alignment Technology, Inc.
PHASICS Corp.
Precision Glass & Optics
Savvy Optics Corp.
Synopsis
Syntec Optics
Technetals, Inc.
Thorlabs, Inc.
United Lens Company
Xanox Technology GmbH
Zygotech Corporation

OPTICAL FABRICATION EQUIPMENT
AMETEK Precitec, Inc.
Andover Corporation
Äphere Instruments, Inc.
Blue Photon Technology & Workholding Systems LLC
Chardon Tool
DCM Tech, Inc.
Fil-Tech Inc.
Fraunhofer-Institut für Angewandte Optik und Feinmechanik IOF
Günter Effgen GmbH
KrellTech
Micro-LAM, Inc.
Mildex, Inc.
New Scale Technologies, Inc.
NTG Neue Technologien GmbH & Co. KG
OptiPro Systems
Opto-Alignment Technology, Inc.
OptoTech Optical Machinery Inc.

OPTICS MANUFACTURING
AccuCoat Inc.
AMETEK Precitec, Inc.
Andover Corporation
Äphere Instruments, Inc.
Blue Photon Technology & Workholding Systems LLC
Corning Incorporated
Cosmo Optics
Danyang Danyao Optics Co., Ltd.
DCM Tech, Inc.
Diverse Optics Inc.
EMD Performance Materials Corp
EMF Corp.
Empire West, Inc.
Esco Optics, Inc.
EssentOptics Ltd.
Fil-Tech Inc.
FLIR Systems, Inc.
Fraunhofer-Institut für Angewandte Optik und Feinmechanik IOF
Fujitok Corporation
Gage-Line Technology, Inc.
GS Plastic Optics
HOYA Corp. USA
Infinite Optics Inc.
Innolite GmbH
Inrad Optics
InterOptics, LLC
IRD Glass
JML Optical Industries, LLC
LaBionicS
LaCroix Precision Optics
Micro-LAM, Inc.
Mindrum Precision, Inc.
MPA Crystal Corp.
Norland Products Inc.
North American Coating Labs.
NTG Neue Technologien GmbH & Co. KG
OptoSigma Corp.
PR Hoffman Machine Products, Inc.
Precision Glass & Optics
QED Technologies, Inc.
R. Mathews Optical Works, Inc.
Reynard Corp.
sun-x GmbH
Sydor Optics, Inc.
Syntec Optics
Thin-Films Research, Inc.
Thorlabs, Inc.
Tower Optical Corp.
United Lens Company

PHOTONICS MEDIA
PR Hoffman Machine Products, Inc.
Precision Tool Technologies, Inc.
QED Technologies, Inc.
Satisloh North America Inc.
Schneider Optical Machines Inc.
scia Systems GmbH
son-x GmbH
TechnoTrade International, Inc.
Tecport Optics, Inc.
Telemark, Inc.
TRIOPTICS
Universal Photonics Inc.
Vertex Optics, Inc.

PRODUCT INDEX

THIS PROGRAM IS CURRENT AS OF 9 SEPTEMBER 2019. FIND THE LATEST ON THE SPIE CONFERENCE APP.
Product Index

SEMICONDUCTOR DEFENSE SECURITY
Mindrum Precision, Inc.

SEMICONDUCTOR MANUFACTURING
Advance Reproductions Corp.
Corning Incorporated
EMD Performance Materials Corp
InterOptics, LLC
Nikon Corporation
PR Hoffman Machine Products, Inc.
Scania Osprey Ltd.
Satisloh North America Inc.
SPIE Career Center
Synopsys
Xonox Technology GmbH
ZEISS Industrial Quality Solutions

SOFTWARE
ilis gmbh
RedLux Ltd.
Satisloh North America Inc.
SPIE Career Center
Synopsys
Xonox Technology GmbH
ZEISS Industrial Quality Solutions

PHOTONIC INTEGRATION
Luminate
Synopsys

POSITIONING EQUIPMENT, MOTION CONTROL AND ACCESSORIES
AMETEK Precitech, Inc.
attocube systems Inc.
Bridger Photonics, Inc.
HIWIN Corp.
MPS Micro Precision Systems AG
New Scale Technologies, Inc.
piezoseytem jena, Inc.
SmarAct Inc.
Zaber Technologies Inc.

PUBLISHERS, ASSOCIATIONS, CLUSTERS, SOCIETIES
International OptoIndex
Laser Focus World
Photonics Media

VACUUM, COOLING, GAS HANDLING EQUIPMENT
attocube systems Inc.
Fil-Tech Inc.
Hutchins & Hutchins, Inc.
NTG Neue Technologien GmbH &
Co. KG
PHASICS Corp.
scia Systems GmbH
Tecport Optics, Inc.
Telemark, Inc.
UC Components, Inc.
Zaber Technologies Inc.

VERMONT PHOTONICS TECHNOLOGIES
Chardon Tool
FLIR Systems, Inc.
Luminate
Optikos Corporation
Synopsys
Tecport Optics, Inc.

Get the most out of your conference experience.
Take a course at SPIE Optifab.

Not enough time to add a course to your schedule? Schedule customized group training at your facility.
Or take an SPIE online course at your desk.
Contact education@spie.org to learn more.

spie.org/courses
Watch more than 20,000 conference presentations on the SPIE Digital Library

Enter your search term

16 August 2019
Frontiers of applications of petawatt laser physics (Conference Presentation)
Ulrich Schramm

23 August 2019
Light-induced permeabilization of liposomes
Paula Enzian, et al.

22 April 2019
Chromatic line confocal technology in high-speed 3D surface-imaging applications
Karri Niemelä

See the talks you missed.

SPIEDigitalLibrary.org/videos
Acceptance of Policies and Registration Conditions

The following Policies and Conditions apply to all SPIE Events. As a condition of registration, you will be required to acknowledge and accept the SPIE Policies and Conditions contained herein.

**Agreement to Hold Harmless**
Attendee agrees to release and hold harmless SPIE from any and all claims, demands, and causes of action arising out of or relating to your participation in the event you are registering to participate in and use of any associated facilities or hotels.

**Anti-Harassment Policy**
It is SPIE policy that all employees, volunteers, and participants are entitled to respectful treatment. Any form of bullying, discrimination, harassment, sexual or otherwise, is unacceptable and will not be tolerated. This policy applies to all locations and situations where SPIE business is conducted and to all SPIE-sponsored activities and events. Read complete policy: [http://spie.org/harassment](http://spie.org/harassment)

**Attendee Registration and Admission Policies**
SPIE, or their officially designated event management, in their sole discretion, reserves the right to accept or decline an individual’s registration for an event. Further, SPIE, or event management, reserves the right to prohibit entry of or to remove any individual whether registered or not, be they attendees, exhibitors, representatives, or vendors, whose conduct is not in keeping with the character and purpose of the event. Without limiting the foregoing, SPIE and event management reserve the right to remove or refuse entry to anyone who has registered or gained access under false pretenses, provided false information, or for any other reason whatsoever that they deem is cause under the circumstances.

**Capture and Use of a Person’s Image**
By registering for an SPIE event, you grant full permission to SPIE to capture, store, use, and/or reproduce your image or likeness by any audio and/or visual recording technique and create derivative works of these images and recordings in any SPIE media now known or later developed, for any legitimate SPIE marketing or promotional purpose. By registering for an SPIE event, you waive any right to inspect or approve the use of the images or recordings or of any written copy. You also waive any right to royalties or other compensation arising from or related to the use of the images, recordings, or materials. By registering, you release, defend, indemnify and hold harmless SPIE from and against any claims, damages or liability arising from or related to the use of the images, recordings or materials, including but not limited to claims of defamation, invasion of privacy, or rights of publicity or copyright infringement, or any misuse, distortion, blurring, alteration, optical illusion or use in composite form that may occur or be produced in taking, processing, reduction or production of the finished product, its publication or distribution.

**Code of Conduct**
SPIE is committed to providing a harassment- and discrimination-free experience for everyone at our events, an experience that embraces the richness of diversity where participants may exchange ideas, learn, network, and socialize in the company of colleagues in an environment of mutual respect. Read complete Code: [http://spie.org/conduct](http://spie.org/conduct)

**Event Cancellation Policy**
If for some unforeseen reason SPIE should have to cancel an event, processed registration fees will be refunded to registrants. Registrants will be responsible for cancellation of travel arrangements or housing reservations and the applicable fees.

**Family-Friendly Policy**

**Conference Events:** All conference technical and networking events require a badge for admission. Registered attendees may bring children with them if they have been issued a badge. Registration badges for children under 18 are free and available at the SPIE registration desk onsite. Children under 14 years of age must be accompanied by an adult at all times, and guardians are asked to help maintain a professional, disturbance-free conference environment.

**Exhibition Hall:** Everyone who attends the exhibition must be registered and have a badge. Badges for children are free and available onsite at the registration desk. Children under 14 years of age must be accompanied by an adult at all times. Guardians are asked to help maintain a professional, disturbance-free environment. Children under 18 are not allowed in the exhibition area during exhibition move-in and move-out.

**Identification Requirement**
To verify registered participants and provide a measure of security, SPIE will ask attendees to present a government-issued photo identification at registration to collect registration materials. Individuals are not allowed to pick up badges for other attendees. Further, attendees may not have some other person participate in their place at any conference-related activity. Such other individuals will be required to register on their own behalf to participate.
Laser Pointer Safety Policy
SPIE supplies tested and safety-approved laser pointers for all conference meeting rooms. For safety reasons, SPIE requests that presenters use provided laser pointers. Use of a personal laser pointer represents the user’s acceptance of liability for use of a non-SPIE-supplied laser pointer. If you choose to use your own laser pointer, it must be tested to ensure safety.

No-Smoking Policy
Attendees will observe all non-smoking regulations that are publicly posted by the facilities used by the event.

Payment Policy
Registrations must be fully paid before access to the conference is allowed. SPIE accepts VISA, MasterCard, American Express, Discover, Diner’s Club, checks and wire transfers. Onsite registrations can also be paid with cash.

Recording Policy
Conferences, courses, and poster sessions: For copyright reasons, recordings of any kind are prohibited without prior written consent of the presenter or instructor. Attendees may not capture or use materials presented in any meeting/course room or in course notes on display without written permission. Consent forms are available at Speaker Check-In or SPIE Registration. Individuals not complying with this policy will be asked to leave a given session and/or asked to surrender their recording media. Refusal to comply with such requests is grounds for expulsion from the event. Exhibition Hall: Recordings of any kind are prohibited without explicit permission from on-site company representatives. Individuals not complying with this policy will be asked to leave the exhibition hall. Refusal to comply with such requests is grounds for expulsion from the event.

Reporting of Unethical or Inappropriate Behavior
Onsite at an SPIE meeting, contact any SPIE Staff with concerns or questions. If you feel in immediate danger, please dial the local emergency number for police intervention. SPIE has established a confidential reporting system for staff and all meeting participants to raise concerns about possible unethical or inappropriate behavior within our community. Complaints may be filed by phoning toll-free to +1-888-818-6898 from within the United States and Canada or online at www.SPIE.ethicspoint.com and may be made anonymously.

Unauthorized Solicitation
Unauthorized solicitation in the Exhibition Hall is prohibited. Any non-exhibiting manufacturer or supplier observed to be distributing information or soliciting business in the aisles, or in another company’s booth, will be asked to leave immediately.

Unsecured Items
Personal belongings should not be left unattended in meeting rooms or public areas. Unattended items are subject to removal by security. SPIE is not responsible for items left unattended.

Wireless Internet Service
At most events, SPIE provides wireless access for attendees. Properly secure your computer before accessing the public wireless network. SPIE is not responsible for computer viruses or other kinds of computer damage.
Browse the SPIE Press Books at spie.org/Books for these essential titles and more.

Submit your work to OPTICAL ENGINEERING

spie.org/journals
MEMBERSHIP
A long-term investment that pays off

Join or Renew your SPIE Membership
Regular Member:  1 year US$125 • 3 years US$350
Lifetime US$995
Discounts for students and early career professionals
• Complimentary SPIE Journal of your choice
• Free online professional development courses
• 10 SPIE Digital Library downloads
• Discounts on events, publications, SPIE Digital Library, and courses
• Exclusive access to Member networking events
• Career advancement and peer recognition
• Complimentary SPIE Professional magazine

spie.org/membership

APOMA
American Precision Optics Manufacturers Association

Join Us
Our Members Lead the Way in Optics Manufacturing Technology

APOMA helps American optics manufacturers compete and win. APOMA is the working group of the top U.S. optics manufacturers. Our members are front line and operations managers who turn to their peers in APOMA for best practices and technical guidance. Together, we help advance the industry and each member company.

Why Join?
• Peer networking
• Exclusive technical workshops & papers
• Optifab exhibitor and attendee discounts
• Member directory generates new opportunities
• Monthly industry news & events

For the latest papers, news, and upcoming events, visit us online:
APOMA.org
Mark your Calendar

OPTIFAB 2021

Experience North America’s premier optical fabrication show

EXHIBITION · CONFERENCES · COURSES

18 – 21 October 2021 · Rochester, New York, USA