

# the business of photonics optics.org



Photonics West is the premier photonics and laser event. With more than 1,250 companies, this exhibition continues to be the flagship event to find the latest products, tools, and applications for your research or business needs.

**SPIE. PHOTONICS WEST**

## product focus

The Moscone Center, Moscone North and South  
San Francisco, California, United States

**31 January - 2 February 2017**

Welcome to the optics.org Product Focus which we have published specifically for Photonics West 2017 in partnership with SPIE and the Photonics West Show Daily.

Here you will find an effective at-a-glance guide to some of the latest products available on the market with booth numbers if available making it easy for you to check out the products for yourself.

All this information and more can be found on the optics.org website. Simply go to [www.optics.org](http://www.optics.org) for all the latest product and application news.

Alternatively, why not sign up to our **free weekly newsletter** ([www.optics.org/newsletter](http://www.optics.org/newsletter)) and get the information delivered direct.

### Navitar

Visit us at Booth #638

#### Navitar's 10X High Resolution Microscope Objective for Industrial Applications

The Navitar 10X 0.4 NA HR lens is apochromatic over 436-656 nm, providing excellent correction of spherical and chromatic aberrations.

A working distance of 10 mm allows for room to manipulate specimens. This objective was designed to cover a 4/3" sensor and has a field number of 22.

The 10X HR is the next lens in a new high resolution objective series being rolled out by Navitar in 2017.

The high NA, large field of view line will include 4X, 6X, 10X, and 20X hi-res lenses.



#### Contact Details

Navitar, Inc.  
200 Commerce Drive  
Rochester, New York 14623 USA  
[www.navitar.com](http://www.navitar.com)  
[info@navitar.com](mailto:info@navitar.com)  
Tel: +1 585 359 4000

### Nanoscribe GmbH

Visit us at Booth #4255

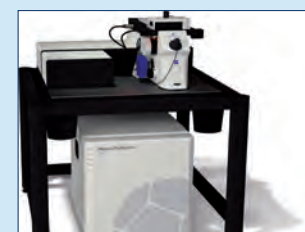
#### Photonic Professional GT The New Standard for Microfabrication

Nanoscribe's Photonic Professional GT is the world's highest resolution 3D printer.

Based on two-photon polymerization, it allows for additive manufacturing and maskless lithography with the same device.

Submicrometer resolution printing with feature sizes down to 200 nm and optical quality surface finishes are characteristic key features.

This award-winning system sets new standards in a multitude of applications like photonics, micro-optics, micro-fluidics, MEMS, and life sciences.



#### Contact Details

Nanoscribe GmbH  
Hermann-von-Helmholtz-Platz 1  
D-76344 Eggenstein-Leopoldshafen  
Germany  
[www.nanoscribe.com](http://www.nanoscribe.com)  
[info@nanoscribe.com](mailto:info@nanoscribe.com)  
Tel: +49 721 981 980 0

### ALPhANOV

Visit us at Booth #1823

#### High-power and high precision connector for hollow-core fibers

Since 2007, ALPhANOV has built a solid expertise in modelling, designing and prototyping of innovative fiber laser sources and components.

The ALPhANOV's PowerPAC connector offers a highly precise connector for single-mode hollow-core fibers.

It includes a collimator, which can withstand more than 100 Watts of injected power.

It is particularly suitable for beam delivery based on hollow-core fibers, for instance in the femtosecond regime.



#### Contact Details

ALPhANOV  
Institut d'optique d'Aquitaine  
Rue François Mitterrand,  
33400 Talence, France  
[www.alphanov.com](http://www.alphanov.com)  
[info@alphanov.com](mailto:info@alphanov.com)  
Tel: +33 524 545 200

### Diamond USA

Visit us at Booth #4449

#### Diamond F-3000™ Connector ...performance, versatility, reliability

Diamond's F-3000™ connector utilizes proprietary technologies, along with mechanical and optical interfaces, that can cover the most standard and custom requirements in response to increasing customer demands.

The family includes: simplex, duplex and backplane connectors and adapters, as well as a series of network accessories, such as: attenuators, hybrid adapters, transition adapters, terminators, reflectors and receptacles.

Features and Benefits:

- Innovative design permits dense packaging
- Metal shutter protects against contamination
- Provides added safety for High Power applications
- High precision (*zirconia*) alignment sleeve
- Unique design guarantees 0.1 dB Insertion Loss
- Custom ferrule bores from 80µm to 280µm
- LC compatible



#### Contact Details

Diamond USA Inc.  
North Billerica, MA 01862  
[www.diausa.com](http://www.diausa.com)  
[diamond@diausa.com](mailto:diamond@diausa.com)  
Tel: +1 978 256 65 44

### ID Quantique SA

Visit us at Booth #814

#### ID280 series detection system

ID Quantique complete SNSDP system: IDQ's ID280 series detection system consists of a superconducting nanowire detector combined with high performance electronics and reliable cryogenic system.

The system operates at 2.3K and offers impressive performances like quantum efficiencies higher than 70%, count rate up to 15 MHz, dark counts <100Hz (at 2.3K), jitter below 70ps and no afterpulsing.

The complete system is plug and play and includes: cryocooler, stable adjustable bias current source, amplification stage, discriminator and counter.



#### Contact Details

ID Quantique SA, Ch. de la Marbrerie, 3  
1227 Carouge/Geneva, Suisse/Switzerland  
[www.idquantique.com](http://www.idquantique.com)  
[info@idquantique.com](mailto:info@idquantique.com)  
Tel: +41 22 301 83 71

### Arden Photonics Ltd

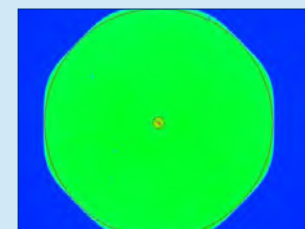
Visit us at Booth #5360

#### NEW - OPTICAL FIBER GEOMETRY MEASUREMENT SYSTEM

Arden Photonics is pleased to announce the introduction of the FGC range of optical fiber geometry measurement equipment.

The FGC range provides high speed automated measurement of fiber end-face geometry including core diameter, core non-circularity, cladding diameter, cladding non-circularity and core-to-cladding concentricity.

Options are available for measuring large diameter fibers (up to 1mm diameter) and specialty fibers such as double-clad, non-circular (e.g. octagonal), multicore and PM fibers. Complete measurement takes under 20 seconds. Specially designed holders, fiber handling bench and traceable calibration ensure repeatability of <0.05µm on core and cladding diameters for single-mode and <0.08µm for multi-mode.



#### Contact Details

Arden Photonics Ltd  
Royston House, 267 Cranmore Boulevard,  
Shirley, Solihull. B90 4QT. UK  
[www.ardenphotonics.com/fgc](http://www.ardenphotonics.com/fgc)

## Voltage Multipliers Inc.

Visit us at Booth #4608

## 10kV and 15kV High Voltage Optodiodes

OZ100 and OZ150 families feature high voltage isolation in a small package.

Reverse current, in  $\mu\text{A}$ , is generated when the diode junctions are exposed to light. The response is linear, meaning the current level can be used to control and monitor isolated systems.

The optically clear over-encapsulation preserves light sensitivity, protects the device, and provides mechanical stability.

Applications include noisy industrial environments and sensitive instrumentation where high isolation is needed, or in controlled feedback systems like high voltage opto-couplers or voltage regulators.



## Contact Details

Voltage Multipliers, Inc.  
8711 W. Roosevelt Ave.,  
Visalia, CA, USA 93291  
[www.voltagemultipliers.com/Aliases/LPs/OZ150\\_and\\_OZ100.html](http://www.voltagemultipliers.com/Aliases/LPs/OZ150_and_OZ100.html)  
[kspano@voltagemultipliers.com](mailto:kspano@voltagemultipliers.com)

## Navitar

Visit us at Booth #638

## New Resolv4K Zoom lens system

Navitar's new Resolv4K Zoom lens system is designed to maximize the usage of modern sensors with higher pixel densities.

The Resolv4K offers tremendously more resolving power over a traditional zoom imaging system – achieving a 400-600% larger field of view without any loss of detail.

The cohesive design delivers superior visible wavelength axial color correction for all configurations and dramatically increased wavelength focusing ability with Visible, NIR and SWIR options.

Resolv4K's higher NA, along with superior aberration correction, gives more precise measurement capabilities than ever.



## Contact Details

Navitar, Inc.  
200 Commerce Drive  
Rochester, New York 14623 USA  
[www.navitar.com](http://www.navitar.com)  
[info@navitar.com](mailto:info@navitar.com)  
Tel: +1 585 359 4000

## CILAS

Visit us at Booth #1723

## Active and passive optical components for Space, Astronomy and Industry

For each application, CILAS will provide you with the most efficient and reliable adaptive optics system thanks to a deformable mirror, SAM or MONO, based on piezo electric technology, standing out from competition thanks to both correction frequency and performances.

Besides, CILAS offers you the hardest coatings available on the market: metallic mirrors for standard sizes and up to 2meters dimensions, as well as complex coatings such as dichroics and band pass filters for your observation needs.



## Contact Details

CILAS  
8 avenue Buffon, BP6319  
45063 Orléans Cedex 2 - France  
[www.cilas.com](http://www.cilas.com)  
[optics@cilas.com](mailto:optics@cilas.com)  
Tel: +33 (0)2 38 64 15 55

## Ibsen Photonics

Visit us at BIOS Booth #8817  
Visit us at Photonics West Booth #5251

## Digital Image Sensor Board (DISB)

With our DISB spectrometer electronics, we enable you to build analytical instruments with accurate control of exposure timing.

Trigger delay can be programmed in steps of 200 ns with very low jitter of only  $\pm 10$  ns, and exposure time can be as short as 2.2  $\mu\text{s}$ .

When combined with our spectrometers, the DISB electronics provides a compact solution for applications which require accurate synchronization with a pulsed light source.

The DISB electronics supports both a low cost CMOS detector and a low noise Back-Thinned CCD.



## Contact Details

Ibsen Photonics  
Ryttermarken 15-21, DK-3520 Farum  
Denmark  
[www.ibsen.com](http://www.ibsen.com)  
[inquiry@ibsen.dk](mailto:inquiry@ibsen.dk)  
Tel: +45 44 34 70 00  
Fax: +45 44 34 70 01

## Spectrum Scientific Inc.

Visit us at Booth #2739

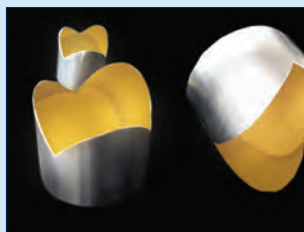
## Hollow Cube Retroreflector

Spectrum Scientific's Hollow Cube Retroreflectors (HCRs) are stable monolithic construction from a wide range of materials.

HCR's corner reflecting properties provide insensitivity to vibration, position, and rotation in all degrees of freedom except axial separation.

With only axial separation sensitivity HCRs are ideally suited for Michelson type interferometers, FTIR spectrometers, positioning systems, and laser-tracking systems. HCRs are available with return beam accuracy as low as 2 arcseconds.

Spectrum Scientific offers both gold and aluminum coatings to suit your spectral needs.



## Contact Details

Spectrum Scientific Inc.  
16692 Hale Ave. Irvine, CA 92606  
[www.sssiopics.com](http://www.sssiopics.com)  
[sales@ssiopics.com](mailto:sales@ssiopics.com)  
Tel: +1 949 260 9900

## Iridian Spectral Technologies

Visit us at Booth #507

## Global leader in optical filter design and manufacturing

Iridian is a global leader in optical filter design and manufacturing for applications such as: tele/datacom, spectroscopy, 3D entertainment, and detection/sensing/imaging (for example industrial, earth-observation, process control).

Current capabilities extend from  $\sim 300$  nm to  $10 \mu\text{m}$  (UV-LWIR) with filter sizes from  $< 1$  mm to  $> 300$  mm.

Iridian supports all customer needs from prototype to high volume production and focuses on tailoring solutions for specific OEM applications.

Areas of specialization include both multi-band filters (multiple notch/bandpass filters) and multi-spectral filter arrays (assemblies or photo-lithographically patterned filters).



## Contact Details

Iridian Spectral Technologies  
2700 Swansea Crescent, Ottawa,  
ON, Canada K1G6R8  
[www.iridian.ca](http://www.iridian.ca)  
[sales@iridian.ca](mailto:sales@iridian.ca)  
Tel: +1 (613) 741 4513  
Twitter: @IridianSpectral

## JENOPTIK Optical Systems GmbH

Visit us at Booth #1323

## Next generation of F-Theta lenses and Beam Expanders for powerful laser systems

Jenoptik extends its F-Theta and Beam Expander portfolio by introducing new versions of the successful and industry-proven standard products.

The new full quartz crystal lens, the F-Theta JENar™ Silverline™170-355-140 has a maximum telecentric angle of just 4.9 degrees and a highly homogeneous spot size distribution across the whole of the  $100 \times 100$  mm work area.

A novel patented mounting technology ensures highest optical performance for this demanding system.

Discover our final product catalog under [www.jenoptik.com/optics](http://www.jenoptik.com/optics) or visit our experts at booth #1323.



## Contact Details

JENOPTIK Optical Systems GmbH  
Goeschwitzer Strasse 25  
07745 Jena  
Germany  
[www.jenoptik.com/optics](http://www.jenoptik.com/optics)  
[optics@jenoptik.com](mailto:optics@jenoptik.com)  
Tel: +49 3641 65-3327

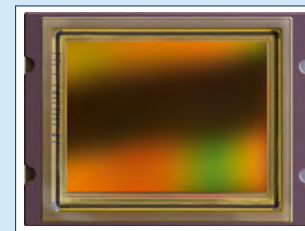
## CMOSIS

Visit us at Booth #4570

## 48Mpixel global shutter sensor from CMOSIS supports 8k image resolution

The CMV50000 medium format 48Mpixels sensor with  $7920 \times 6002$  pixels offers low noise and excellent electronic shutter efficiency. It provides 64dB optical dynamic range at full resolution and up to 68dB in subsampled 4k mode.

Operating at 30 frames/s with 12 bit pixel depth at full 8k resolution or a binned 4k mode, and at up to 60 frames/s with pixel subsampling to 4k resolution, the sensor is suitable for use in high-speed machine-vision systems, as well as in TV broadcasting and video cameras.



## Contact Details

CMOSIS  
Coveliersstraat 15  
Antwerp, Belgium  
[www.cmosis.com](http://www.cmosis.com)  
[info@cmosis.com](mailto:info@cmosis.com)  
Tel: +32 3 260 17 30

**ficonTEC Service GmbH**

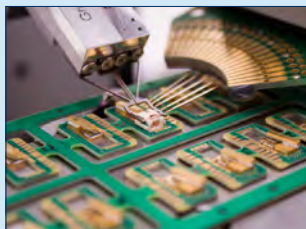
Visit us at Booth #4348 in Hall D North

**Automated assembly and testing of photonics devices: preparing for an increase in volume manufacturing**

Packaging of PICs and that of optoelectronics micro-assembly has been discussed many times and advanced automation is the key to keep costs at bay. Also testing becomes more and more important in Photonics.

The solution to this task is ficonTEC's TL product line.

ficonTEC has addressed the complex issues of automated testing, differentiating among fully packaged/integrated complex devices.

**Contact Details**

Contact Details  
ficonTEC Service GmbH  
Rehland 8  
28832 Achim, Germany  
[www.ficontec.com](http://www.ficontec.com)  
[info@ficontec.com](mailto:info@ficontec.com)  
Tel: +49 4202 51160-0  
Fax: +49 4202 51160-090

**EKSMA OPTICS**

Visit us at Booth #1133

**DKDP Pockels cell dia 19mm for femtosecond broadband pulse picking**

EKSMA Optics offers new Mini series DKDP Pockels cells in a package of diameter 19mm.

Mini series DKDP Pockels cell for femtosecond broadband pulse picking application has BBAR coated @ 760-840 nm range DKDP crystal.

It is suitable for pulse picking application of laser pulses down to 50 fsec at around 800nm wavelength. The cell is equipped with high damage threshold thin BBAR coated wedged fused silica windows and has clear aperture dia 7mm.

Mini series cells for operation at 1064nm wavelength are also available.

**Contact Details**

EKSMA OPTICS  
Optolita UAB, Mokslininkų str. 11  
LT-08412 Vilnius  
Lithuania  
[www.eksmaoptics.com](http://www.eksmaoptics.com)  
[info@eksmaoptics.com](mailto:info@eksmaoptics.com)  
Tel: +370 5 272 99 00

**IRsweep AG**

Visit us at Booth #4160

**First turn-key dual-comb spectrometer in the mid IR**

The IRspectrometer is the first commercial table-top frequency comb spectrometer offering microsecond time resolution combined with a spectral bandwidth up to 150 cm<sup>-1</sup> and high spectral resolution.

It opens new possibilities in various applications such as spectroscopy of biological samples and monitoring of fast reactions.

Especially applications demanding high time resolution or high throughput and when high brightness is required, the IRsweep quantum cascade laser frequency comb spectrometer is the perfect solution.

Center wavelengths between 5 μm and 10 μm are available.

**Contact Details**

IRsweep AG  
Auguste-Piccard-Hof 1  
IQE, HPT H 4.1  
8093 Zurich  
Switzerland  
[www.irsweep.com](http://www.irsweep.com)  
[info@irsweep.com](mailto:info@irsweep.com)  
Tel: +41 44 586 79 79

**Special Optics (a Navitar Company)**

Visit us at Booth #638

**Special Optics and ASi have developed an immersion objective lens**

Special Optics and ASi have developed an immersion objective lens specifically designed for light sheet microscopy of cleared tissue samples, including ASi's dual-view Selective Plane Illumination Microscopy (diSPIM).

The lens appeals to researchers building customized microscope setups (e.g. *OpenSPIM* type) as it is available for separate purchase, unlike other objectives suitable for cleared tissue.

The 0.4 N.A. multi-immersion objective is designed for dipping media RI ranging from 1.33 to 1.56, has NA ~0.4, >1 mm field of view, ~17x magnification, and 12 mm working distance.

**Contact Details**

Special Optics (a Navitar company)  
3 Stewart Court  
Denville, New Jersey 07834  
USA  
[www.specialoptics.com](http://www.specialoptics.com)  
[sales@specialoptics.com](mailto:sales@specialoptics.com)  
Tel: +1 973 366 7289

**SI-WARE SYSTEMS, INC.**

Visit us at Booth #5164

**NeoSpectra™ sensors**

NeoSpectra™ sensors, are compact and low cost Fourier Transform InfraRed (FT-IR) spectral sensors. They deliver the spectral response of the light absorbed by materials for quantification, qualification or identification.

NeoSpectra's unique features bring a new perspective to optical spectroscopy. The sensors are constructed from low cost, robust, permanently aligned, and highly reproducible components. The core technology is based on Micro Electro Mechanical Systems (MEMS) technology involving semiconductor fabrication techniques promising unprecedented economies of scale.

For more information, please visit [www.si-ware.com](http://www.si-ware.com) or [www.neospectra.com](http://www.neospectra.com).

**Contact Details**

SI-WARE SYSTEMS, INC.  
1150 Foothills Blvd., Suite M  
La Canada, CA 91011  
USA  
[www.si-ware.com](http://www.si-ware.com)  
[info@si-ware.com](mailto:info@si-ware.com)  
Tel: +1 818 790 1151

**Diverse Optics Inc.**

Visit us at Booth #2435

**Precision Injection Molding and Single Point Diamond Turning of Custom Polymer Optics**

Diverse Optics specialize in precision injection molding and single point diamond turning of custom polymer optics. Reduce cost, trim weight, improve performance, and simplify your product design by implementing precision polymer optics!

We do it all; prototyping to series production of free-forms, spheres, micro-optics, aspheres, domes, convex/concave, plano/convex, bi-convex, diffractives, Fresnels, prisms, light-pipes, lens arrays, collimators, combiners, toroids, CPC's, TIR's, parabolics, off-axis, ellipticals, and more.

Whether its thousands of molded optics or a few diamond turned prototypes, we'll show you how polymer optics are perfected!

**Contact Details**

Letty Trevino, Sales Engineer  
Diverse Optics Inc., 10310 Regis Court,  
Rancho Cucamonga, CA 91730  
[www.diverseoptics.com](http://www.diverseoptics.com)  
[info@diverseoptics.com](mailto:info@diverseoptics.com)  
Tel: +1 (909) 593-9330  
Fax: +1 (909) 596-1452

**Spectrum Scientific Inc.**

Visit us at Booth #2739

**Freeform Optics**

Spectrum Scientific has expanded its optical engineering, manufacturing, and metrology infrastructure for low cost mass production of reflective freeform optical elements.

Spectrum Scientific's manufacturing allows mass production of component geometries and mounting designs available only using our process.

Your freeform design can be manufactured on the glass or metal of your choice to surface roughness as low as 5 Å and surface figure error as small as λ/10.

**Contact Details**

Spectrum Scientific Inc.  
16692 Hale Ave. Irvine, CA 92606  
[www.ssiptics.com](http://www.ssiptics.com)  
[sales@ssiptics.com](mailto:sales@ssiptics.com)  
Tel: +1 949 260 9900

**First Light Imaging**

Visit us at Booth #11823F, French Pavilion

**High Performance InGaAs camera**

Designed for Industrial or Bio-Imagery applications, the latest compact high performance InGaAs camera from First Light Imaging is revolutionizing SWIR imaging:

- Up to 400 images per second full frame
- under 10 electron read out noise
- 15 μm pixels detector for high resolution
- Electronic shutter <1 μs
- From 0.8 to 1.7 μm wavelength
- 14 bits for an extreme precision

Air or liquid cooled (no LN), C-RED 2 can operate in any environment, offering at the same time the fastest acquisition rate and the lowest read out noise of all InGaAs SWIR cameras.

More information: [www.first-light.fr/c-red-2/](http://www.first-light.fr/c-red-2/)

**Contact Details**

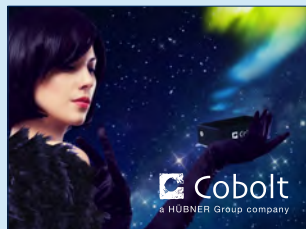
First Light Imaging  
100 route des Houilleres  
13590 Meyreuil, FRANCE  
[www.first-light.fr](http://www.first-light.fr)  
[contact@first-light.fr](mailto:contact@first-light.fr)  
Tel : +33 (0)4 42 61 29 20

**Cobolt AB**

**Cobolt SkyraT:  
The new multi-line laser**

Cobolt AB, Swedish manufacturer of high performance lasers, proudly introduces the Cobolt SkyraT, a revolutionary multi-line laser platform.

Offering up to 4 laser lines in a box that can fit into the palm of your hand (70 x 134 x 38 mm) and requiring no external electronics, the Cobolt SkyraT will enable the next generation of compact and easy-to-use analytical instrumentation for the life science market.



**Contact Details**

Cobolt AB  
Vretenvägen 13, SE-171 54  
Solna Sweden  
[www.cobolt.se](http://www.cobolt.se)  
[info@cobolt.se](mailto:info@cobolt.se)  
Tel: +46 8 545 912 30  
Fax: +46 8 545 912 31

**Spectrum Scientific Inc.**

Visit us at Booth #2739

**UV-470**

Spectrum Scientific's UV-470 spectrometer incorporates a single element concave holographic grating.

The blazed grating attains peak performance in the UV region and operates in a spectral region from 190-850 nm.

The single element design and holographic mastering provides low stray light of 0.07% @ 340 nm, enhanced signal-to-noise ratio, and improved throughput for photon sensitive applications.

The UV-470 boasts a variety of interchangeable slits that cater to your application.

The UV-470 is available with or without a driver board to match your custom OEM application.



**Contact Details**

Spectrum Scientific Inc.  
16692 Hale Ave. Irvine, CA 92606  
[www.ssiioptics.com](http://www.ssiioptics.com)  
[sales@ssiioptics.com](mailto:sales@ssiioptics.com)  
Tel: +1 949 260 9900

**MicroCircuit Laboratories, LLC**

Visit us at Booth #5664

**Hermetic package sealing with  
leak rates tighter than MIL-STD 883  
Method 1014 for Class K devices**

MCL provides hermetic package sealing with leak rates tighter than MIL-STD 883 Method 1014 for Class K devices.

Class 1 Cleanroom processing, with an incoming non-contact clean, insures your hermetically sealed devices will be cleaner after sealing.

Packages are never touched by human hands with MCL Carriers (Patent Pending). Design, Develop, Pilot and HVM – with a proven manufacturing cell - MCL provides this with no risk to your process and a second source by design.



**Contact Details**

MicroCircuit Laboratories, LLC  
Kennett Square,  
Pennsylvania U.S.A.  
[www.microcircuitlabs.com](http://www.microcircuitlabs.com)  
[info@microcircuitlabs.com](mailto:info@microcircuitlabs.com)  
Tel: +1-610-228-0161

**TOPTICA Photonics AG**

Visit us at Booth #923

**TOPTICA's new TopWave delivers  
150 mW at 266 nm**

The TopWave laser series is the latest addition to TOPTICA's portfolio of deep-UV cw lasers. Its first model, the "TopWave 266" delivers 150 mW output power at a wavelength of 266 nm.

It has an excellent power stability, ultra-low noise operation and a premium beam quality.

The TopWave laser series incorporates successful building blocks from TOPTICA's scientific lasers and takes the performance of industrial-grade UV-lasers to another level.



**Contact Details**

TOPTICA Photonics AG  
[www.toptica.com](http://www.toptica.com)  
[sales@toptica.com](mailto:sales@toptica.com)

**Meadowlark Optics**

Visit us at Booth #2300

**NEW SLM High Power Capabilities**

Meadowlark Optics now offers High Power Handling options for our high speed (up to 500 Hz), high resolution (1920 x 1152) Spatial Light Modulators (SLMs).

All of Meadowlark's reflective backplanes incorporate analog addressing with high refresh rates to provide the lowest phase ripple SLMs available.

Users can select standard or high speed liquid crystal for optimal performance for wavelengths from 405 – 1550 nm.



**Contact Details**

Meadowlark Optics  
5964 Iris Parkway  
Frederick, Colorado 80504  
United States  
[www.meadowlark.com](http://www.meadowlark.com)  
[sales@meadowlark.com](mailto:sales@meadowlark.com)  
Tel: +1 303 833 4333

**ALPHA-RLH**

Visit us at Booth #1823

**ALPHA-RLH showcases innovations  
from nine cluster members at  
Photonics West**

ALPHA-RLH (Route des Lasers & des Hyperfréquences®), a newly merged technology cluster specializing in photonics, lasers, microwave and digital technologies, will host the innovations of its cluster members **Neta, Irisiome, ALPhANOV, Spark Lasers, ISP System, First Light Imaging, Kyliya, Femto Easy, Azur Light Systems**, as well as unveil new products, at Photonics West.

Novel devices improving imagery, laser accuracy and speed will also be unveiled at ALPHA-RLH stand #1823 during the event.



**Contact Details**

Institut d'optique d'Aquitaine  
Rue François Mitterrand  
33400 TALENCE  
France  
[www.alpha-rlh.com](http://www.alpha-rlh.com)  
Tel: +33 5 57 01 74 50

**Equal  
optical  
path beam  
splitters**

Meopta has developed a new series of beam splitters with a fix optical path difference reaching precision 1µm in the adjustable range ±100µm.

Superior quality of transmitted wavefront λ/20 and beam deviations up to 5° makes these beam splitters a perfect solution for all white light interferometry applications.



[www.meopta.com](http://www.meopta.com)

EUROPEAN OPTICS since 1933

Meopta - optika, s.r.o.  
Kabelkova 1, Prerov, 750 02, Czech Republic

**Cleaning for Optical Network Excellence**



**Fujikura One-Click Cleaner:**

- |                  |                                |
|------------------|--------------------------------|
| SC-CLK-B         | for SC, ST & FC connector      |
| MU/LC-CLK-C      | for MU & LC connector          |
| DLC-CLK-A        | for Duplex LC connector.       |
| SC-MINI-CLK-A    | mini for SC, ST & FC connector |
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ALPhANOV  
 Institut d'optique d'Aquitaine  
 Rue François Mitterrand,  
 33400 Talence, France  
[www.alphanov.com](http://www.alphanov.com)  
[info@alphanov.com](mailto:info@alphanov.com)  
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