

Welcome to our latest **Product Focus**, which we have published specifically for **Optatec 2012**.

Here you can see a range of products from both exhibitors and non-exhibitors alike. We have included booth numbers (where available) making it easy for you to check out the products for yourself.

Also included in this handy product guide are selected highlights of recent news articles from the optics.org

newsdesk, including news of the latest acquisitions, a potentially cost-saving ion-beam deposition system, and multi-million-dollar deals.

Our next **Product Focus** will be published to coincide with **Optics+Photonics**. To ensure that your product is included, contact optics.org as soon as possible as space will be limited.

## Optikos Corporation

Visit us at Booth No. C.36

Optikos Corporation is the world's largest manufacturer of equipment for the measurement of optical image quality. For nearly 30 years, Optikos has been a recognized leader in the fields of optical and electro-optical testing; we offer complete solutions for both optical system qualification and system level tests on imagers ranging from the ultraviolet to the far infrared.

Along with its standard-setting line of products for optical testing, measurement, and evaluation, Optikos has built a worldwide reputation for the ways in which it continually enables leading design, development, consumer, and industrial product firms to solve their optical problems and bring their ideas and concepts to reality. Whether you turn to us for individual services or complete systems development, our engineers, holders of dozens of U.S. patents, will work with you to develop your idea on schedule and within budget.

The Optikos **LensCheck™ LWIR** and **LensCheck™ Lens Measurement Instrument** are cost-effective solutions to your production and prototype lens qualification needs. Optikos is pleased to offer this compact, efficient, easy-to-use quality control tool. Both LensChecks feature Optikos' patented VideoMTF™ image analysis software, real-time MTF testing and analysis enabling manufacturers to qualify incoming products quickly and reliably, thereby minimizing the risks of sub-standard complete assemblies.

### LensCheck™ Lens Measurement Instrument features:

- Compact, portable system
- High resolution USB Motorized stages
- Integrated glass scale encoders
- 50 mm clear aperture refractive collimator
- Integrated 8 position target and filter wheel
- Self-centering lens holder
- Patented VideoMTF™ software
- 12-bit real-time video

### And measures:

- MTF –on/off axis
- EFT and F/#
- Back focal length
- Astigmatism
- Field Curvature
- Distortion
- Transmission
- Relative Illumination

### LensCheck™ LWIR features:

- Patented VideoMTF technology enables real time MTF measurements
- Flexible platform allows a wide range of measurements (e.g. MTF, EFL, distortion)
- Industry leading measurement accuracy and repeatability
- Configurable automated measurement routines
- Easily switch between wavebands (VIS/NIR, SWIR, or LWIR)
- Installed in production and R&D facilities around the world

### And measures:

- MTF- on/off axis
- EFL
- Astigmatism
- Field Curvature
- Distortion



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Visit us in Hall 3  
Booth #D20



**TRIOPTICS**

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



## ID Quantique SA

Visit us at Booth No. J.16

## id220: Free-running near-Infrared Photon Counter with very low dark count rate

The cost-effective id220-FR-SMF brings a major breakthrough for single photon detection in free-running mode at telecom wavelengths. The cooled InGaAs/InP avalanche photodiode and associated electronics have been specially designed for achieving low dark count and afterpulsing rates in free-running mode. The single mode fiber coupled module can operate at detection probability levels of 10%, 15% and 20% with an adjustable deadtime between 1 us and 25 us, both parameters are adjustable via the USB interface.

The timing resolution is as low as 250ps at 20% efficiency.



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## Hamamatsu Photonics

Visit us at Booth No. C.12

## Thermopile Detectors

At Optatec 2012, Hamamatsu Photonics will be introducing their new range of Thermopile Detectors, designed to deliver high sensitivity and high reliability through the use of silicon based materials.

Using cutting edge MEMS technology, Hamamatsu are able to offer a wide range of products and package types including single, dual element, linear and area arrays.

Thermopiles are the ideal solution for a diverse range of applications including gas analysis, detection of CO<sup>2</sup> concentrations, temperature profile detection, human detection (position) and more.



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## AdlOptica GmbH

Visit us at Booth No. K.30

Collimating Focal- $\pi$ Shaper for fiber lasers from AdlOptica GmbH

New development Focal- $\pi$ Shaper\_NA\_0.1\_50\_80\_1064 optimized to operate with high power (>1 kW) fiber lasers. This water cooled F- $\pi$ Shaper combines functions of collimation and beam shaping converting, with nearly 100% efficiency, a divergent Gaussian laser beam into a collimated beam optimized to create Flattop, "Donut", "Inverse Gauss" profiles near lens focus. Advantages: efficient laser energy usage, reduced HAZ, higher quality of materials processing, compactness, easy integration in existing equipment, operation with scanning optics. Applications: Marking, Selective Laser Melting, Welding, Scribing, Dicing, Micromachining, Photovoltaics, Drilling, etc.



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## DELTA Lights &amp; Optics

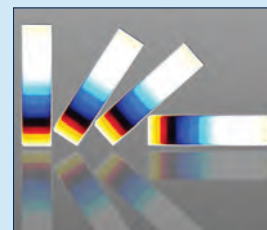
Visit us at Booth No. H.35

## The best ever linear variable VIS band pass filter (400 nm – 700 nm)

Until recently, tunable optical filters did not display sufficient quality to be used for advanced fluorescence applications – those days are over now!

With the high transmission, steep edges and high blocking outside the transmission area, DELTA's ultra-hard coated, durable Linear Variable Filters can provide the same performance as conventional optical filters.

We can help you to improve your optical system. We invite you to discuss optical filters or complete optical systems with us!



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## Avantes BV

Visit us at Booth No. C.37

## AvaSpec-RS series, finally a replaceable slit! World's Most Configurable Microspectrometer

Avantes introduces the first truly configurable miniature spectrometer that allows you to change your slit and connector on the go. In your laboratory, on the road: it only takes a screw driver to continue your measurements with a new set-up. Avantes new Avabench-RS enables a microspectrometer that is adaptable to your changing needs: whether you need higher throughput or higher resolution.

The Avabench-RS optical bench is the enabling technology for this technological advancement and is now available in all Avantes UV/VIS/ NIR AvaSpec spectrometers.



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## Optics Balzers AG

Visit us at Booth No. F.25

## All-dielectric self-blocking SWIR filters from Optics Balzers

Optics Balzers offers customized all-dielectric band-pass filters for the SWIR spectral region with a unique self-blocking filter design.

They combine a wide blocking range and high pass-band transmittance in a single all-dielectric interference coating.

All filters are deposited by in-situ monitored plasma-assisted sputter and evaporation processes and show extreme stability in terrestrial and space environments.

Optics Balzers also delivers compatible broad-band dichroic beamsplitters.



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# IDEX buys Precision Photonics in \$20M cash deal

**IDEX Corporation, the diversified fluidics firm that became a major player in the photonics sector with the \$400 million buy-out of CVI Melles Griot last year, has followed up with the acquisition of Boulder-based Precision Photonics.**

IDEX Corporation, the diversified fluidics firm that became a major player in the photonics sector with the \$400 million buy-out of CVI Melles Griot last year, has followed up with the acquisition of Boulder-based Precision Photonics.

The \$20 million cash purchase is confirmation of the company's promised policy of actively consolidating the photonics business, as outlined by IDEX's Mike Cumbo in an interview with optics.org in March.

Cumbo, president of IDEX's optics and photonics business unit, said that the company's model was to achieve 50% of its total growth through acquisitions, and highlighted light detection and integrated subsystems as key target areas.

Precision Photonics specializes in high-specification optical components, through expertise in techniques such as ion-beam sputtered coatings. Founded by former National Institute of Standards and Technology (NIST) scientist Chris Myatt

and Sally Hatcher in 2000, the company had originally set out to target the optical telecommunications sector while it was booming.

But following the burst of the telecom bubble, Precision Photonics widened its scope and now offers a wide range of components, including high-energy laser mirrors, polarizing optics, beam-splitters, etalons and micro-optics, as well as a custom service dubbed "impossible optics".

Aside from telecommunications, typical applications include high-power solid-state, ultrafast and fiber lasers, as well as optical coherence tomography and endoscopy in medicine, and emerging directed energy systems in the defense sector.

The company's board of directors also includes well-known photonics entrepreneur Milton Chang, who invested in Precision Photonics through his "Incubic" venture fund for high-tech start-ups. Back in 2003 Precision Photonics raised \$0.9 million in equity funding, according to a

filing with the US Securities & Exchange Commission.

In 2009, founders Myatt and Hatcher span off another company from Precision Photonics, in the form of MBio Diagnostics. MBio is developing a proprietary fluorescence-based assay technology to analyze single drops of blood, plasma or serum, for low-cost, high-throughput HIV and hepatitis testing.

Precision Photonics also hit the headlines in 2010 when a former employee was jailed for two years after being found guilty of stealing \$230,000 from the company to finance a luxury lifestyle.

Such was the havoc wreaked on the 35-person company at the time that it forced several lay-offs and put the future of Precision Photonics in jeopardy, with CEO Myatt forced to work 20-hour days to keep the business afloat.

- IDEX's "Health & Science Technologies" division, which includes the corporation's optics and photonics platform, reported a 35% increase in sales for the opening quarter of 2012, compared with 2011. That figure largely reflects additional revenues from the CVI Melles Griot acquisition, but operating margin fell significantly because of the less profitable nature of the business compared with the IDEX average, and the parent company is now in the process of reducing marketing and other costs to address that.

## Optical Surfaces turns 50

**UK-based high-end optics specialist Optical Surfaces, which supplies research labs and industrial organizations around the world with components including flats, spheres, aspherics, paraboloids, toroids, windows and mounts is celebrating its golden anniversary.**

Now 50 years old, the firm is best known for its expertise in large optics, beam expanders and collimators. It is also enjoying something of a boom in demand – despite the weak macroeconomic environment.

Sales manager Aris Kouris said: "Despite the pressures of global recession we have managed to increase sales by 20% over the last 3 years. Notable in this growth has been two major projects, increased volume optics customers and shipment of several complete systems which integrated precision optics, mechanics and software".

He added: "To celebrate our 50th anniversary we will launch a completely new, information-rich website later this month and several new products including a high precision 5-axis Mount and an Unequal Path Interferometer over the course of 2012."

Optical Surfaces has ISO 9001-2008-approved manufacturing workshops and test facilities housed deep underground, in a series of

tunnels excavated in solid chalk. Here, the temperature remains constant and vibration is practically non-existent.



*High-precision player: Optical Surfaces manufactures optics underground, inside a series of tunnels excavated in solid chalk.*

Photo courtesy of Optical Surfaces Ltd.

**EKSMA OPTICS**

Visit us at Booth No. B.36

**D-compact series Pockels cells with KD\*P crystals**

EKSMA OPTICS introduces new D-Compact series Pockels cells with KD\*P crystals for Q-switching and cavity dumping of compact medical, aesthetic, scientific and industrial lasers.

New cell features compact 1 inch diameter housing, low transmission losses  $T > 97\%$  and high contrast ratio  $> 1:2000$ . D-compact requires typical 6.8 kV DC half wave voltage at 1064 nm. Housing of the cell is hermetically sealed. KD\*P crystal and windows have high damage threshold AR coating at 1064 nm. AR coatings for other laser wavelengths are also available.



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**Andover Corporation**

**Andover Corporation offers IR filters with wavelengths up to 14µm.**

Constructed of hard, durable first-surface coatings on optical-quality IR-transmitting substrates, our IR filters can withstand normal cleaning and handling associated with any high-quality optical component.

Andover can provide IR Bandpass, IR Neutral Density, and IR Long Wave Pass filters from stock. We can produce custom sizes and shapes, as well as custom optical characteristics.

We can coat a variety of substrate materials, including Germanium, Sapphire, Silicon, Zinc Sulfide, and Zinc Selenide.



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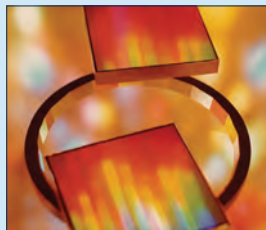
**Optometrics Corp.**

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We design and rule custom Gratings directly in gold for IR (4 to 12 microns) laser applications.

Gold gratings are particularly important to IR lasers since their increased efficiency allows more of the generated light to be used.

Their resistance to degradation allows them to be used in high power applications that might damage gratings having a thin gold coating over aluminum, for example. These gratings are available on both INVAR® and ceramic substrates.



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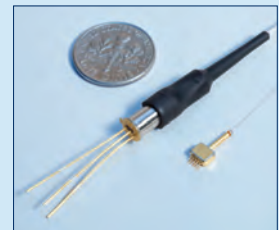
**GPD Optoelectronics Corp**

**High Reliability InGaAs Photodiodes**

GPD Optoelectronics Corp. announces the availability of high-rel fiber pigtailed InGaAs pin photodiodes in TO and surface-mount packages.

All seams are either cap welded, seam sealed or laser welded, and fiber/ferrule seal is made using space-approved epoxy.

These parts have been qualified for satellite/space applications and can be supplied with qualification data as required. These products are manufactured in the US.



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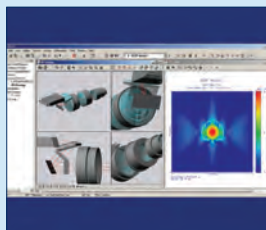
**Synopsys, Inc.**

**CODE V Optical Design Software**

**New features in CODE V 10.4 enhance beam propagation analysis**

CODE V 10.4, now available from Synopsys, delivers enhancements to its Beam Synthesis Propagation tool that enable optical designers to model and analyze diffraction effects in optical systems with increased flexibility, speed and accuracy:

- General complex field input supports custom light source definitions
- Birefringent crystal modeling is included for microlithographic and optical telecommunication devices
- More robust pre-analysis feature minimizes setup time and maximizes ease of use
- Multiprocessor support speeds computation time



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**Qioptiq Photonics Ltd.**

**iFLEX-Viper**

iFLEX-Viper, Qioptiq's compact multi-line laser source is now available with up to 60mW per line, measured after the fiber. Each system has 2-5 lines in the range 405-830nm, with options for modulation and software control.

Easy to use, it has replaced traditional free space laser combinations in biotech instrumentation and laboratories with impressive results. There is no lengthy set-up, no daily maintenance and no need to align the system after installation.

Qioptiq's robust multi-wavelength iFLEX-Viper delivers stable, repeatable, laser light when you need it.



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# Veeco speeds ion-beam deposition for thin films

Veeco Instruments has officially launched its new ion-beam deposition system, a tool that promises to lower the cost of producing high-precision coatings for volume optical component manufacturers.

The "SPECTOR-HT" system offers much higher throughput than its predecessors, with Veeco saying that it is the industry's first fully automated tool to achieve "ion-beam quality films at physical vapor deposition (PVD) rates".

The upgrade to earlier SPECTOR systems sounds impressive: Veeco claims up to a 400% increase in throughput and 300% increase in target utilization. That translates to a deposition rate of 4-7 Å (depending on the material being deposited), while the radial uniformity of deposited material has also been improved, from  $\pm 1\%$  to  $\leq \pm 0.5\%$ .

The upgrade comes at a modest price increase compared with the older systems, and stands to benefit those customers who are volume component manufacturers. Typical component applications include any that require a precision thin-film coating, including beam splitters, ultra-low-loss mirrors, chirped laser mirrors and bandpass filters.



Photo courtesy of Veeco Instruments.

Veeco's new high-throughput tool for depositing high-precision optical coatings.

Originally slated for release at the Photonics West show earlier this year, Veeco instead chose to launch SPECTOR-HT at last month's Photonics Europe event after delays blamed on engineering issues.

Over the past 14 years or so, the company has installed more than 200 ion-beam systems at customer sites around the world, with most optical component makers or coatings houses using two machines – although Veeco's largest customer has eight of the tools at a single site.

Veeco told optics.org that it did not expect many of those existing SPECTOR tools to be replaced, partly because the older units are so reliable, and that most purchasers of the SPECTOR-HT would be new customers, or existing customers with new manufacturing facilities. The first of the new systems is due to ship to Veeco's lead customer in May.

The new tool also features on-board optical monitoring for quality control to improve yields, and is available in two formats: a four-planet fixture capable of a 3000 cm<sup>2</sup> coating area, and a two-planet fixture offering 2500 cm<sup>2</sup>. Radial uniformity is better with the four-planet version, at less than  $\pm 0.25\%$  across the 310 mm-diameter planet.

Robert Oates, executive VP of Veeco's ion beam equipment division, said: "The new system offers unparalleled throughput advantages, and a cost-effective platform compared to competing optical deposition technologies, such as PVD, evaporative coatings or ion-assisted deposition."

## Zygo boosted by medical, EUV orders

Precision optics and metrology company Zygo says that its optical systems division has won a large order from what is described as a major medical device company, just days after it revealed another multi-million-dollar deal to provide extreme ultraviolet (EUV) optics for lithography development.

Both orders – worth \$3 million for the medical application and \$2 million for the lithography customer – were received in March.

The medical application will require Zygo's electro-optics groups in Tucson, Arizona and Costa Mesa, California to manufacture high-precision lens assemblies, while the sub-nanometer optics for EUV lithography will be produced at the company's extreme precision optics (EPO) group in Richmond, California – formerly ASML Optics.

John Stack, President of Zygo's optical systems division, said: "Design and manufacture of complex high-precision objective lenses across many markets is one of Zygo's core competencies."

"Our group's FDA registration and strict adherence to ISO 13485 medical device standards, combined with their precision manufacturing capabilities, establish Zygo as a manufacturer of choice for medical device companies seeking proven quality standards."

The EUV lithography optics order comes at a critical time in the commercial development of the technology, with key stepper tool provider ASML due to start assembling the first EUV tools capable of high-volume manufacturing (HVM) within months.

Such is the complexity and precision required of EUV lithography that it has been likened by some in the industry to

putting a man on the Moon in the 1960s. Its introduction has been hampered in large part by the extreme difficulty of developing an EUV light source with the necessary output power, reliability and stability demanded by chip manufacturers.

Zygo's latest order is linked to a \$9 million contract signed last year with industry group Sematech and the College of Nanoscale Science and Engineering (CNSE) at the University of Albany, who are co-ordinating the development of a fifth-generation micro-exposure lithography tool known as MET-5 that features Zygo's optics.

The program is designed to help researchers achieve line widths of less than 16 nm and support the semiconductor industry's technology roadmap projected out to the year 2025. "To be entrusted with this follow-on order for some of the finest EUV optics ever made is testimony to 20 years of accomplishment in this field," said Marc Tricard, Zygo's executive director of business development.



# 2012 Optics+ Photonics

12–16 August 2012

## Register Today



### Location

San Diego Convention Center  
San Diego, California, USA

[spie.org/aboutop](http://spie.org/aboutop)

### Conference

12–16 August 2012

### Exhibition

14–16 August 2012

### Conferences

- Nanoscience + Engineering
- Solar Energy + Technology
- Organic Photonics + Electronics
- Optical Engineering + Applications

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