

solution science

Elliot Scientific

for research and industry



**2013
Newsletters**

Company Profile

Elliot Scientific is a major supplier of Opto-Mechanic components and systems under the Elliot|Martock and Elliot Scientific brands to the Scientific, Research and Industrial communities. In addition, we supply world-class Laser, Cryogenic, Magnetic, Telecom and Datacom systems sourced from many British, North American, European and Far Eastern companies.

Elliot Scientific is uniquely positioned to assist customers by being able to:

- Supply competitive components and systems
- Source, integrate and manufacture complex systems
- Design and manufacture for Custom or OEM requirements

Elliot|Martock

Martock Design became a wholly owned subsidiary of Elliot Scientific in 2003 following thirty years at the forefront of design, development and manufacture of high quality precision instruments and equipment. That tradition continues today as we continually strive to improve and expand the ranges of Elliot|Martock and Elliot Scientific own brand products.

These include our award winning optical tweezer systems, the lab essentials mirror mount range, fibre positioning components, waveguide manipulators, automated alignment systems, micropositioners and other class-leading products.

All of our customers - from academic institutions and government agencies through to commercial researchers and industry - are provided with the highest levels of service backed up by solid technical support from our team of experienced engineers.

Solution Science for Research and Industry

We pride ourselves in offering Solution Science for Research and Industry. We employ the best-qualified staff and scientists to help you sift through the multitude of options available to get the equipment and systems that match your needs. That's **Solution Science**.

Staff

We employ PhD level physicists, scientists and mechanical design engineers to assist you with your product search or application, and to ensure that our advice is correct and balanced. Many of the team have been with us for over ten years, bringing with them a huge amount of experience for you to tap into.

Quality

We have been BS EN ISO 9002 registered since 1993 and BS EN ISO 9001 registered since 2003. We understand the need for continual improvement in services and traceability, both in distribution and manufacture. Our commitment to this ensures our standards are the highest in our industry.

Catalogue & Custom Manufacturing

This catalogue only gives an overview of our extensive range. If you cannot find what you are looking for here, why not phone, fax or e-mail us. Many products have been supplied that started as ideas and concepts requested by customers requiring tailored manipulation systems. With our innovative design experience, we can offer unique solutions in opto-mechanical positioning and control systems. We are here to help you find the right products to meet your requirements.

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Lake Shore launch CVT Probe Tips and a Blog



Lake Shore continues their expansion in the world of social media with the addition of a **Blog**, to complement their existing **Twitter** feed, and pages on **Facebook** and **LinkedIn**.

Lake Shore's blog was launched last month with a series of posts to support the **Model 8404 AC/DC Field Hall Effect System**. These include a description of the system that Lake Shore has developed in conjunction with Japan's Toyo Corporation, and a video series providing brief overviews of the major components of the system and detailing the basics of, and differences between, AC field and DC field Hall measurement.

CVT Probe Tips announced

Continuously Variable Temperature (CVT) probe tips are a new design from Lake Shore Cryotronics that enables uninterrupted or unattended variable temperature measurements without the need to raise the DC/RF probe off the sample between major temperature excursions.

Fully compatible with current and previous models of Lake Shore Cryogenic Probe Stations, the integrated flexible section compensates for the thermal expansion that occurs in the probe arm when the sample stage temperature is changed. With non-CVT tips, this can result in a probe movement of approximately 500 μm between room temperature and 4 K; with CVT probe tips, this movement is eliminated.

The CVT probe tips are currently available in tungsten - with tip radius options of 10 μm and 25 μm , and beryllium copper - with a tip radius of 25 μm .

DT-470 Silicon Diode Discontinued

The DT-470 cryogenic temperature sensor and its siblings, the DT-414 and DT-421, are no more, at least when existing stocks run out. These venerable silicon diodes have been superseded by the DT-670 that offers better accuracy over a wider temperature range. DT-670 sensors in the SD package are available in six tolerance bands – five for general cryogenic use across the 1.4 to 500 K temperature range, and one that offers superior accuracy for applications from 30 K to room temperature.

Princeton Measurements joins Lake Shore

Princeton Measurements Corporation (PMC) is now part of Lake Shore. The recently announced acquisition brings together two leaders in magnetics expertise, with PMC's MicroMag™ range of Alternating Gradient and Vibrating Sample Magnetometer systems (see left) joining the growing family of Lake Shore products for advanced materials research.

Please **contact us** for more information about any of these stories or products from **Lake Shore Cryotronics**.

FEMTOLASERS expand their specialist optics catalogue



Ultra-fast laser specialist **FEMTOLASERS** have launched their expanded 2013 optics catalogue. Now with more than 120 pages, the extensive **FEMTOOPTICS** range features the following new additions:

- fs-optimised off-axis parabolic mirrors for broadband focusing
- MOSAIC™ OS Octave spanning GDD module
- High dispersion mirror compressor for sub-8 fs pulses
- Ultra-broadband low-GSS dichroic filters
- Visible spectral range components:
 - Dielectric 50% beamsplitters | sub-7 fs | p-polarised
 - Dispersive mirror modules for sub-7 fs pulses

You can **download the catalogue here**, or **request a printed copy** from us.

IPG Photonics revise Fibre Laser and Amplifier ranges



IPG Photonics has published new datasheets for certain models in their broad range of 1.0, 1.5 and 2.0 μm fibre lasers and amplifiers. Our web pages for these products have been updated to reflect the changes and have also been redesigned to make it easier to compare the different models that we offer.

These reliable diode-pumped amplifiers and lasers use Ytterbium, Erbium, or Thulium doped optical fibres as gain media. All are compact, air-cooled and use direct diode pumping for optimum efficiency.

IPG designed and manufactured, these commercial/non-telecommunications lasers are used in a broad range of OEM and lab applications such as graphics and imaging, marking and materials processing, remote sensing and research, medical and defence.

Elliot Scientific offers continuous wave (CW), linearly and randomly polarised, tunable and single frequency, diode-pumped solid-state fibre lasers, as well as diode-pumped fibre amplifiers, with up to 20 W output power.

IPG's advanced fibre devices are a quantum leap forward, providing the best in diode-pumped solid-state reliability and performance. To determine the ideal fibre laser for your application, please **contact us**.



Ultra-high Resolution Raman Spectroscopy from Artemis™



Ultra-high resolution Raman microspectroscopy is now available throughout the UK and Ireland as Elliot Scientific introduces the **CRAIC Artemis™ Raman Spectrometer** – available as an add-on for modern research grade microscopes, or as an option for CRAIC's existing range of UV-Vis-NIR Microspectrophotometers.

Perfect for research, metrology and quality control, the CRAIC Artemis™ Raman system has been designed specifically for microscopic sample. Its patented virtual slit technology dramatically increases the sensitivity of the spectrometer, offers an extraordinarily large spectral range, yet maintains the high speeds and spectral resolution for which CRAIC microspectrometers are known.

The Artemis™ modules are available in two laser wavelengths and can be combined for the ultimate in experimental flexibility. Easy to use and economical to own and operate, they enable rapid sample analysis within life sciences, materials science, chemistry and physics.

Each module includes a choice of diode laser, imaging and microscope optical interface, durable solid-state Raman spectrometer, and software from CRAIC – the experts in microspectroscopy.

For more information about the Artemis™ Raman Spectrometer or other **CRAIC systems**, please **contact us**.



Next month: Photonics West

**Photonics
West**

Photonics West is said to be the most influential conference for biophotonics and biomedical optics, high-power laser manufacturing, optoelectronics, microfabrication, and green photonics in the world... and this year's gathering is expected to be even better than 2012's sold-out event.

More than 4,450 scientific papers will be presented alongside 40 technical events and 70 courses. Two world-class exhibitions featuring approximately 1,300 exhibitors are complemented by important industry events, announcements and the renowned Prism awards - of which we were a proud recipient in 2004.

Elliot Scientific will be exhibiting in **Booth 4627**, from 2nd to the 7th of February, at San Francisco's Moscone Center. If you're in the area then, come see us and say hello.

New 2013 Catalogue, our 2012 Newsletters, and more...



Our **2013 catalogue** is now available and if you missed any of our e-newsletters last year, we have compiled them into a handy PDF *annual* (with built-in web links) that you can **download** or **read online**.

This publication adds to our expanding library of more than 50 online documents available via **Issuu**. Every e-newsletter, catalogue, and technical note we produce can be found as an easy to read or downloadable PDF there.

We also maintain other web presences via social sites. Our LinkedIn account, through which we have nearly 1,000 professional contacts, is now an important part of Elliot Scientific's activities. We are members of various discussion groups related to topics such as spectroscopy, microscopy, optics, afm, magnetics and so on, and also moderate the Optical Tweezers & Laser Trapping specialist group. If you are interested in viewing our profile on **LinkedIn**, [click here](#).



Our **YouTube Channel** also hosts dozens of videos, from practical examples of optical tweezing to the THz imaging of methane, and our **Blog** carries our latest news and the press releases from the companies we distribute for in the UK and Ireland.

Alternatively, you might wish to **follow us** or **friend us** on Facebook as we have both a commercial and a personal page on the site.

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AKELA unveils Single and Multi-Channel Laser Modules



AKELA Laser have announced the availability of single and multi-channel laser diode modules in wavelengths from 635 to 1950 nm, part of a series of new releases over the next six months. The new modules offer integrated cooling and drive electronics for plug-and-play use, and are suitable for both R&D and OEM applications.

The modules are designed for 100 micron, 0.22NA fibres and provide pulsed or CW power of up to 2 Watts per channel. Future products will include increasingly higher power levels as well as units designed for the medical market with built-in accessories such as photodetectors, aiming beams, blast shields, and fibre sensors. The laser modules are available in the following configurations: single channel; multi-channel with independently addressable outputs; and multiple outputs controlled by a single driver.

Please **contact us** for more information about products from **AKELA Laser**.

RM21™ Microscope Platform from Mad City Labs



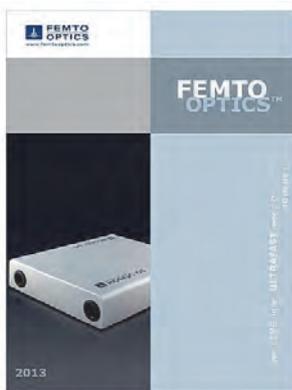
The RM21™, from **Mad City Labs**, is described by them as a *Microscope Platform for the Future*. This is because the precision aligned RM21™ is designed for maximum user accessibility, a feature that offers microscopists opportunities to develop flexible configuration instruments with ease.

With a robust design, precision manufacturing and assembly, the **RM21™** is the ideal platform for a range of microscopy applications such as super resolution (SR) microscopy, fluorescence microscopy and TIRF. Easy alignment of microscopy and optical components is achieved within its three dimensional space as all posts and fixturing points are referenced to a known datum.

The RM21™ includes a precision platform and an axial, motorised Z-axis suitable for lens positioning. The Z-axis has a displacement of 50 mm (2") with a 95 nm step size and 50 nm repeatability. An encoder option is also available.

For more information, please **contact us**.

Off-axis Parabolic Mirror features in new FEMTOOPTICS catalogue



The hardcopy FEMTOOPTICS 2013 optics catalogue, from ultra-fast laser specialist **FEMTOLASERS**, has arrived in the UK. If you would like to possess your own hefty tome of the newly expanded **FEMTOOPTICS** range that now includes an off-axis parabolic mirror optimised for few-cycle pulse focusing, you can **request a copy** from us, or **download the catalogue here**.

Off-axis parabolic mirror features

- High reflectance and low GDD over the full fluorescence spectrum of Ti:Sapphire
- Femtosecond-optimised ultra broadband dielectrically enhanced Ag coating
- Large numerical aperture
- Minimum astigmatism

Applications

- Distortion free focusing of few cycle pulses
- THz generation

Optical Tweezers back in the News



A recent paper on optical trapping published in *Nature Photonics* caused a flurry of activity in the media and across the internet with articles, blogs, and radio interviews about the science behind moving particles with light, with the inevitable Star Trek™ and tractor beams analogy too.

The effect of light on micron sized particles was first described by Arthur Ashkin, a scientist working at Bell Labs over 40 years ago, although a practical optical tweezers was not developed until 1986.

The design, integration and testing process for a useful calibrated optical tweezers system typically requires one to two years — a threshold too high for many researchers. This is why Elliot Scientific decided to develop complete systems that would work *straight from the box*.



We supplied our first Optical Tweezers system nearly ten years ago, allowing the customer to start their research from day one. This simple, self-contained desktop instrument for single beam trapping was such a unique product that Elliot Scientific won a Photonics Spectra PRISM award in 2004.

In 2008 we built our first microscope-based system, and many variations of this design have been installed in Universities around the globe in the five years since.

Elliot Scientific offers the most comprehensive range of optical tweezers available. So, whether you seek to start with an economical *open architecture* or self-contained portable system, add capability to your existing microscope, or purchase a fully integrated multiple spot system with QPD/CPT, then we can meet your needs.

Visit our [Elliot Scientific Optical Tweezers page](#) for more information, videos, and application notes, or [contact us](#).

Forthcoming Events

Photonex Roadshow
April 9th
UCL, London



Laser World of Photonics
May 13th - 16th
Munich, Germany



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HOLOEYE Spatial Light Modulator Range Revamped - New models introduced

This month has seen the introduction of several new Spatial Light Modulators from **HOLOEYE**. The latest developments include:

HDTV Resolution High Retardance Panels

Two new phase only panels, the **PLUTO-VIS-HR** and **PLUTO-BB-HR**, show a considerably higher phase retardation compared to standard panels. This enables up to 4π or even up to 6π phase functions to be addressed which can be beneficial for wave front functions due to higher slopes and reduced transition points in the addressed function compared to standard 2π encoding.

For some applications a stable phase response is required. This can be accomplished by driving the high retardance panels with adapted settings for 2π phase retardation. The driving forces to the LC molecules in such a configuration are reduced, so response time is slower, but the phase signal typically shows a standard deviation of 0.2-0.7% (wavelength dependent).

LETO Phase Only Reflective SLM

The **LETO** is based on a full HD (1920 x 1080 pixel) reflective LCOS microdisplay with a pixel pitch of only $6.4\ \mu\text{m}$ and a small interpixel gap of $0.2\ \mu\text{m}$. The SLM provides a high fill factor of 93% with a corresponding high light efficiency, and is usable in the 400-1100 nm range with a phase shift of 2π up to 850 nm. With a reflectivity of $\sim 75\%$ and a low cross talk between pixels, the device offers diffraction efficiencies of more than 80% (16 level blazed grating) which leads to a total light efficiency of approximately 60%.

LC 2012 Transmissive SLM

The **LC 2012** is based on a transmissive liquid crystal microdisplay with 1024 x 768 pixel resolution. It is addressed using a standard HDMI interface and advanced calibration can be performed via USB. The SLM provides a phase shift of 2π at 532 nm and around 1π at 800 nm. The microdisplay and drive electronics are packaged into a compact box for easy integration into optical setups via a mounting ring which fits standard laboratory posts and holders.

Visit our **HOLOEYE** pages for more information or [contact us](#).



Ultrafine Adjuster Screw Sets offer The Finest Metric Pitch Available from Kozak Micro

Elliot Scientific have recently joined with **Kozak Micro** to offer matched-set micropositioning adjusters to UK OEMs. With up to 0.1 mm (254 TPI) thread pitch, these ultrafine adjustment screw and bush sets offer outstanding sub-micron precision and are the smoothest combinations around. They are ideal for your most demanding of applications.

- M3 Metric Adjuster Screw Sets are available with:
 - **0.10, 0.20 and 0.25 mm pitches**
- 0.25" & 0.1875" Imperial (US) Adjuster Screw Sets are available with:
 - **254, 200, 127, and 100 Threads Per Inch (TPI)**



Proprietary manufacturing on customised machine tools enables Kozak Micro to produce adjusters that are superior to industry standards. Thread classes exceed the highest 3A-3B Unified Thread Standard (UTS) by as much as 50%.

For detailed specifications on the screw and bush sizes that we offer, please [contact us](#) or visit our dedicated **Kozak Micro** web pages.

Energetiq EQ-99 Manager - The Smart Controller for LDLS™

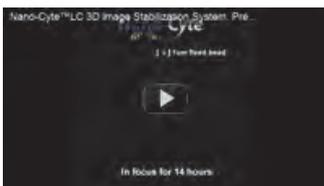
Energetiq's EQ-99 Manager offers enhanced control of the EQ-99 series Laser-Driven Light Source (LDLS™), adding valuable functionality to the brightest, longest lasting, broadband light source available today.



- **USB Computer Interface**
 - Connects to a computer via USB, allowing for easy control and monitoring of the LDLS™
- **Status Monitoring**
 - Bulb operation hours and other data can be monitored on a computer, or by the bright LED front-panel display
- **Advanced Shutter Control**
 - The EQ-99 Manager offers a variety of advanced control modes and a programmable shutter speed
- **Optional Shutter**
 - This device can be mounted to the window of the EQ-99 or directly to an optical bench
- **Shutter Performance**
 - 100 ms minimum exposure time | 2 Hz maximum cycle rate
- **Universal Power Supply**
 - A single universal PSU for worldwide operation is included, dispensing with the need for multiple power sources

Please **contact us** for more information about products from **Energetiq**.

Nano-Cyte™ from Mad City Labs



Any drift in a fluorescence imaging experiment can blur and distort images, or cause images to go out of focus, limiting the experiment's duration. With the Mad City Labs' **Nano-Cyte®** stabilisation system, problems with temperature gradients, sample drift, and microscope drift are eliminated.

Nano-Cyte® uses patented technology to provide active position adjustments to the sample. By referencing the image of a fluorescent fiducial within the sample, and localising it in three dimensions, the active adjustment removes all relevant drift in the experiment to within ± 10 nm in X and Y, and ± 20 nm in Z. Nano-Cyte®LC can correct for drift over a period of days, enabling long term imaging. The elimination of drift is an important step in advancing the capabilities of single molecule imaging.

The data set for an imaging experiment is the image. The "image is everything". The only microscope drift that affects the data is the relative motion of the image of the sample with respect to the image sensor on the detector (camera).

For more information about the Nano-Cyte® or **other Mad City Lab's products**, please **contact us**.

PHOTONEX London Opens Next Month - For One Day Only!



Tuesday, April 9th is London's opportunity to make the most of the Photonex Roadshow event that takes place at UCL. This exhibition and conference brings together the UK's top photonics technology supplier companies, leading researchers and invited speakers for a very special one-day event.

Elliot Scientific is one of twenty-five companies in the dedicated optics, photonics and imaging technology exhibition. Here you can view the latest photonics applications and solutions, and see optical components, instruments and tools.

You can also attend the *Advances in photonic tools and techniques for the life sciences* conference, or join in one of the *Photonics techniques and instrumentation* tutorials.

As photonics is an enabling technology, Elliot Scientific is a developer of solutions. And it is only by meeting us face-to-face at **Photonex** that you can really find out how we can help you in your work.

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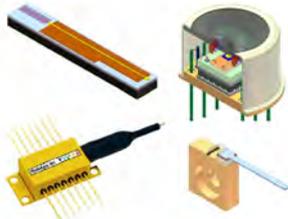


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New Photodigm High Power Single Frequency Monolithic Laser Diodes

Photodigm is a leading specialist manufacturer of high power single spatial and longitudinal mode laser diodes that deliver unsurpassed performance for applications where beam quality and spectral purity are critical.

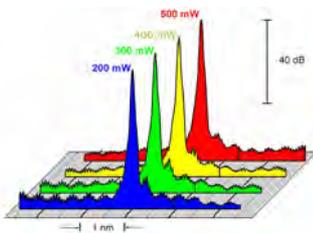


- Atom Optics
- Spectroscopy
- Non-linear Optics
- Quantum Computing
- Precision Instrumentation
- Fibre Amplifiers
- High-Speed Pulsed Operations

Photodigm manufacture in their own fab so, by controlling all aspects of design and production, their proprietary Distributed Bragg Reflector (DBR) lasers deliver the highest standards in beam quality and the highest powers available today in individual single mode laser diodes.

Photodigm DBR lasers are designed to deliver single frequency, single mode laser output. The precisely fabricated ridge waveguide selects a single spatial mode, and the monolithic DBR grating selects a single longitudinal mode. With a narrow bandwidth on the order of 1 MHz, and powers up to 400 mW, Photodigm DBR lasers are uniquely suited to many precision applications.

For more information about these exciting new products we are able to offer, please [contact us](#).



New Systems in mechOnics Micropositioning Range

mechOnics, a specialist in micropositioning systems using piezo inertial drives, has expanded their range of stages. In addition to a comprehensive portfolio of X, XY, and XYZ miniature translation stages, Elliot Scientific is now able to offer a Monomode Coupler and an XYZ Positioner with up to 10 mm travel. Stages utilise a directly driven slip/stick rod method that maintains position without power, and ensures zero backlash or rotation.



The **MX 35 XYZ Positioner** is a compact miniature translation stage system that offers up to 10 mm in all axes with a step resolution of approximately 10 nm depending on choice of controller. The stage can position itself at speeds up to 1.2 mm/s with an accuracy of 50 nm. A vacuum-ready version is available along with a smaller sibling in the MX 25 model that offers 2 mm of travel in all axes.



The **MK 25 Monomode Coupler** focusses a free-space laser beam onto an optical fibre by means of a compact piezo-driven aspheric lens equipped assembly. This allows for remote focusing and alignment of systems where traditional hand adjustment would be impractical.

Full technical specifications of these products and details of other systems from mechOnics can be found in their [current catalogue](#). Alternatively, please [contact us](#) for more information.

Next month we will be demonstrating our Optical Tweezers System live at:

LASER World of PHOTONICS
May 13th to 16th: Munich, Germany - Hall C1 Booth 306

Lake Shore Model 336/350 Low Temperature Controllers Get 4 Additional Inputs Option

Lake Shore is now shipping its new **Model 3062 4-channel option card** for the Model 336 and Model 350 temperature controllers, doubling the number of inputs by means of an inexpensive plug-in board.



These widely used Lake Shore controllers use cryogenic temperature sensors for monitoring or control, and can be configured for diode, negative temperature coefficient resistor, or positive temperature coefficient resistor sensors.

The new Model 3062 scanner card can easily be installed in the lab, so there is no need to send the controller back for upgrade. The card is supported by Model 336 firmware version 2.3 and later, and the Model 350 firmware version 1.1 and later. To update either model, you can download the free **Firmware Updater** software along with the latest firmware release.

Visit our **Lake Shore pages** for more information, videos, and application notes, or **contact us**.

Scanning Resonant Probe Microscope Kit from Mad City Labs

SPM-M is a popular kit from **Mad City Labs** that allows researchers to construct an affordable high performance, closed loop, scanning resonant probe microscope. By combining the MadPLL® instrument package with a Mad City Labs high resolution nanopositioning system, the seamless integration of the hardware and the automated control of MadPLL® means that you can concentrate on getting results, not tweaking parameters. Applications for the SPM-M Kit include:



- Nanoscale characterisation
- Nanoscale fabrication
 - Optical antennas
 - Nano-optics
 - Semiconductors
 - Data storage

The SPM-M Kit is ideal for research and teaching laboratories - **view a demo video** - offering high performance, versatility, simplicity and excellent value. For more information, please **contact us**.

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A Look Forward to the 21st *Laser World of Photonics* in Munich



Now in its 40th year, the biennial **Laser World of Photonics** Exhibition and Conference begins Monday. The show's main focus used to be on lasers and systems for science and manufacturing, but biophotonics and medical technology are now increasingly important fields. Elliot Scientific will be there next week, displaying the world-class systems and precision accessories that we are renowned for...

Elliot|Martock high-resolution precision miniature slides - These will be on show so visitors can experience how these smooth small stages can improve their applications. With travels of 3, 5 and 10 mm, the positioners are available in a variety of axis configurations with numerous adjustment and accessory options.

Kozak Micro matched-set micropositioning adjusters - With currently up to 0.1 mm (254 TPI) thread pitch, these ultrafine adjustment screw and bush sets offer outstanding sub-micron precision and are the smoothest combinations around. They are ideal for the most demanding of applications and Elliot Scientific is pleased to introduce them to Europe for the first time.

Elliot|Martock Gold Series Flexure Stages - The *gold standard* in precision stages and forming the basis of many of our custom alignment rigs controlled by the **DALi 2**, these **piezo-driven** or manually adjusted systems offer unprecedented stability and flexibility in multiple axes, with some models offering positioning resolutions as low as 10 nm.

Elliot Scientific Optical Tweezers are installed in universities and research institutions worldwide. Our E3500 system will be at the Show, which we will be **demonstrating live**. Any high quality commercial microscope can be upgraded with an Elliot Scientific single or multiple beam trapping package, or we can supply a complete *out of the box* working system using a microscope of your choice.

Photodigm is another newcomer. This specialist offers high-power single spatial and longitudinal mode DBR laser diodes that deliver unsurpassed performance for applications where beam quality and spectral purity are critical. Atom optics and spectroscopy are primary fields where Photodigm's precisely fabricated diodes excel. Their narrow linewidth (~1 MHz), single frequency, and single mode output is uniquely suited to many other precision applications too.

If you are not going to be in Munich from the 13th to the 16th but would like to know more about any of the products or services we offer, please **contact us**.

Up to 36 continuous wave high power lasers in one box - EXFO IQS-2800



The recent upsurge in bandwidth requirements by carriers is pushing next-generation transmission systems to achieve new capacity limits via use of complex high-order modulation formats like dual-polarisation quadrature phase-shift keying (DPQPSK).

The new **EXFO IQS-2800** is a modular test solution, housed in the IQS-636 platform, that provides researchers and engineers with a comprehensive way to design and test these future ultra-high-capacity network architectures. The lasers are continuous wave (CW), tunable, with a high-power output, narrow 100 kHz linewidth, and 10 pm resolution tunability over the C, L or A band.

Visit our **EXFO** pages for more information or please **contact us**.

EXFO MXS-9100 MEMS MxN Matrix Optical Switch



EXFO have also recently launched the new MXS-9100 optical switch as the perfect solution for centralised instrument sharing or automated testing in manufacturing.

With its all-optical cross-connect technology, the **MXS-9100** provides a unique combination of low insertion loss, fast protected switching and high reliability as required in the lab or manufacturing environment. It allows any of M input fibres to connect to any of N output fibres in a fully non-blocking manner.

Visit our **EXFO** pages for more information or please **contact us**.

CRAIC Technologies' 20/30 PV™ - The best performing Microspectrophotometer to date



The **20/30 PV™ Microspectrophotometer**, from CRAIC Technologies, incorporates the latest technological advances in optics, spectroscopy and software to deliver the best performance in a microspectrophotometer to date. Yet it retains the ease-of-use for which CRAIC instruments are known and represents a further step forward in UV-visible-NIR microspectroscopy.

The 20/30 PV™ Microspectrophotometer incorporates many of the latest technologies. Touch screen controls, sophisticated software, calibrated variable apertures and other innovations all point to a new level of sophistication in microanalysis.

Measurements across the UV-visible-NIR range in transmission, absorbance, reflectance, Raman, luminescence, and fluorescence are possible on sub-micron samples to those well over a 100 µm across.

And while microspectra are being acquired, the sample may be simultaneously viewed in the deep UV and NIR with the high-resolution digital imaging system or in the visible through the research grade eyepiece optics.

Images and time-resolved spectral data are acquired and recorded in one rapid seamless operation from across the instrument's extended spectral range. The 20/30 PV™ Microspectrophotometer is simple to use, the measurements are non-destructive, and the quality of the spectral data is unmatched.

Please **contact us** for more information about this and other products from **CRAIC Technologies**.

Next Month...

CLEO:2013

Laser Science to Photonic Applications

See us in Booth 1518 - June 11th to 13th: San Jose, USA

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Cold Atom Science boosted by laser products from Vescent Photonics



Elliot Scientific is pleased to announce that we are now able to offer laser products from **Vescent Photonics** to researchers in the UK and Ireland. Vescent Photonics is a technology driven organisation developing and manufacturing novel electro-optic, waveguide, and laser technologies. Key research areas ideal for Vescent products are:

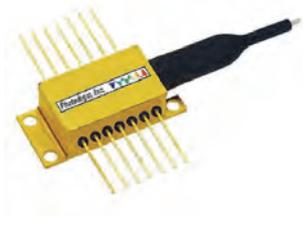
- Magneto-Optical Traps (MOT) for laser-cooling of atoms
- Coherent atom sources
- Sensors for gravitometry and magnetometry
- Focused ion beams
- Ultrasensitive trace-isotope analysis
- Quantum computing and cryptography

The Denver-based company is privately held by the original scientist and engineer founders, one of whom – Mike Anderson – was part of the group that created the first Bose-Einstein condensate. Among the products they offer are:

- Narrow Linewidth Lasers & Laser Scanner Modules
- Spectroscopy & Heterodyne Modules
- Fibre Coupling & Isolator Modules
- Multi-function Control Modules using LC technology
- Precision Power Supplies, Controller, and Servo Modules

For more information about **Vescent Photonics**, please [contact us](#).

Atom Optics & Spectroscopy will benefit from a Photodigm Laser Diode



Photodigm specialises in manufacturing high power single spatial and longitudinal mode laser diodes. By incorporating their proprietary DBR - Distributed Bragg Reflector - technology, Photodigm delivers unequalled performance for researchers requiring excellent spectral purity and superior beam quality. Typical applications include:

- Atom & Non-linear Optics
- Spectroscopy & Precision Instrumentation
- High-Speed Pulsed Operations & Quantum Computing

Photodigm DBR lasers are designed to deliver single frequency, single mode laser output. The precisely fabricated ridge waveguide selects a single spatial mode, and the monolithic DBR grating selects a single longitudinal mode. With a narrow bandwidth on the order of 1 MHz, and powers up to 400 mW, Photodigm DBR lasers are uniquely suited to numerous precision projects.

For more information about **Photodigm laser diodes**, please [contact us](#).

CLEO Opens Next Week: Elliot Scientific in Booth 1518

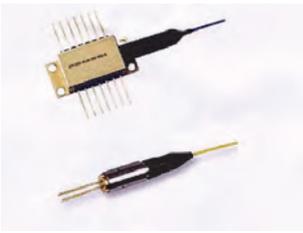


From June 11th, the Elliot Scientific team will be showcasing the company's products and solutions at **CLEO:2013** in San Jose, California.

Billed as *the world's most prestigious technical conference in the photonics industry*, CLEO has over 300 companies from around the globe showing new products and demonstrating cutting-edge innovations. Elliot Scientific will be among them, promoting our ranges of precision positioning systems and optical trapping equipment.

The Exposition runs 11th-13th June 2013 – If you're attending, we look forward to meeting you in Booth 1518.

Eblana Photonics offers Discrete Modes from its Speciality Laser Diodes



Eblana Photonics offer numerous laser diodes that feature Discrete Mode technology for improved wavelength performance. The product range includes:

- Narrow Linewidth Laser - Under 100 kHz at 1550 nm
- Dual Mode Laser - Simultaneous emission at two different wavelengths
- Single Wavelength Lasers - 690, 780 and 3350 nm
- High Power Single Transverse Mode Laser - Up to 100 mW at 1550 nm

To discover how an **Eblana** laser diode can enhance your project, please **contact us**.

Industry-leading Laser Diodes and Modules for OEMs and Researchers from AKELA



- **High Power Laser Diodes**

The **AKELA Laser Corporation** line of continuous wave (CW) high power laser diode products set the standard in the industry. No other company provides as wide a variety of high power and high efficiency products across such a broad wavelength range. As market leader in the wavelength region from 1208 to 2000 nm, achieving higher powers than other manufacturers, AKELA's range is the most comprehensive in the industry, offering the widest choice of wavelengths from 635 nm onwards.

- **Single and Multi-channel Laser Diode Modules**

Single and multi-channel laser diode modules in wavelengths from 635 to 1950 nm, designed for 0.22 na 100, 200, and 400 micron fibres or free space use, provide up to 25 Watts CW power and are ideal for research and development. Equipped with integrated cooling and drive electronics for plug-and-play use, the modules are available in the following configurations: single channel; multi-channel with independently addressable outputs; and multiple outputs controlled by a single driver. Built-in accessories can include photodetectors, aiming beams, blast shields, and fibre sensors.

- **Configurable High-Power Laser Modules**

The most versatile and configurable diode laser module on the market today, AKELA's Configurable High-Power Laser Module has individually addressable emitters and can operate at up to five wavelengths from one fibre. This makes it ideal for use in spectroscopy, medical and defence applications. It fits standard high-power thermoelectric coolers, making integration easier, and meets stringent industrial and medical requirements.

For pricing, availability, and technical specifications of all these **AKELA** products, please **contact us**.



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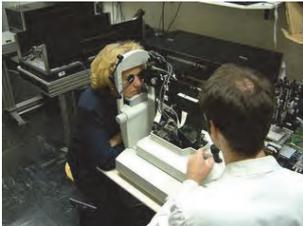
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Optical Coherence Tomography (OCT) gains with two new products (Videos)



Fibre specialist **Nufern** and ultrafast laser manufacturer **FEMTOLASERS** have both released new products to boost applications involving Optical Coherence Tomography (OCT).

The **INTEGRAL™ core™ OCT** from FEMTOLASERS, offers Ti:Sapphire laser technology in a revolutionary compact and robust package. Its state-of-the-art output parameters, combined with simple push button operation and low cost of ownership, make it the best choice for everyday use in medical, scientific and industrial applications. The combination of output power, broad spectrum, and high repetition rate enables high-speed, high-resolution tomography to be performed. This is especially welcomed by researchers.

The laser was awarded an *Honorable Mention* at CLEO:2013 and its capabilities are discussed by *Laser Focus World* senior editor Gail Overton and FEMTOLASERS' President & CEO Andreas Stingl in this **video** on our website.

Nufern's new **1060-OCT** select cutoff single-mode fibre is optimised for next generation OCT medical imaging methods that operate at 1060 nm. The exceptional uniformity, tight dispersion, and core/clad concentricity control provided by this fibre is ideally suited for couplers used in OCT. Traditional applications benefit as well since the 1060-OCT fibre's extra high performance specifications provide increased reliability, and improved production yields reduce costs.

Nufern received an *Honorable Mention* last year. Nufern's Bryce Samson was interviewed at CLEO:2012 by Gail Overton in this **video** about their Holmium-doped fibre.

For technical specifications of both of these products, please **contact us**.

Lake Shore Power Supplies output current with precision resolution



Lake Shore offer a portfolio of power supplies for the laboratory. Ranging from small benchtop DC current sources - for providing stable currents in a number of applications, to rack-mounted power supplies for small to medium sized superconducting magnets, and heavy-duty rack and floor-standing units to power electromagnets.

- **Precision DC Benchtop Power Supply -**
 - **Model 121**
 - 7 decades of low-noise output current, selectable in 13 steps
 - Programmable current output, 100 nA to 100 mA
 - Current reversal feature
- **Superconducting Magnet Power Supply -**
 - **Model 625**
 - 60 A / 5 V, bipolar, true 4-quadrant output
 - 0.1 mA output setting resolution
 - Linear regulation minimises noise
- **Electromagnet Power Supplies -**
 - **Model 643**
 - Bipolar, linear, true 4-quadrant output
 - ± 70 A/ ± 35 V, 2.5 kW
 - 0.1 mA of programmed current resolution
 - **Model 648**
 - Bipolar, linear, 4-quadrant output
 - ± 135 A/ ± 75 V, 9.1 kW
 - 1 mA of programmed current resolution

For more information about **Lake Shore power supplies**, please **contact us**.

Interference-free thermometry? "Reflex™" is the answer from Neoptix™

Sensor immunity to electromagnetic interference and harsh environments makes the **Neoptix™ Reflex™** ideal in many manufacturing, power generation, and research applications where multi-channel temperature measurement is required.



With its 4-channel capability, the fibre optic system based on proven GaAs technology ensures several 'hot spots' can have their temperatures measured simultaneously. This allows for better information on industrial processes or scientific experiments.

Designed to meet both rugged industrial and delicate laboratory requirements, the technology is very advantageous when compared to traditional sensors. The fibre optic temperature sensors used are non-conductive and therefore inherently immune to interference.



The standard Reflex™ measures over a temperature range of -80 to 250 °C with a resolution of 0.1 °C. If you have an application that requires a lower starting point, or a higher end point, then do let us know as other calibrated temperature ranges can be supplied. A choice of outputs can supply signals to recording devices or other instruments if necessary.

For more about Reflex™ or other products from **Neoptix™**, please [contact us](#).

FTE-6000 Tuneable Handheld Laser Source (TLS) on offer from EXFO

EXFO is now offering the **FTE-6000 Hand Held Tuneable Laser Source (TLS)**. Available in C and L bands, this portable TLS is housed in a rugged splash proof casing with protective boot. The TLS displays in wavelength, frequency or ITU channel, and offers a fast start up with minimal warm up time. It provides very stable wavelength and power outputs.



- Available in C or L band, with interchangeable fibre optic connectors
- Up to 88 channels on the ITU grid
- Selectable:
 - Step Size down to 50 GHz
 - Start & Stop Channels
- Settable:
 - Wavelength or Frequency
 - Dwell Time

For more information about this TLS or other **EXFO** products, please [contact us](#).

New FEMTOOPTICS Catalogue released for 2013/4

FEMTOLASERS have listed their 2013/2014 optics inventory with the release of their new downloadable **FEMTOOPTICS catalogue**.



Standard optical components do not always have the capabilities of meeting the requirements of femtosecond laser users. In many cases broadband low-dispersion optical components are needed for manipulating the pulses, and accurate compression has to be employed in order to compensate for the dispersion of the optical and air path between the laser and the experimental target. FEMTOLASERS offer a considerable range of optimised components to accomplish this and more including:



- GDD-optimised optics for non-linear microscopy
- Octave-spanning, GDD-minimised dichroic filters
 - enabling the implementation of sub-7-fs pulses in nonlinear microscopy
- Components for the visible
 - 450-700 nm for use with sub-7 fs pulses
- Broadband dispersive mirrors
- Low dispersion beam-splitters

To discover how **FEMTOOPTICS** can enhance your project, please [contact us](#).

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Laser Safety: NoIR LaserShields® introduced by Elliot Scientific



Our existing **Honeywell Safety Products** catalogue, the new name for the Sperian range of Glendale laser protection spectacles and goggles, is now complemented by our introduction of the **NoIR LaserShields®** eyewear product range.

Both companies offer a comprehensive group of filters for protection against specific or combined laser wavelengths, a broad choice of frames to suit your face and pocket, and additional products for patient/client protection and pilots. All the products Elliot Scientific offers are CE-Certified (EN207/208).

NoIR has been manufacturing laser safety eyewear for multiple applications since 1996 following its creation by parent company NoIR Medical Technologies. Honeywell Safety Products is the new manufacturer of the long-established Glendale product range, for which a 2013-14 price list has been released detailing changes to the line-up the company now offers.

More details about NoIR LaserShields® filter groups, frame styles, datasheets, and CE Certificates, can be found within the **comprehensive product pages**.

Elliot Scientific recommends you consult your laser safety officer, appropriate laser safety standards, and/or laser system documentation to ensure correct choice of eyewear and safe laser use. As eyewear only offers protection against incidental exposure to specified beam energies, the incorrect choice and use of eyewear may lead to serious personal injury or blindness.

If you have a requirement for laser eye protection, do **contact us** for advice on choosing the right eyewear.

CO₂ cleaning system from OZ Optics shifts the dirt



The **OZPEN** is a versatile small surface area precision cleaning system for critical fibre optics and other components from **OZ Optics**. The device generates and propels an adjustable spray of clean dry air or nitrogen containing small CO₂ 'dry ice' particles to efficiently remove foreign matter from a surface.

Applications

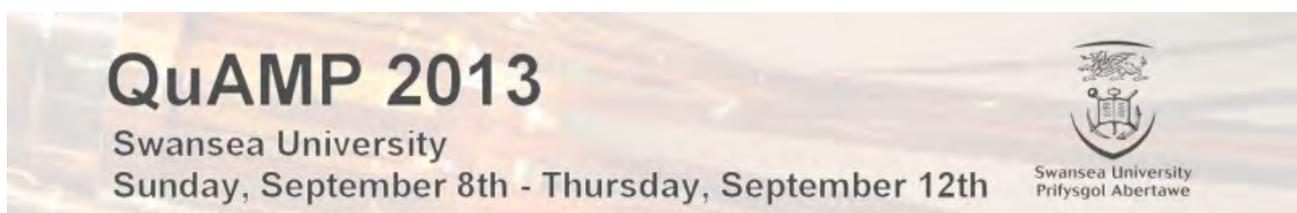
- Effective cleaning of high power fibre optic components
- Optical element cleaning, optical coating preparation/cleaning
- Electro-optic sensors and medical device cleaning
- Semiconductor and biomedical components surface cleaning

The OZPEN replaces or augments conventional solvent-aided wiping cleaning techniques which can spread, smear, shed, or redeposit trace residues and particles over critical surfaces.

Thin film organic contamination may also be removed by CO₂ composite snow cleaning. To remove organic species they must be soluble in liquid CO₂. Typical light oils are good candidates for CO₂ cleaning.

For more information, please **contact us**, or watch the **video demonstration**.

Next Month: Elliot Scientific visits QuAMP 2013 at Swansea University



FEMTOLASERS release updated datasheets



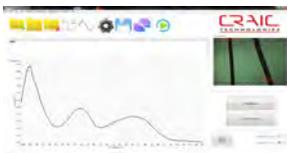
FEMTOLASERS Produktions has updated all the datasheets for their range of compact, ultrafast laser oscillator and amplifier solutions for generating high-power optical pulses down to 7 fs at MHz and kHz repetition rates.

Some of the datasheets can be downloaded below, or from the *Related Documents* menus that are found to the upper right of each product page in our **FEMTOLASERS** group.

- **FEMTOPOWER™ Lasers**
- **FEMTOSOURCE™ XL High Power/High Energy Lasers**
- **fusion™ Ti:S Laser**
- **INTEGRAL™ core**
- **INTEGRAL™ element**
- **RAINBOW™ Ultrafast Laser**
- **RAINBOW™ CEP4 Ultrafast Laser**
- **synergy™ Ti:S Lasers**

Alternatively, please **contact us** for more information.

64-bit Microspectrophotometer Software from CRAIC Technologies supports Windows 8



CRAIC has developed LambdaFire™, a 64-bit high performance package to control CRAIC microspectrophotometers situated on the manufacturing floor and in the R&D laboratory. Written specifically for Windows 8®, the software is designed to collect, analyse, and process both microspectra™ and images from CRAIC microspectrophotometers running the new OS.

LambdaFire™ is used to acquire high quality UV, colour, and NIR spectra and images of microscopic samples by absorbance, reflectance, and different types of luminescence and fluorescence.

The software also incorporates a number of sophisticated tools for analysing the data, touch screen control - a native Windows 8® feature, automation control, and much more. Additional modules may be incorporated to add such capabilities as small spot film thickness measurements and micro-colourimetry.

ImageUV™, the camera control and image analysis program, has also been revised for Windows 8®. For more information, please **contact us**.

Kinetic Systems' new mount stiffens at any hint of aggressive movement



Kinetic Systems has introduced a new concept in vibration isolation for applications involving a moving load – the **Vibrelevel DSM Dual Stiffness Isolation Mount**.

Providing the optimal combination of damping and vibration isolation, the Vibrelevel DSM virtually eliminates platform tilt by going into stiff mode when a load undergoes an aggressive move. This makes it ideal for applications involving both shifting loads and the need for pinpoint positioning, for example, large coordinate measuring machines, flat panel and wafer inspection systems in which a sensor moves rapidly to specific locations for measurements.

For more information on how a Vibrelevel can improve your application, please **contact us**.

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New Twelve Channel Temperature Monitor from Lake Shore

Lake Shore is now shipping its new **Model 224 Temperature Monitor**. The unit offers precision measurement in a wide range of cryogenic and higher-temperature applications with the ability to easily monitor up to 12 sensor channels.



The Model 224 provides better measurement performance in applications where researchers need to ensure accuracy and precision in their low cryogenic temperature monitoring. Used with Lake Shore's Cernox™ sensors, the Model 224 enables reliable and repeatable temperature measurement over a broad range and as low as 300 mK.

Cernox thin-film RTD sensors offer high sensitivity and low magnetic field-induced errors at cryogenic temperatures. The Model 224 has been optimised for use with these well-respected thermometers, and features many of the same advanced capabilities of Lake Shore Model 336 temperature controller, including its proven high-precision input circuitry.



Temperature sensors in a variety of types and packages, including the versatile Cernox™ line

The Model 224 also supports other NTC RTDs, PTC RTDs such as platinum sensors for cryogenic applications at liquid nitrogen temperatures, and diodes such as the Lake Shore DT-670 Series for accurate measurements in cryo-cooler and cryo-gas production applications from 1.4 K to above room temperature. In cryogenic applications, the monitor is an ideal addition to any university or commercial low-temperature research lab requiring measurement flexibility using multiple sensors and sensor types.

For more information about the new Model 224, please [contact us](#).

New Elliot Scientific Brochure for 2014

Elliot Scientific has launched a new publication for 2014. **Product Overview** is a full-colour 16-page brochure that details the extensive ranges Elliot Scientific designs and manufactures in-house, plus products and equipment from leading companies around the globe for use in a wide variety of fields and for a broad catalogue of applications. Key areas covered are:



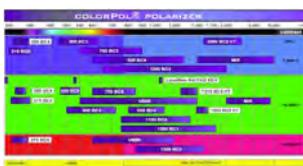
- **Lasers and Systems**
- **Optics and Fibre-optics**
- **Precision Positioning**
- **Microscopy and Biophotonics**
- **Spectroscopy**
- **Sensors and Instrumentation**
- **Materials Research**

Printed copies of the brochure are now available, so [contact us](#) to have one posted to you, or simply pick one up at any conference or exhibition we are attending. Our next two are **Photonex, Coventry** and **InterOpto, Yokohama** in October.

Alternatively, [download a PDF](#) version or read [online at Issuu](#).

colorPol® NIR Polariser for demanding applications

The **colorPol® NIR** is a range of polarisers from CODIXX for the near infrared range. Offering high transmittance across a broad bandwidth, along with high extinction ratios - **more than 40db (10,000:1) from 1.2 to 3 µm** - the silver nano-particle glass-based polariser is ideal in any application.



From matter analysis to thermography and more, the tough construction of colorPol® resists high temperatures, UV radiation, solvents, most acids and bases.

More detailed specifications can be found via our [CODIXX webpage](#), but do [contact us](#) for pricing, sizes and further options.

Embedded fibre pinpoints problems: Foresight™ DSTS can indicate a potential failure



OZ Optics has developed **Foresight™**, a sophisticated Distributed Strain and Temperature Sensor (DSTS) based on Brillouin scattering in an optical fibre.

- Live measurement of strain and temperature
- BOTDA and OTDR, and / or BOTDR
- Up to 100 km round-trip sensing range
- Multiple channel monitoring
- Real-time fault point detection
- High spatial strain and temperature resolution
- Uses standard telecom optical fibre



Foresight™ can measure subtle changes in both temperature and strain along the length of a fibre over time, or the rapid detection and location of a major disturbance within a second.

Foresight™ can monitor:

- Power lines
- Fire & Security
- Bridges, dams & buildings
- Oil & gas pipelines / wells
- Corrosion & Erosion
- Smart structures & structural health

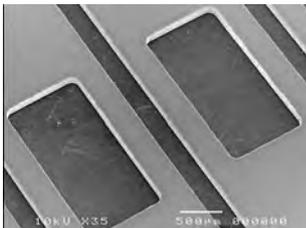
For more information about **Foresight™**, please **contact us**.

Alpha is a "genuinely capable" ultra-compact Laser Micromachining System



The **Alpha System by Oxford Lasers** is a genuinely capable micromachining system that fits onto a tabletop. The compact Class 1 laser enclosure has a footprint of only 80cm², yet contains many of the features that are usually only available in larger systems. The infrared and visible options facilitate R&D and preproduction machining of metals and ceramics, while an ultra-violet option enables micromachining of some polymers.

- Cutting, milling, drilling in a Class 1 laser safe table-top system
- Granite frame for long term stability
- Powerful, user friendly, Cimita software



Although Alpha is of a similar size to simple engraving systems, this capable laser micromachining system is suitable for R&D and small scale production of smaller parts (up to 200 mm in diameter). The Cimita machine control software brings vision, motion and laser control together into a single, simple user interface. Factory configured systems, using ideal combinations of scanner, stage and trepanning head, are designed for an individual application.

To discuss your process development, small-scale production or sample preparation micromachining requirement, **contact us** now.

Next Month: Elliot Scientific is at Photonex 2013 in Coventry - Stand B10



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Mad City Labs full range available exclusively through Elliot Scientific in UK and Ireland



Mad City Labs (Madison City, Wisconsin) is the leading US manufacturer of flexure based nanopositioning systems capable of sub-nanometre positioning resolution.

Elliot Scientific offers their nanopositioning equipment as single or multi-axis stages, rotation/tilt stages and focus mechanisms for numerous biophysics and lifescience applications. UHV versions are also available for nanotech researchers.

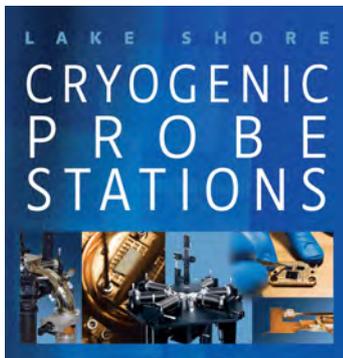
Systems from Mad City Labs combine long range motion with exceptional linearity, orthogonality, and stability with nanometre step-size and sub-nanometre resolution. These features provide innovative and practical control solutions for:

- Super resolution microscopy
- High speed confocal imaging
- AFM, NSOM and scanning probe microscopy
- Fibre positioning & high resolution optical alignment
- Single molecule spectroscopy & particle tracking
- SR optical microscopy
- Sub-diffraction limit microscopy, nanoscopy & lithography

The Mad City Labs range complements Elliot Scientific's portfolio of micro and nanopositioning systems, and makes us the logical choice of micropositioner supplier to the nanotech, biophysics and lifescience communities in academia and industry.

For more information about the micropositioning systems, focusing elements and other products from Mad City Labs, [download the catalogue here](#) or, [contact us now](#).

New hardcopy Probe Station Catalogue from Lake Shore



Lake Shore has released a new printed catalogue covering their expanded range of cryogenic micro-manipulated **Probe Stations** for testing the electronic and magneto-transport properties of chips, wafers, and packaged devices. The 10 systems covered feature variable temperature operation, from 1.6 K to 675 K depending on model, and can accommodate up 4" wafers with up to 6 probes, again depending on model chosen.

Probes are available for use with signals ranging from DC to 67 GHz, and a combination of both low and high frequency probes can be supplied with a single system. Additionally, these systems can be configured with horizontal or vertical field magnets, high-resolution microscopes, and CCD cameras for precision positioning of the probe tips on the wafer or device under test.

Full specifications can be found in the full range [downloadable catalogue](#) or, for a printed copy to be mailed to you, please [contact us](#).

OptoSci Laser Current & TEC Control Modules: Eurocard or OEM Options



The **OptoSci LDR** range of laser driver modules provide a versatile and user friendly platform for stable laser diode drive current and thermo-electric control (TEC) of laser diodes, SOAs, SLDs, 980 nm pump lasers and so on. The fully integrated digital Eurocard modules are designed for device characterisation, prototype development and experimental systems and offer easy device integration, full PC control and monitoring, or set & forget operation utilising the on-board EPROM.

A typical LDR module includes power supply, ZIF mount and heatsink for 14-pin butterfly package, USB interface and PC communications cable, and full V-DRIVE control software for easy operation straight out of the box. An OEM version is also available. Typical laser drive currents are from 250 mA to 1.5 A, and TEC currents are from 2.5 to 4 A, depending on model.

[Contact us](#) to find out how your laser diode set-up could benefit from an OptoSci LDR.

New Honeywell Safety Products Catalogue can be downloaded



Honeywell has released an updated version of the former Sperian/Glendale laser safety catalogue. Since 1968, this premium product range has been a worldwide leader in protective eyewear, patient eye shield products, and speciality filters wherever lasers are used. Chemists and optical engineers design every laser protective product to meet or exceed the most stringent US and European safety standards.

Honeywell LGT (Laser Glass Technology) is designed to withstand direct laser radiation for short durations. Absorbing glass, dielectrics and self-healing plastics are combined to maximise visibility and provide impact resistance – a first in the industry.

Honeywell Polymer styles are designed to maximise visibility yet provide unsurpassed attenuation by narrowing the absorption band to specific laser wavelengths. This results in light weight, comfortable designs.

Contact us to determine the optimum eyewear for your laser users and price options.

Product Overview 2014 now available in print



Elliot Scientific has launched a new publication for 2014. **Product Overview** is a full-colour 16-page brochure that details the extensive range of products Elliot Scientific designs and manufactures, plus systems and equipment from leading companies around the globe for use in a wide variety of fields and for a broad catalogue of applications.

Printed copies of the brochure are now available, so **contact us** to have one posted to you, or simply pick one up at any exhibition we are attending. Alternatively, **download a PDF** version or read **online at Issuu**.

Elliot Scientific in Coventry next week for newly enlarged Photonex 2013



Stand B10

Photonex 2013 also takes place next week and Elliot Scientific will be at this year's 30% larger event too. Visit us on stand **B10** to discuss how we can bring *solution science* to your application, and so you can experience our UK designed and built precision components and a variety of leading products from around the world first-hand.

Not to be missed are our **Elliot|Martock range** of stages and flexures, the piezo-driven nanopositioners of **Mad City Labs**, lasers from **IPG Photonics** and **FEMTOLASERS**, plus the Laser Driven Light Source from **Energetiq** and SLMs from **HOLOEYE Photonics**.



Elliot Scientific at InterOpto in Japan next week



Booth I-57

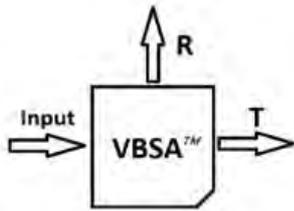
InterOpto is a major Far East photonics exhibition incorporating **BioOpto Japan** taking place in Yokohama next week. Elliot Scientific will be joining our Japanese distributor **Autex** in Booth **I-057** to demonstrate our **Flexure Stages**, **Miniature Slides** and a full working **Optical Tweezers System**.



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New Variable Ratio Beamsplitter / Attenuator from Spectral Optics



Spectral Optics has developed a completely new and innovative type of broadband Variable Beamsplitter / Attenuator (VBSA) for high power laser applications.

This unique VBSA offers the user continuous adjustment of the Reflection/Transmission (R/T) split ratio over a set bandwidth determined by the choice of beamsplitter material. These allow operation in and around the deep UV at 193 nm, the visible and near infrared, or the far infrared. Substrates currently available are:

- BK7
- Standard UV fused silica
- ArF-grade UV fused silica
- UV-grade CaF₂
- IR-grade CaF₂
- ZnSe

Both uncoated and coated versions are available for any laser wavelength and any polarisation.

- Continuous adjustment of R & T split ratio over very broad wavelength ranges
- Uncoated option for high power laser applications
- Transmission range 20 to 80% typically, or over 99% if coated
- Apertures up to 12.5 mm (½") as standard. 50 mm (2") on request

Contact us to find out how your optical application could benefit from a VBSA.

Elliot Scientific can also supply laser mirrors and waveplates on a next working day basis from our UK stock of Spectral Optics' products:

- Zero-order ¼ and ½ Waveplates - medium or high-power
- YAG Laser Mirrors in normal and 45° incidence for 355, 532 and 1064 nm



Low-cost, quick delivery Probe Station introduced by Lake Shore



The newly introduced **Lake Shore PS-100** is a pre-configured solution for customers needing a basic, low-cost cryogenic probe station. This packaged system consists of a TTPX probe station set up for four-point triaxial probing, ideal for sensitive, high-impedance DC measurements.

The PS-100 is intended to offer a straightforward cryogenic probing solution without the complexity of choosing from multiple configuration options. The four arm triaxial scheme is the most commonly requested probe station configuration and serves many different applications.

By pre-configuring these units, Lake Shore can take advantage of operational efficiency in manufacturing to offer a very competitive price and a lead time of just 3-4 weeks.

The PS-100 has the same performance specifications as the existing TTPX and can be upgraded with standard TTPX options in the field.

A **PS-100 information sheet** is available, or visit our **Lake Shore Probe Stations** page on the Elliot Scientific website. Alternatively, **contact us for more information**.

New 508 PV from CRAIC Technologies adds advanced microspectroscopy to legacy microscopes



The new **508 PV™ UV-visible-NIR spectrophotometer**, from **CRAIC Technologies** is designed to be added to an open photoport of a microscope or probe station for non-destructive analysis of the spectra of many types of microscopic samples.

The 508 PV™ features the cutting edge Lightblades™ spectrophotometers from CRAIC Technologies. These can acquire spectra of microscopic sample areas by absorbance, reflectance, polarisation, luminescence and fluorescence, in addition to high-resolution colour images, when attached to properly configured microscopes via the proprietary optical interface.

Applications:

- MEMS devices & Optical Thin Film Thickness
- Material Characterisation & Process Contamination Analysis
- FPD Colour Masks, OLEDs & LEDs
- Mineralogy & Vitrinite Coal Reflectometry
- Photoreceptors, Semiconductors & Surface Plasmon Resonance

Contact us to find out how the 508 PV™ is an effective means to upgrade a microscope to the latest hardware and software microspectrophotometer.

mechOnics celebrates 10 years of piezo-driven micropositioning



mechOnics have just celebrated their 10th anniversary supplying specialist micropositioning systems based on an extensive range of precision positioning stages built around piezo inertial drives.

Their direct drive of the linear axis by a slip/stick rod mechanism ensures zero backlash or rotation. Linear speeds of up to 2 mm/s are possible with this arrangement, along with travels of between 2 and 30 mm. Position Sensors can be fitted for closed loop operation and there is a choice of motor controllers.

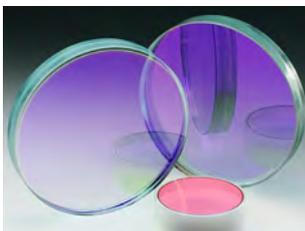
- Piezo driven step motor with low hysteresis
- Holds position without power
- High pushing or blocking force
- No limit switches necessary
- Custom, vacuum, and cryo options



Linear stages are offered in X, XY and XYZ configurations together with vacuum compatible options and ultra low temperature versions. Another system, that allows up to 6 degrees of tilt, is also in the range of products mechOnics offer.

The **current PDF catalogue** is online, or **contact us** for further information.

Broad choice from Lambda Research Optics



Lambda Research Optics offer a broad range of high quality general and laser optics through Elliot Scientific. Designed for use in the UV, Vis and IR bands, their standard catalogue offers over 300 pages of optics ready for fast delivery. A custom service for speciality optics is also available.

UV Optics: 193 - 400 nm

- Excimer laser mirrors
- UV coatings
- UV gas laser mirrors
- Nd:YAG / YLF harmonic mirrors
- Etalons
- Polarisation optics
- UV Lenses
- UV Filters

Visible Optics: 400 - 700 nm

- Laser mirrors
- Mirror blanks
- Beamsplitters
- Polarisers
- Waveplates
- Prisms
- Beam expanders
- Interference & ND filters

Near IR Optics: 0.7 - 3 µm

- Ultrafast mirrors
- Nd:YAG / YLF laser mirrors
- Tm:YAG, Ho:YAG & Er:YAG
- Broadband mirrors
- Beamsplitters
- Waveplates
- Lenses

IR Optics: 3 - 20 µm

- Coatings
- Mirrors
- Windows
- Beamsplitters
- Polarisers
- Lenses
- CO₂ laser lens mounts

Contact us now for a catalogue or quote.

Elliot Scientific's...



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New Green Diode Lasers for Microscopy



Applications

- Confocal microscopy
- Flow cytometry
- Fluorescence excitation
- Particle analysis
- Metrology

Micro Laser Systems (μ LS) has introduced a high stability green diode for more demanding applications such as: confocal microscopy, flow cytometry, fluorescence excitation, particle analysis, direct laser writing and metrology.

The green **Lepton IV OEM laser** is designed to give a diffraction limited, circular output with low beam divergence. It is a very affordable alternative to gas or diode pumped lasers, operates at lower power and is available in a more compact package.

The low wavefront error allows for generation of micron to submicron spot sizes. When expanding, the beam has excellent beam characteristics over the whole aperture making it ideal for illumination. Optics are chosen to minimize or eliminate any fluorescence generated at these wavelengths to keep from interfering with your system.

The laser can operate CW or pulsed and can run in constant current or constant power modes. Temperature control increases lifetime and stability.

Output power is up to 40 mW at 520 nm with 4 mm and 2 mm circular beam options available as standard.

For more information on this model, other wavelengths available in this series, or the extensive μ LS range of collimators, free-space, and fibre-coupled lasers, then do **contact us now**.

Polarising Optics, Waveplates, and more from OptiSource



A strong emphasis on polarising optics ensures that **OptiSource** is an excellent choice for waveplates, polarisers and rotators. Zero-order waveplates are available as an optically contacted, air-spaced, or glued assembly with ring mounting option. Low-order waveplates are also available, as an alternative to multiple order waveplates, when higher retardation stability is required.

- Crystal quartz rotators (45° or 90°) for standard wavelengths
- Calcite polarisers up to 20 mm dia. are available in the following configurations:
 - Glan Thompson
 - Glan Laser
 - Glan Taylor
 - Wollaston
 - Rochon
- Beamsplitter cubes up to 50.8 mm for 248 to 1550 nm
- Laser mirrors

OptiSource also offer an extensive range of high energy laser mirrors, beamsplitters, partial reflectors, AR and BBAR coated windows. Download the **full catalogue here**, or **contact us** for prices and availability.

Rugged diode-pumped fibre amplifiers and lasers from IPG Photonics



IPG Photonics offers reliable diode-pumped amplifiers and lasers using Ytterbium, Erbium, or Thulium doped optical fibres as gain media. All are compact, air-cooled and use direct diode pumping for optimum efficiency.

IPG designed and manufactured, these commercial/non-telecommunications lasers are used in a broad range of OEM and lab applications such as optical tweezers and trapping, graphics and imaging, marking and materials processing, remote sensing and research, medical and defence.

Elliot Scientific can supply continuous wave (CW), linearly and randomly polarised, standard linewidth or single frequency diode-pumped solid-state fibre lasers, as well as diode-pumped fibre amplifiers, with up to 20 W output power.

IPG's advanced fibre devices are a quantum leap forward, providing the best in diode-pumped solid-state reliability and performance. To determine the ideal fibre laser for your application, please **contact us**.



Sensitive magnetometry for physics and the biological sciences from Tristan Technologies



Tristan Technologies delivers world-leading SQUID sensors through their superior performance iMAG range. Magnetic sensing applications, such as materials analysis and biomagnetism, can benefit from Tristan's sensors, instrumentation and electronics.

The iMAG series of SQUID components includes microprocessor-based multichannel control electronics and advanced fibre optic linked flux-locked loop circuits. Tristan manufactures complete SQUID systems based on either low-temperature or high-temperature technology. For in-depth information, **contact us** now.

Winter Holidays

Elliot Scientific will be closed for the winter holidays from end of business on:

- **Tuesday, December 24th. 2013**

We re-open at 08:30 GMT on:

- **Thursday, January 2nd. 2014**



Image courtesy of
Stephanie Mounaud
(J. Craig Venter Institute)

*Season's Greetings and
Best Wishes for the coming New Year*

Elliot Scientific's...



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