



2012  
Newsletters

**Elliot Scientific**

## 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.

### Elliot Scientific Limited

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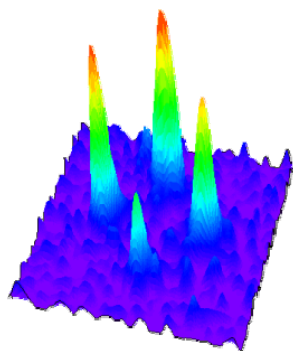
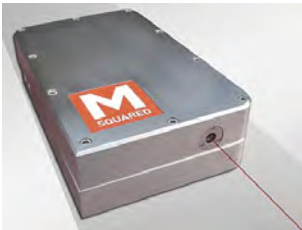
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## New Products just released...

### M Squared Lasers: Sprite-e maximizes performance and productivity



**Picosecond pulses in the important 900 to 1100 nm wavelength region** are now on offer from **M Squared Laser's Sprite-e™**, the world's first commercially available modelocked semiconductor disk laser.

With a novel, direct-diode-pumped semiconductor disk gain medium, Sprite-e offers high average power and superb beam quality while removing the need for a DPSS pump laser that is traditionally associated with high power ultrafast laser systems.

**Sprite-e** features reliable self-starting picosecond operation, offering hands-free, alignment- and maintenance-free operation, allowing you to focus on your experiment rather than laser alignment.

With a unique blend of design touches you won't find anywhere else, Sprite-e features a rugged, sealed, monolithic housing; cavity optics mounted on an Invar® resonator sub-plate for superb stability; and proprietary InvarianT™ alignment-free opto-mechanical mounts.

Sprite-e is ideally suited to a host of ultrafast laser applications, including:

- Optical metrology
- Nonlinear optics
- Pump-probe experiments
- Multi-Photon Excitation (MPE) or CARS microscopy
- Electro-optic sampling

For more information on this and other lasers from **M Squared**, please **contact us**.

### FEMTOLASERS: INTEGRAL Range Expanded and New Modules Introduced

In the week before Photonics West **FEMTOLASERS** announced a number of new products:



- **INTEGRAL™ core™** - The world's most compact Ti:Sapphire ultrafast laser
- **INTEGRAL™ element™** - A hands-free ultrafast laser
- **MOSAIC™ OS** - an octave spanning GDD Module
- **XS™** - a new Short Pulse Module

We hope to have more information on these later and will immediately post it to our **Blog** and **News Page** once received.

Alternatively, **contact us** with your interest and we will email you the details as soon as we have them.

### CRAIC Technologies: Time Resolved Spectral Analysis



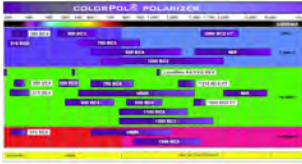
**Kinetic Spectroscopy** has been added to the extensive capabilities of the CRAIC Technologies 20/20 Perfect Vision™ UV-visible-NIR microspectrophotometer.

This new package allows the system to monitor the full range spectra of a microscopic sample area over time and plot the results as a 3D map. Analysis of samples can be done by absorbance, reflectance and even optical emission from deep UV to the NIR spectral regions.

Applications for this time resolved analysis system include LED degradation, chemical reactions, biological processes and more, making the 20/20™ microspectrophotometer more than just a scientific instrument... it is a solution to your analytical challenges.

For further details on this and other **CRAIC Microspectrophotometer products**, please **contact us**.

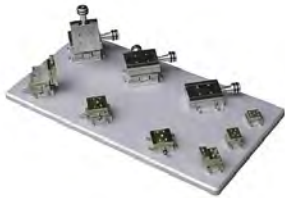
## CODIXX: colorPol® NIR Polarizer for demanding applications



The **colorPol® NIR** is a new polariser for the near infrared range from CODIXX. 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 on our [website](#), but do **contact us** for pricing, standard product dimensions, and custom sizes and options.

## Photonics West Preview



The "most important event for the photonics and laser industry" starts this weekend at The Moscone Center in San Francisco. **Photonics West** kicks off with conferences and a dedicated biomedical optics and biophotonics exhibition on Saturday then on Tuesday, January 24th, the main exhibition opens with **Elliot Scientific in Booth 4616**. Among the products we will be showing at Photonics West are:

Our **high-resolution (< 0.5 µm) precision miniature slides** have been popular with OEMs for many years and the full portfolio, with travels of 3, 5 and 10 mm, will be demonstrated at Photonics West.



Available in Small, Very Small and Ultra Small models, these market-leading positioners offer single, dual and three axis configurations with a variety of adjustment options. A number of accessories complement each range to further enhance their flexibility of use.

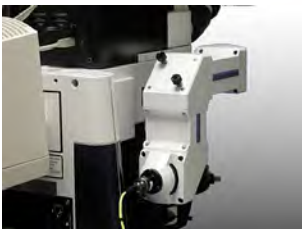
Our **Gold Series Flexure Stages** are some of the **best performing and best value** high resolution XYZ positioners on the market featuring:

- 20 nm resolution
- 2 mm travel per axis
- Excellent long term stability

Manufactured by us in the UK, the stages are highly configurable for use within a multitude of applications - from fiber launch and optical device alignment, through to the manipulation of biological structures in lifescience.



Elliot Scientific regularly builds alignment systems based around manual or **DALi 2** controlled **piezo-driven Elliot Gold Series Flexure Stages**. The rigs offer unprecedented stability and flexibility in multiple axes with positioning accuracies down to 10 nm on some models.



If you have an application that needs a custom solution, then please discuss your requirements with our Sales Team at Photonics West or **contact us**.

Elliot Scientific will be showing an 'optical tweezer arm' to demonstrate how an existing quality **microscope can be easily upgraded into a sophisticated laser trapping system**.

Our team are also able offer complete **turnkey units** that include a simple microscope for educational use, as well as research grade systems based on a microscope from one of the leading vendors - for example: Leica, Nikon, Olympus or Zeiss.

For advice on choosing the best options for your tweezing application, please **contact us now**.

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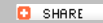
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## New Optical Tweezer Brochure



A fully revised, expanded, and updated Elliot Scientific Optical Tweezer brochure has been published. This new catalogue covers **all** the Optical Tweezer equipment and systems for laser trapping Elliot Scientific offers. It includes details on:

- Component-based "open architecture" optical tweezers
- Self-contained portable, desktop single beam optical tweezer workstations
- Single spot optical tweezer for integration with commercial microscopes
- Multiple spot optical tweezer under full computer control integrated with commercial microscopes
- Force Measurement accessory for single trap stiffness using a Quadrant Photodetector (QPD)
- Force Measurement accessory for multiple trap stiffness, multiple particle tracking using Camera Particle Tracking (CPT)

The brochure will be available at all of the **events** Elliot Scientific will be attending in 2012. Alternatively, you can **contact us** for a printed copy, **download the PDF** version or read it online via our **Issuu** channel.

## Holmium-doped fibre now in stock at Nufern

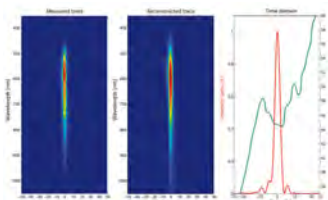


**Nufern** have introduced two Holmium doped fibres, increasing the operational wavelength of their standard range of active fibres to 2150 nm. The result of years of research and development, the fibres feature a double-clad design and the recently developed NuCOAT™ coating technology, which affords greater durability and longer life.

The eye-safe Ho-doped standard fibres available through Elliot Scientific come in two geometrical configurations - a 25 µm core diameter with a 250 µm clad diameter, and a 40 µm core diameter with a 400 µm clad diameter. These fibres achieve 60% efficiency when resonantly pumped with a Thulium fibre laser. The optimal operating wavelength range for Ho-doped fibre is between 2000 and 2150 nm, making them an ideal choice for a variety of medical lasers as well as power scaling for a host of military laser applications such as LIDAR.

For more information about these fibres and others we offer from Nufern, please **contact us**.

## MOSAIC™ OS GDD Module supports pulse durations below 4 fs



The new **MOSAIC™ OS** octave spanning dispersion management module from **FEMTOLASERS** employs pre-aligned dispersive mirrors to exhibit high reflectance over 600 nm of bandwidth - from 400 nm to 1000 nm - and controlled group delay dispersion over more than one optical octave - between 450 nm and 960 nm - to offer pulse durations below 4 fs.

The dispersion of the compressor is matched to the typical chirp of pulses generated from noble-gas-filled hollow fibres seeded with sub-30 fs, mJ-level pulses.

Shown left is a measured FROG trace, a reconstructed FROG trace and the retrieved temporal intensity and phase of 3.6 fs pulses compressed with MOSAIC™ OS from data obtained by Dr. A. Cavalleri at the University of Hamburg. MOSAIC™ OS is the octave spanning upgrade for the FEMTOLASERS' **KALEIDOSCOPE™** hollow fibre compressor.

For more information on this and **FEMTOLASERS'** other products, please **contact us**.



## MadPLL® and Nano-Cyte™LC from Mad City Labs



**Mad City Labs** recently introduced two new systems - MadPLL® and Nano-Cyte™LC - that are now available through Elliot Scientific.

**MadPLL®** is a powerful instrument package that allows a user to create an inexpensive, high resolution resonant scanning probe microscope from Mad City Labs nanopositioning systems. In short, MadPLL® can be used to create an 'instant' closed loop AFM or NSOM at a fraction of the cost of commercial systems. MadPLL® is suitable for nanoscale characterisation and nanoscale fabrication applications such as optical antennas, nano-optics, semiconductors, data storage, and more.

**Nano-Cyte™LC** is an image based, platform independent stabilisation system that changes the nature of live cell imaging. Suddenly, temperature gradients, sample and microscope drift are things of the past as the Nano-Cyte™LC system delivers unprecedented stability in the nanometer regime allowing long term imaging experiments like none before.

For more information on these and other Mad City Labs' products, please **contact us**.

## Lake Shore now offer 3 year warranty



**Lake Shore Cryotronics** has introduced a new three-year warranty for its entire portfolio of probe stations, systems, instruments, and sensors ordered from 2012 onwards. The new warranty guarantees that Lake Shore products will be free from defects in materials and workmanship for three years from shipment of the product although some **exclusions apply**.

Lake Shore's goal in tripling its standard warranty period is to help customers preserve the investment they make when selecting the company's equipment. This new warranty reinforces Lake Shore's belief in its products, which feature superior and reliable designs combined with documented and verifiable specifications.

**Contact us** for more details.

## Elliot Scientific now on LinkedIn



Elliot Scientific has joined over 150 million professionals around the globe on the business social networking site **LinkedIn**.

We currently have over 600 connections to colleagues, clients, academics and students, and are members of several groups and networks involved in optics, lasers, cryogenics and magnetics.

If you are an existing LinkedIn member you may have already received a request to join us. However, if you are not and wish to join up and connect with us on this free network then simply **send us an email** and we'll send you an invitation.

## Links & Downloads



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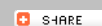
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## New Cryogen-free Probe Stations from Lake Shore

**Lake Shore** have announced the launch of two new probe stations, adding to their range of versatile cryogen-free models. The **Model CRX-VF** is a micro manipulated probe station used for non-destructive testing of devices on full and partial wafers up to 51 mm (2") in diameter. It has been designed for the measurement of electrical, electro-optical, parametric, high Z, DC, RF, and microwave properties of materials and test devices such as nanoscale electronics, quantum wires and dots, semiconductors, and spintronic devices. The sister **Model CRX-EM-HF** is an electromagnet-based micro manipulated probe station for full and partial wafers up to 25 mm (1") in diameter. Both machines now come with Lake Shore's **new 3-year warranty**.



### CRX-VF features:

- 2.25 T vertical field superconducting magnet (field dependent on temperature)
- Cryogen-free operation from 10 K to 500 K
- Control stability to 10 mK
- Up to six probe arms
- Up to 51 mm (2 in) diameter wafers
- Sample exchange cycle time of <8.5 h
- Low vibration design: <1  $\mu\text{m}$  at sample stage (X, Y, and Z axes)



### CRX-EM-HF features:

- 0.6 T horizontal (in-plane) field electromagnet
- Cryogen-free operation from 8 K to 400 K
- Control stability to 10 mK
- Up to four probe arms
- Up to 25 mm (1 in) diameter wafers
- Sample exchange cycle time of <4.5 h
- Low vibration design: <1  $\mu\text{m}$  at sample stage (X, Y, and Z axes)
- 360° sample stage rotation option

For more information and pricing on these and other probe stations in the Lake Shore range, please **contact us**.

## MEMS Optical Switches released for EXFO IQS-600

**EXFO** has added **IQS-9100B MEMS Optical Switch** test modules to its **IQS-600** platform, the only modular system providing optical, transport and datacom testing in a single environment. The IQS-9100B switch modules provide highly accurate and repeatable fibre-to-fibre switching for singlemode 1 x N configurations up to 1 x 32.

### Key Features

- Available for single mode fibre in 1xN configuration up to 32 ports
- Switching time faster than 30 msec
- Life expectancy of  $10^9$  cycles
- Insertion loss between 0.9 and 2.0 dB
- -50 dB back reflection

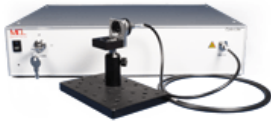
The MEMS-Based Design of the EXFO IQS-9100B delivers durable performance in a compact package. Fast switching time and a 1-billion-cycle lifetime expectancy make it the perfect optical switch for demanding manufacturing applications.

**The IQS-600 Platform** provides a flexible approach to optical, transport and datacom test and measurement for manufacturing, automation, optical qualification and R&D. It combines powerful features and control capabilities for up to 100 different modules. The IQS-9100B can easily be controlled remotely via the standard LAN or optional GPIB interfaces available on the IQS-600 using SCPI commands, LabVIEW drivers or any other automation software

For more information about the IQS series of test equipment and others from EXFO, please **contact us**.



## Cyto-Lite™: Multi-Wavelength Laser Engine for the Life Sciences



**Cyto-Lite™** is an exciting new laser illumination source for life science and other researchers that outputs three colours through a single fibre. The key wavelengths are:

- 405, 532 and 640 nm

The characteristics of each laser line can be controlled independently via the Cyto-Lite™ software's streamlined user interface, making it a very flexible instrument for use in bioscience facilities and academic research laboratories.

For more information on this and other **Mad City Labs'** products, please **contact us**.

## DVI Splitter Offers Multi-display Capability with HOLOEYE Pluto Boards

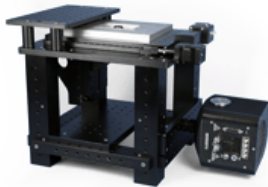


For applications that require up to 3 displays, HOLOEYE now offer their own DVI video channel splitter. The box can runs several Pluto devices via a single DVI graphics card output, and you can also run a phase and an amplitude display simultaneously.

The splitter divides an RGB input signal into three separate colour channels and also provides the HSYNC and VSYNC synchronizing pulses. Any PC graphics program that allows the editing of individual RGB colour channels can be used. Simply paste a grayscale image of your desired function into the appropriate colour channel, then send it to the SLMs via the DVI splitter. The electronics will split the combined RGB signal, sending each SLM the appropriate image as defined.

For more information on this and **HOLOEYE's** other products, please **contact us**.

## RM21™ Platform Offers Precision Framework for Custom Microscopy



The **RM21™**, from **Mad City Labs**, is a precision microscope platform designed for maximum user accessibility. Its three dimensional space makes it the perfect framework for constructing custom microscopy instruments that require a flexible configuration. As all posts and fixturing points are referenced to a known datum, the microscopy and optical components used in the experiment are easily aligned.

Advanced applications, such as super resolution (SR) microscopy, fluorescence microscopy and TIRF, will all benefit from the RM21's thoughtful design and robust construction. From now on, microscopy projects can leave the flat optical table for a 3D future.

**Contact us** for more details about the RM21 and Elliot Scientific's **Lab Essentials** range of optical fixtures and fittings.

## Events in April



23rd-24th April: Heriot Watt University



26th April 2012 · Imperial College

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## LDLS on Tour

Our **Energetiq EQ-99FC** has been touring labs in the UK and Ireland, demonstrating its revolutionary single-light source technology called LDLS™. The Laser-Driven Light Source enables extreme high brightness over a broad spectral range, from 170 nm through to visible and beyond, combined with lifetimes an order of magnitude longer than traditional lamps.



Such is the popularity of the demo system that a waiting list has formed, but you can still see the EQ-99 if you are visiting any of the following **events** Elliot Scientific is attending, or you can **view a short video** on our Energetiq page.

### April

- SU2P Symposium - Heriot Watt University
- Photonex London - Imperial College

### July

- BBS 2012 - Durham University

### September

- Photon12 - Durham University
- European Microscopy Congress - Manchester
- EOSAM - Aberdeen University

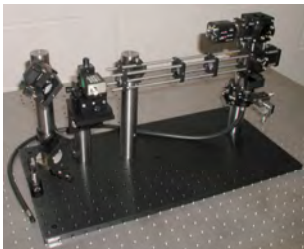
### October

- Photonex - Coventry

Need more info? [Contact us now](#)

## Optical Tweezer Kits offer economical entry for laser trapping researchers

**Optical Tweezers** have been supplied by Elliot Scientific to a number of Universities around the world that have asked us to build kit-style systems for their MSc Lab experiments. This format allows for economical purchase and installation of a complete optical tweezer system rather than technicians having to specify and build such an experiment.



We offer a number of different breadboard-based custom systems that can be configured using an open architecture format for the advanced researcher in a laboratory environment. Ready assembled or in modular form, we cater for the many variations needed by users of optical trapping equipment. Systems built for lab experiments include:

- Inverted Optical Tweezers
- Dual Beam Optical Tweezers
- Bessel Beam Optical Tweezers
- Quadrant Photo Detector (QPD) Optical Tweezers
- Inverted Raman Optical Tweezers
- Twin Spot AO Systems

Join our Group on



Elliot Scientific is also encouraging tweezer users to benefit from a new group on professional networking site **LinkedIn**. Even if you are not connected with us, you can still **join the Tweezer Group**.

**Contact us** for more information, or **download our latest tweezer brochure**.

## Next week...

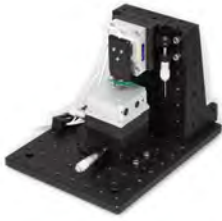


23rd-24th April: Heriot Watt University



26th April 2012 · Imperial College

## Mad City Labs introduces Scanning Resonant Probe Microscope Kit



**SPM-M** is a new 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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## BPF Series of Terahertz & IR Band Pass Filters introduced by Lake Shore Cryotronics

**Lake Shore's** BPF series filters are perfect for:

- THz and FTIR spectroscopy
- THz and FTIR materials characterisation
- THz device characterisation and testing
- THz and millimeter wave imaging/security applications
- Ground and airborne astronomy and astrophysics



The filters block unwanted energy, reducing noise and enhancing signal detection in advanced electro-optical systems. They can also serve as excellent calibration references by providing known frequency and amplitude profiles. The filters are specifically designed for use in cryostats and for work in close proximity to ultra-sensitive cooled detectors.

The filters come with a standard 3-year warranty, and Lake Shore assures filter performance even at the extremes with documented and verifiable product specifications and design validation results.

For more information, please [contact us](#).

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	<b>WE'RE EXHIBITING AT CLEO:2012!</b> Technical Conference: 6-11 May 2012 Exposition: 8-10 May 2012 San Jose Convention Center, San Jose, CA, USA
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See us at CLEO: May 8th - 10th: Booth 2134

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## FEMTOLASERS Expands Ranges - Releases CEP4 and New Datasheets



**FEMTOLASERS** have announced the latest generation in their Carrier Envelope Phase program. CEP4 is now available on the new **Rainbow** Oscillator.

Offering a direct feed-forward approach, the CEP drift is corrected on-the-fly after the free-running, passively stable FEMTOSOURCE™ rainbow™ ultrafast oscillator. Zero phase slip, i.e., a train of pulses with identical waveform, is now as easy to obtain as any other slip rate. Unprecedented performance and reliability, both short- and long-term, are ensured by the CEP4 stabilisation operation.

The **fusion™** range, now with the largest variety of models on the market, can meet any ultrafast application: average powers ranging from 150 mW to 1.2 W and pulse durations of sub-9 fs yield peak powers of over 1 MW. Low cost of ownership is guaranteed by outstanding efficiency. State-of-the-art laser parameters are offered at lower pump power levels when compared to all its counterparts.

Datasheets for all laser products and accessories have been revised for 2012 and are now available for download on our website.

For information on these and other systems, visit our **FEMTOLASERS product pages** or contact our **Laser Sales Team** now.

## New Collimator Family from Micro Laser Systems



**Micro Laser Systems'** collimators are designed specifically for single-mode fibre, polarisation maintaining fibre and fibre laser applications that can generate a pure Gaussian beam. Aperture sizes from 5 to 45 mm are available with a very clean output and no diffraction patterns or beam distortions.

The output is adjustable for tuning the desired wavelength to the best collimation, and stays Gaussian no matter the distance. Three wavelength regions cover from 375 to 2000 nm.

**Micro Laser collimators** have an FC or FC/APC receptacle input and can be used with diode lasers, Ar, YAG, Ti-Sapphire, HeNe, DPSS, Fibre Lasers and many others. In fact the FC Series of collimators can be used with any commercially available fibre coupled diode laser.

**Contact us now** for model details, availability, and pricing.

## mechOnics introduces the Nova Bus-controlled Miniature Stage Series



**mechOnics** has developed a new family of mechatronic systems (controllers and positioning devices) which are connected via a CAN-based bus. The bus delivers both the electrical power and the data for controlling the devices.

The newly released Nova NDS40, with 11 mm travel, and the NDS70, with 15 mm travel, have integrated electronics so that they can be directly controlled by the NOVA-Bus System. Even the existing product line will benefit as standard mechOnics' positioning devices can be integrated with NOVA-System mechatronics via a special NDEM3 adaptor.

For catalogue and pricing information, please **contact us**.

## Capacitance Testing Bridges the Standards



**Andeen-Hagerling** manufacture the world's most accurate capacitance bridges and standards and their AH 2700A model offers unparalleled stability, resolution, linearity and accuracy in a multi-frequency capacitance/loss bridge.

The numerous state-of-the-art features of the AH2700A make it an exceptionally user-friendly instrument, with unmatched precision that enables it to open up new applications in calibration, manufacturing and scientific research.

The AH2700A is the culmination of over 40 years of Andeen-Hagerling experience in bridge design and manufacture. The unique ratio transformer and the temperature-controlled, fused-silica capacitance standard make the instrument a true bridge for measuring highly accurate capacitance/loss figures which are independent of the exact test frequency (50 Hz – 20 kHz) and immune to mechanical shock.

For more information on this and the other Andeen-Hagerling instruments we offer, please **contact us**.

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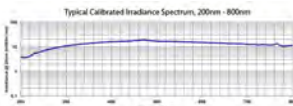
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## Energetiq® EQ-99CAL CALIBRATED Laser-Driven Light Source Launched



**Energetiq Technology, Inc.**, has introduced a new calibrated light source to its established line of LDLS™ Laser-Driven Light Sources for use in radiometric calibration. The EQ-99CAL is a calibration light source that covers the complete UV to Visible spectral range with high brightness and stable output levels across that spectrum.

Traditionally, radiometric calibrations have been made using more than one light source, e.g., Deuterium/Tungsten-Halogen, since prior to the introduction of the Energetiq EQ-99CAL no one source could cover from 200 – 800 nm. Additionally, traditional sources need to be recalibrated often and lamp bulbs replaced after only 500 hours of use. The EQ-99CAL has a long interval between calibrations (1,000 hours or one year) and a long bulb life of more than 5,000 hours, resulting in a lower cost of ownership.

The EQ-99CAL has a very strong irradiance in the critical 350 nm range, where in typical systems two separately calibrated Deuterium (D2) and Quartz Tungsten Halogen sources would experience overlap and add uncertainty to the measurement. At 350 nm, an EQ-99CAL exhibits irradiance an order of magnitude higher than these traditionally calibrated D2 and Quartz Tungsten Halogen lamps.

The calibration of the EQ-99CAL is traceable to the National Physical Laboratory (NPL) in the UK, and a certificate of calibration is included with each unit.

For more information, visit our [Energetiq product page](#) or [contact us](#).

## Nuferr's Holmium Fibre Delivers at 2 Microns



**Nuferr's** award-winning Holmium doped active fibres now push the operational wavelength of their standard range out to 2150 nm as the result of years of research and development. The eye-safe Ho-doped standard fibres come in two geometrical configurations - a 25 µm core diameter with a 250 µm clad diameter, and a 40 µm core diameter with a 400 µm clad diameter.

The fibres achieve 60% efficiency when resonantly pumped with a Thulium fibre laser at their optimal operating wavelength range of between 2000 and 2150 nm. This makes them an ideal choice for a variety of medical lasers as well as power scaling for a host of military laser applications such as LIDAR. The fibres feature a double-clad design and the recently developed NuCOAT™ coating technology that affords greater durability and a longer service life.

For more information about this new and exciting fibre, [watch this video](#) or [contact us](#).

## For Portable Thermometry, Nomad Leads The Way



Offering a 500 °C measuring range with ±0.5 °C accuracy - from -200 to +300 °C (or °F equivalent) – the **Neoptix Nomad™** Fibre Optic Portable Thermometer offers impressive versatility. Easily seen readings on the large backlit LCD display are complemented by an icon-based menu system that gives access to all functions. Datalogging sessions can also be viewed directly on the display, while the single button SnapLog feature allows recording of a temperature measurement with a time and date stamp. Key features include:

- -200 to +300 °C with ±0.5 °C accuracy
- SD card datalogging plus RS-232 connectivity
- Calibration free

For more information about this and other [Neoptix products](#), please [contact us](#).

## iGuide Fibres cover the UV to Mid-IR Waveband



**IRphotonics** offers the iGuide™ range of advanced infrared fibre optics designed for use in industrial, medical, telecom, defence and aerospace applications. Based on a ground-breaking process allowing the production of infrared fibre with exceptional properties in the 300 to 5500 nm optical window, iGuide™ can also transmit light from UV to the mid-infrared allowing for a wide range of multi-spectral applications.

- Single- & Multi-mode Infrared Fibres
- Doped & Indium Fluoride Mid-IR Fibres
- High Power Mid-IR Fibres

For detailed specifications and pricing, please [contact us](#).

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## Lake Shore 350 Ultra-low Cryogenic Temperature Controller Arrives in UK



**Lake Shore** announced their new **Model 350** ultra-low cryogenic temperature controller back in February, but now the physics community here has started receiving their pre-release orders as the first models arrive from Westerville. The Model 350 is designed for the demands of pumped He-3 refrigerators, adiabatic demagnetization refrigerators (ADRs) and a number of other dilution refrigerators, providing excellent measurement performance, superior control accuracy, and convenient operation for a wide range of advanced research applications.

This new controller offers extraordinary capability and flexibility, often eliminating the need for additional instrumentation in a refrigeration control system. Its four input channels and four independent control outputs are configurable to support a broad range of I/O requirements, including the heaters and auxiliary devices typical of ULT refrigeration systems, as well as other cryogenic sensor types like ruthenium oxide and platinum RTDs.

For more information about the Model 350 and related products, please visit our [Lake Shore pages](#) or [contact us](#).

## M Squared Firefly-IR Laser Has Enhanced Mid- and Near-Infrared Capabilities

The **Firefly-IR**, from M Squared Lasers, is an innovative, widely tuneable, hands-free, mid- and near-infrared laser source that now brings enhanced capabilities to a host of molecular spectroscopy, remote sensing and imaging applications following a recent improvement in its specifications.



Firefly-IR features:

- High pulse energy and peak power -
  - Greater detection sensitivity & stand-off distances
  - Enhances signal to noise ratio
- High repetition rate -
  - Rapid data acquisition
  - Real time imaging
- Data logging -
  - Combine wavelength & measured data into single file
- ICE-BLOC control

For more information about this and other **M Squared Lasers**, please [contact us](#).

## CRAIC Apollo™ Add-on Provides Easy Raman Spectroscopy



**CRAIC** now offer fast and easy Raman spectroscopy of microscopic sampling areas following the introduction of the **Apollo™ 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.

The highly sensitive Apollo™ modules are available in different 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.

For more information, please [contact us](#).

## Full OZ Optics Components Range Available Through Elliot Scientific



**OZ Optics** is one of the leading fibre optic suppliers in the world, with an outstanding reputation as a manufacturer of quality components for use in telecommunications, laboratory, industrial, military and medical fields.

Elliot Scientific distributes a wide range of OZ Optics components to specialist users throughout the UK. These include OEMs, universities, and defence contractors who look to us for products that offer:

- Polarisation maintenance
- Laser, or laser diode to fibre delivery
- Attenuation
- Patching
- Test and measurement
- ...and more

From a single piece to a thousand of, Elliot Scientific can advise on your needs and deliver on time and to budget.

**Contact us** about your application's requirements.

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## Application Notes and Videos for Optical Tweezers released by Elliot Scientific



**Optical Tweezers** are often thought of as being complicated, difficult to operate, and expensive pieces of equipment for general use. However, this is not the case and Elliot Scientific has released a series of **4 application notes** with **10 accompanying videos** that show how these complex experiments can easily be conducted using our **E3500 Optical Tweezers** system.

The University of St. Andrews was commissioned by Elliot Scientific to produce the application notes and videos, with all experiments done using our standard E3500 AOD system - the one that will be demonstrated at the forthcoming **EMC 2012 - The European Microscopy Congress** next month in Manchester.

The papers deal with:

1. **Trap Stiffness**
2. **Trapping & Manipulation**
3. **Cell Stretching**
4. **Photoporation & Transfection**

All can be read online at [Issuu](#) or [downloaded](#) from our website. The videos can also be [viewed or downloaded here](#), or seen via our [YouTube channel](#).

For more information about the E3500 or our other Optical Tweezers, you can also download our **2012 Brochure** or [contact us](#).

Are you an academic on [LinkedIn](#)?

If so, why not join our [Optical Tweezers & Laser Trapping](#) group.

## New Datasheet Highlights Improved Performance of SolTiS Laser



The enhanced **SolTiS**, from M Squared Lasers, further extends its already class-leading performance with:

- Amplitude noise specification improved from < 1% RMS to < 0.1% RMS
- > 4 W of output power with 18 W pump
- < 50 kHz linewidth relative to internal reference now specified for extended timescales

The SolTiS from M Squared Lasers, is an ultracompact, widely tunable, hands-free, single-frequency Ti:Sapphire (Ti:S) laser system - the smallest, lowest noise, and only turnkey laser of its type.

Designed with up-to-date electronics and the proprietary InvariantT™ drift-free optical mount technology, SolTiS incorporates a compact laser resonator for high mechanical stability, and simplified tuning and scanning.

Available with integrated pump lasers of up to 18 W power, SolTiS can deliver high average power (> 4.0 W), broad tuning (725 - 975 nm), low noise (< 0.1% RMS) and narrow linewidth (< 50 kHz when locked to a reference).

SolTiS is ideal for atom cooling, high-resolution spectroscopy, optical tweezing and holography. For more information about this and other lasers in the **M Squared range**, please [contact us](#).

## AKELA Offers New, Entry-Level, Laser Diode Modules



**AKELA Laser Corporation** has announced the release of the first of a series of laser modules and other products based on AKELA's market-leading long wavelength laser diodes from 1030 to 1950 nm. These entry-level modules, which are aimed at volume applications, are designed for both 200 and 400  $\mu\text{m}$  0.22 NA fibres, and provide up to 20 Watts CW. Future releases of laser modules will include increasingly higher power levels as well as modules with built-in accessories such as photodetectors, aiming beams, blast shields, and fibre sensors.

AKELA's line of long wavelength high power laser diodes sets the standard in the industry. No other company provides the high powers or the wide range of wavelengths. These products are ideal for military and other eye safe applications, dermatology applications such as body shaping, cellulite removal, skin rejuvenation, wrinkle removal or any other application dependent upon water or fat absorption peaks. In addition, these devices can be used as replacements for standard wavelengths pumping holmium or thulium fibre lasers.

**Contact us** now with your requirements.

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## September Symposia: A Busy Month for Elliot Scientific



September will see Elliot Scientific attending three conferences in the UK:

**3rd-5th**

**CMMP 12 - Edinburgh Conference Centre - Stand 1**

The Condensed Matter and Materials Physics conference takes place alongside ECOSS-29 and ECSCD-11 at the Edinburgh Conference Centre as part of CMD-24: the 24th General Conference of the Condensed Matter Division of the European Physical Society.

**3rd-6th**

**Photon12 - Durham University - Stand 28**

Photon12 is the largest optics conference in the UK that embraces a number of important and interconnected constituent conferences with fascinating overlaps and a common social programme. Elliot Scientific is attending the integral exhibition that, as a valuable part of the conference programme, provides an opportunity for researchers and engineers to mix.

**17th-21st**

**European Microscopy Congress - Manchester Central - Stand 813**

Elliot Scientific will be joining the UK microscopy community in Manchester for Europe's largest exhibition dedicated to microscopy and an international conference of the highest quality.

For more information about our attendance at these conferences, please **contact us**.



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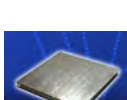
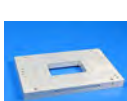


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## 15th European Microscopy Congress & MICROSCIENCE 2012 - Manchester



**emc2012** starts next week (16th - 21st September), the largest exhibition in the world dedicated to microscopy, analysis and imaging. Elliot Scientific will be exhibiting on **Stand 813** and we will be demonstrating a wide range of instruments and equipment for the life science, microscopy and spectroscopy communities from:

### CRAIC Technologies

We have a **308 PV Microscope Spectrophotometer** demonstration system that shows how you can add spectroscopy and imaging to your optical microscope, upgrade a legacy microspectrometer, or add spectroscopic and film thickness capabilities to a probe station. The 308 PV enables collection of transmission, reflectance, polarisation and/or fluorescence spectra of microscopic samples depending upon the host equipment's optics and light source. The spectral range covers the deep UV to the near infrared, offering high quality spectra of even sub-micron samples to be acquired with ease. The 308 PV is just one of a range of microspectrophotometer and spectroscopy products that CRAIC Technologies offer, and we are on hand to advise for your requirements.

### Elliot Scientific

Our **E3500 Optical Tweezers System** is being demonstrated live, with members of our team ready to talk with you about applications and the capabilities of the different systems we build. Elliot Scientific Optical Tweezers can range from simple, open architecture constructions, to the complex multiple trap instruments with **Quadrant Force Detection (QPD)** and/or **Camera Particle Tracking (CPT)**. We can often maximise your return by building a **custom system** to match your budget.

We will also be showing our full range of **mechanical micropositioners** that offer high-resolution ( $< 0.5 \mu\text{m}$ ) with travels of 3, 5 and 10 mm. Available in Small, Very Small and Ultra Small models, these market-leading positioners offer single, dual and three axis configurations with a variety of adjustment options ideal for confined spaces. A number of accessories complement each range to further enhance their flexibility.

### Energetiq

The **high-brightness Energetiq® lamps** use laser activated plasma to generate light without electrodes. Already established in the semiconductor sector, the life sciences are now starting to benefit from these point light sources that can offer up to 10x the intensity of traditional lamps, longer working lives and therefore lower cost of ownership in the long term. We will be demonstrating the EQ-99 model that has proved popular in labs throughout the UK and Ireland too.

### Kinetic Systems

Enquire about our range of Kinetic Systems **anti-vibration tables and platforms**. The company has been at the forefront of the vibration isolation and optical table market in the US for over 30 years and is a world leader in the development and application of advanced low frequency vibration control systems for sensitive equipment. Elliot Scientific can offer tables, breadboards, platforms, workbenches and workstations. Tell us your requirements so we can offer you a solution.

### Mad City Labs

A number of Mad City Labs (MCL) **nanopositioning systems** are being shown and demonstrated. As a leading manufacturer of flexure based nanopositioning systems capable of sub-nanometer positioning resolution, Mad City Labs' product line covers the entire spectrum of nanopositioning capabilities and offers market-leading multi-axis stages for high speed optical microscopy imaging.

Expanding on their traditional product lines, Mad City Labs now offer the **RM21™ precision aligned microscope platform**. Designed for maximum user accessibility it offers microscopists the opportunity to develop flexible configuration instruments with ease by allowing for easy alignment of microscopy and optical components within its three dimensional space.

In addition, MCL are also offering the **SPM-M Kit** - a DIY closed loop, scanning resonant probe microscope, **Cyto-Lite™** - a multi-wavelength single fibre laser illumination source, and **Nano-Cyte™ LC** - an image based, platform independent stabilisation system that changes the nature of live cell imaging. Now temperature gradients, sample drift, and microscope drift are no longer of concern as Nano-Cyte™ LC affords unprecedented stability in the nanometer regime allowing long term experiments as never before.

### Plus...

We will also be showing a range of laser protection eyewear from **Honeywell Sperian**, piezo-driven mini-stages by **mechanics**, and a fibre laser from **IPG Photonics**.

So don't forget... **Stand 813** from **September 16th** at the **Manchester Central** exhibition hall.

## FEMTOLASERS: Extraordinary Oscillators and Optics



The **FEMTOLASERS INTEGRAL™ element™** is a hands-off ultrafast laser with extraordinary features:

- Pulse durations of < 10 fs, < 20 fs, < 50 fs, or < 100 fs
- No drift in centre wavelength or bandwidth
- Ultra low noise < 0.05 % rms (measured at 1 Hz - 100 kHz)
- True turn-key, maintenance-free system sealed optical head with active stabilisation
- Models ranging from 200 to 1500 mW output power



FEMTOLASERS also manufacture a complementary range of optics specifically designed for use with high-power ultrafast lasers. The FEMTOOPTICS™ range has:

- the only catalogue dedicated exclusively to femtosecond laser optics
- dispersion data provided for every single component
- pulse duration specifications for all optical components
- low dispersion broadband Ti:Sapphire 800 nm optics
- 400 nm (second harmonic) optics
- dispersion compensating & polarisation control fs optics
- ultrabroadband optics @ 1.6 µm for IR fs pulses

**Contact us**, or for your **2012 FEMTOOPTICS™ catalogue**, **download a PDF version here**.

## New Electromagnet Power Supply from Lake Shore



**Lake Shore** has introduced a new electromagnet power supply - the Model 648. This quiet, fault-tolerant and robust 9.1 kW water-cooled supply is optimised for powering large research electromagnets up to 254 mm (10") in size and is ideal for electromagnet characterisation systems used for magneto-optical studies, magnetic hysteresis tests, susceptibility measurements, Hall effect studies, spin magnetic resonance demonstrations, and biological tests.

Designed for use in high precision laboratory, the low output noise means researchers can obtain greater resolution and finer detail in results drawn from data taken during high sensitivity experiments. By using a convenient bipolar, 4-quadrant operation mode, it provides clean transitions through zero without discontinuities thus eliminating the need for external switching or operator intervention to reverse current polarity.

Built-in fault protection enables the system to survive direct shorts across the output without damage and, reassuringly, the Model 648 also comes with Lake Shore's full 3 year standard warranty. For more information and a datasheet, please **contact us**.

## Photonex 2012 on the Horizon



Elliot Scientific will be at this year's Photonex on Wednesday and Thursday, October 17th and 18th, at Coventry's Ricoh Arena. Photonex 2012 is the UK's showcase event dedicated to photonics, applied optical equipment, biophotonics, fibre optics, lasers, vision and light. Don't miss it!

For free registration, conference and exhibition times plus other details, please go to the **Photonex website**.

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## Laser-Gard Surrounds Optical Table Experiments - Protects Users From Stray Beams

The new **Laser-Gard Barrier System**, from Honeywell-Sperian, is the first of its kind in the industry. The flexible, modular design offers a unique and customisable way to securely enclose a laser set-up on an optical table.



Laser-Gard significantly reduces direct and indirect laser hazard exposure while allowing cable access around the entire perimeter of the optical table.

A perimeter attachment system and a unique adjustable panel provides a good fit for variety of table sizes and configurations. Easy to install, remove and transport using basic tools, Laser-Gard saves time and effort if you need to adjust the experiment, and saves space by eliminating the need to use table holes.

A **video demonstration** of the Laser-Gard System is viewable on the product page, but if you would like further information about this or other Honeywell-Sperian **laser safety products** then do **contact us**.

## Raman Spectroscopy Added To CRAIC Technologies Flagship Microspectrophotometer



Users of the **CRAIC Technologies 20/20 PV™** now have the ability to acquire Raman spectra in addition to UV-visible-NIR imaging and absorbance, reflectance, fluorescence and emission microspectra™. The 20/20 PV™ is able to acquire all these types of spectra of sub-micron samples from the same area because it features CRAIC Technologies proprietary optical aperturing technology.

The applications for such a multi-purpose instrument are numerous:

- Nanoparticle and carbon nanotube research
- Biological and vision research
- Forensic analysis
- Semiconductor and Optical thin films

The 20/20 PV™ microspectrophotometer is a self-contained unit that features advanced UV-visible-NIR light sources, solid state lasers, true UV-visible-NIR microscopy, sensitive UV-visible-NIR range spectrometers and sophisticated MINERVA™ spectral software. Raman microspectroscopy is added with the **Apollo™** Raman microspectroscopy packages. Each Apollo™ is a self-contained package including laser, spectrometer and hardware and multiple Apollo™ units with different lasers may be combined on the 20/20 PV™.



All these capabilities can be integrated into the cutting-edge 20/20 PV™ microspectrophotometer to give you more than just a scientific instrument... it is a solution to your most challenging analytical questions.

For more information about this and the other **CRAIC Technologies' products** we offer, please **contact us**.

## emc2012: A Success For All



*E3500 Optical Tweezers*

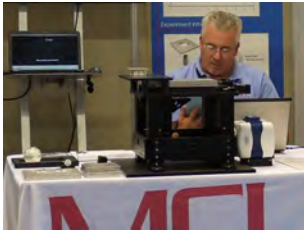
Thanks go out to all the visitors to our stand at the European Microscopy Congress in Manchester last month. You made the show a success for us and the representatives from **CRAIC Technologies** and **Mad City Labs**.

The pictures here show our **E3500 Optical Tweezers** system being demonstrated (top). The E3500 can be attached to any high quality commercial microscope for users wishing to undertake multiple beam particle trapping and manipulation, upgrading the system to a Photonic Force Microscope if needed. If you would like to see examples of its capabilities, you can view **application videos here**.

Another system not often seen demonstrated live in the UK was the **CRAIC Technologies' 308 PV** (middle). This spectrophotometer unit adds spectroscopy



CRAIC Technologies 308 PV



Mad City Labs RM21™

to your legacy microscope, enabling the collection of transmission, reflectance, polarisation or even fluorescence spectra of microscopic samples. Depending upon the microscope optics and sources, the spectral range is from the deep UV to the near infrared region.

We also demonstrated a range of **Mad City Labs nano-positioning products** and were pleased to have James Mackay, CEO of the company, on hand to discuss their capabilities in standard and custom applications, as well as demonstrate a number of technologies designed especially for the microscopist.

Among these were the **RM21™** microscopy platform that has been designed to enable researchers to construct precision custom microscopes that are ultrastable for long term experiments. To complement the RM21™, Mad City Labs also offer **Nano-Cyte™**. This is an active 3D image stabilisation system to enable long term observations and high resolution imaging programmes of biological processes. Nano-Cyte™ overcomes temperature gradients and drift effects, with image stability down to a few nanometres over exposure durations in excess of 24 hours.

Mad City Labs' **SPM-M Kit** - a *build it yourself* AFM that offers an inexpensive introduction to the exciting world of atomic force microscopy - is another product that the company has recently introduced for researchers. Mad City Labs have a **video** that shows just how easy it is to use their kit of parts and equipment to build such a device.

If you would like to speak to us about any of the systems or products mentioned in this newsletter, then please do not hesitate in giving us a call or emailing us. Here are our **full contact details**.

### Come See Elliot Scientific At Photonex 2012 Next Week

Wednesday 17 & Thursday 18 October 2012  
RICOH ARENA · COVENTRY · UK

Your free invitation to visit





This invitation is sent to you with compliments of

ELLIOT SCIENTIFIC

see us on Stand B10

We look forward to seeing you there!

CO-LOCATED











FAST TRACK ENTRY

Register online in advance and avoid the queues at [www.photonex.org](http://www.photonex.org)

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## M Squared Lasers launch narrow linewidth ECD-X Frequency Doubler

The **ECD-X**, from M Squared Lasers, is an ultra-compact frequency doubling accessory that uses resonant enhancement to frequency convert CW narrow linewidth input laser light, such as that from the M Squared 'SolsTiS', with high efficiency. The enhancement technique combines a highly stable doubling cavity with active servo-locking of that cavity to the frequency of the input light. This provides high-efficiency conversion of input power to the second harmonic wavelength.



The ECD-X incorporates a host of features designed to maximise doubling efficiency, stability, and flexibility. These include:

- High-stability monolithic cavity design
- Unique ultra-compact resonator for faster, longer scans & higher efficiency with broader linewidths
- Wavelength flexibility via wide range of OSX mirror sets and doubling crystals
- Simple integration with SolsTiS CW Ti:S laser, or can accommodate a wide range of input sources with mode-matching optics
- Options for tripling, quadrupling, and mixing

Please **contact us** for technical specifications.

## "The world's most accurate capacitance bridge" just got better

**Andeen-Hagerling** manufacture the world's most accurate capacitance bridges and standards, and their forthcoming AH 2700A-E now offers substantially improved resolution over the entire operating range as well as the usual unparalleled stability, resolution, linearity and accuracy you would expect in a multi-frequency capacitance/loss bridge from the company.



The numerous state-of-the-art features of the **AH2700A-E** make it a very user-friendly instrument, with a super-sensitivity that enables it to explore, with a new precision, applications in calibration, scientific research, and manufacturing.

The AH2700A-E is the pinnacle of decades of Andeen-Hagerling experience in bridge design and manufacture, and is complemented by its sister model, the AH2700A-E-C that offers continuous frequency scanning. Both models will be shipping in 2013, but we would recommend you **express your interest now** as there will be a waiting list for these exceptional instruments.

For more information about this and other Andeen-Hagerling capacitance bridges, please **contact us**.

## M Squared Lasers release new datasheets for Sprite-t and Firefly-THz



**M Squared Lasers**, as part of their continuous product improvement program, has released new versions of their Sprite-t and Firefly-THz systems. The improvements go deeper than the redesigned skins, with numerous tweaks to both lasers:

**Sprite-t** now incorporates PowerMax™ active pump beam alignment and also has reduced power requirements.

**Firefly-THz** has an improved tuning range, offering from 0.8 THz to more than 2.5 THz, plus output pulse energies now in excess of 9 nJ.



M Squared delivers Dependable Innovation™ — high quality, innovative, cost-effective work-horse products that can be depended upon to deliver breakthrough performance time and again.

Read more about these lasers and download the datasheets on their dedicated webpages by using the links above, or **contact us** for further details and pricing.

## Andeen-Hagerling, CRAIC Technologies and Lake Shore Cryotronics at MRS Fall next week



Andeen-Hagerling, CRAIC Technologies, and Lake Shore Cryotronics are exhibiting at the **Materials Research Society (MRS) Fall Meeting** from November 26<sup>th</sup> to 30<sup>th</sup> at the Hynes Convention Center in Boston.

The increasingly cross-disciplinary world of materials research comes together every year at the MRS Fall Meetings. Featuring over 50 symposia and attended by as many as 6,000 researchers from every corner of the globe, it is the pre-eminent annual event for those in the field.



**Andeen-Hagerling** is showcasing the new AH 2700A-E on Booth 519 alongside the existing range of AH 25xx Automatic Capacitance Bridges, AH 27xx High-precision Capacitance/Loss Bridges, Capacitance Standards, and accessories.



**CRAIC Technologies** will be offering UV and NIR microscopes, the **Elixir and 20/20** UV-visible-NIR microspectrophotometers, the newly enhanced - with 8 laser wavelengths - **Apollo Raman** spectroscopy modular system, and instruments to measure thin film thickness and colorimetry on the microscopic scale within Booth 1102.



**Lake Shore Cryotronics** will be highlighting their wide range of sensors, instruments, and systems used for high-precision materials characterisation research, including their line of cryogenic and cryogen-free probe stations, the new **8404 Hall effect measurement system** and **Model 336** cryogenic temperature controller in Booth 800.

## Science Week - Ireland



**Science Week** is currently underway in Ireland. The aim of this week's dedicated events is to demonstrate the importance of science, technology, engineering and maths to the future development of Irish society and to the country's economy. We wish success to all those taking part.

Hundreds of events - from lectures, exhibitions and tours, to workshops, quizzes and shows - are taking place throughout Ireland to celebrate Science Week. So, for more information and what's on near you, please visit [www.scienceweek.ie](http://www.scienceweek.ie)

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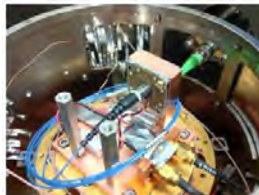
## Lake Shore upgrade the CRX-VF Probe Station, announce forthcoming THz Materials Characterisation System



Lake Shore Cryotronics have announced a THz technology system that will provide a contactless, fully integrated solution for exploring the electronic, magnetic, and chemical properties of materials such as:

- **Antiferromagnetic resonances:** important to spin-based computing
- **Carrier scattering time in semiconductors:** important to development of high speed electronics
- **Vibrational resonances in molecular solids:** important to chemical identification and research in organic electronic and magnetic materials

Due for release in 2013, Lake Shore are refining the instrument's capabilities in line with the requirements of leading researchers from labs around the world. More information on this new THz system and details on how you can contribute to its development can be found [here](#).



### CRX-VF Cryogenic Probe Station gets an upgrade

Lake Shore's Model CRX-VF cryogenic probe station now features:

- **Increased maximum magnetic field:** Up from  $\pm 2.25$  to  $\pm 2.5$  T
- **Improved vacuum performance:**  $< 5 \times 10^{-7}$  Torr is now an option for customers whose applications require lower base pressures or less chance of contamination
- **Improved magnetic field at high temperatures:**  $\pm 2$  T from 10 to 400 K and up to  $\pm 1$  T from 400 to 500 K. Previously, only  $\pm 0.5$  T was possible above 400 K and no magnetic field was possible above 450 K at all



Ideal for measuring electrical, electro-optical, parametric, high Z, and Hall effect, as well as DC, RF, and microwave properties of materials and test devices, the CRX-VF is widely used to measure nanoscale electronics, quantum wires and dots, semiconductors, and spintronic devices.

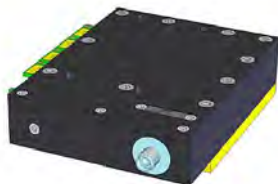
Please **contact us** for more information about any of these or other Lake Shore products.

## AKELA announce new range of diodes and a 5-colour configurable laser module

The **AKELA Laser Corporation** has released single and multi-channel laser diode modules in wavelengths from 635 to 1950 nm, part of a phased introduction of a new range for 2013.

The laser diode modules, designed for 0.22 na 100, 200, and 400 micron fibres – or free space use – and providing up to 25 Watts CW power, 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.

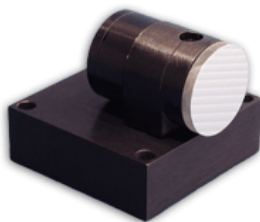
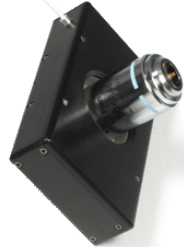


### Configurable High-Power Laser Modules

This new unit from AKELA is the most versatile and configurable diode laser module on the market today. With its individually addressable emitters, the module can operate at up to five wavelengths from one fibre, making 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 technical specifications of all AKELA products, please **contact us**.

## Seven products added to our Mad City Labs' range



Nano-MTA2 (two axis)

We have expanded our coverage of Mad City Labs equipment by adding a **dedicated webpage for the Nano-F series** of focusing elements. The new page details Mad City Labs' offerings for microscopists involved in 4Pi microscopy, STORM, PALM, confocal and fluorescence imaging, super resolution (SR) microscopy, high speed Z stack imaging and other applications requiring high speed focus adjustment:

- **Nano-F Series** - Objective lens focusing elements with 100  $\mu\text{m}$  or 200  $\mu\text{m}$  of travel
- **Nano-F25HS** - A high speed nanopositioner focusing element with 25  $\mu\text{m}$  travel
- **Nano-F3D** - An objective lens nanopositioner with 3-axis (XYZ) motion up to 100  $\mu\text{m}$  per axis
- **Nano-F450** - The longest travel range piezo focusing element available for research microscopy with 450  $\mu\text{m}$  travel

These elements can be used as stand-alone systems, or in conjunction with other Mad City Labs nanopositioning stages, and feature quick mount threaded adapters for RMS and metric lens threads.

In addition, we have also added the following nanopositioning stages to existing pages within the dedicated Mad City Labs section of our website:

- **Nano-MTA Series** - A range of mirror tip/tilt actuators for rapid scanning of laser beams with sub-microradian resolution
- **Nano-OPH Series** - A large central aperture nanopositioning stage with ranges of motion from 30 up to 100  $\mu\text{m}$
- **Nano-SPM200** - A compact nanopositioning system with 200  $\mu\text{m}$  travel

For more information on these and the other piezo-driven stages Mad City Labs offer, please **contact us** or **download the Mad City Labs 2012 Catalogue here**.

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## Revised IPG Photonics' 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  $\mu\text{m}$  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), Q-switched pulsed, linearly 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**.

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## Christmas



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

- **Friday, December 21st. 2012**

We re-open at 08:30 GMT on:

- **Wednesday, January 2nd. 2013**

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

Elliot Scientific's...



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Photo of the month: 'Frost crystals on window' courtesy of **Nayu Kim** © 2008



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