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EPSRC supports Photonics MSc (June 28th, 2001)

The Department of Physics at Heriot-Watt and St Andrews have recently won five years of financial support from the Engineering and Physical Sciences Research Council, for their one year Photonics MSc course. As a result, they are offering full fees, plus a stipend exceeding £7,000 for eligible students accepted onto the course.

Previously called Optoelectronic and Laser Devices, the course has been updated and enhanced, recognising the explosive growth of the UK photonics industry fostered by the world-wide expansion in the exploitation of optics in telecommunications.

The course involves periods at Heriot-Watt, St Andrews and a three-month research project in one of 50 or more UK Photonics companies.

The course topics are: Laser Physics, Modern Optics, Photonic

Materials, Optoelectronic Devices, Technical Communication and Business Awareness, and extensive practical experience is gained in state-of-the-art dedicated laboratories.

The October 2001 intake will spend the first 6 months at Heriot-Watt campus, within easy reach of the attractions of Edinburgh and its surrounds.

For further information, contact: a.k.kar@hw.ac.uk

ROFIN-SINAR To Trade On The German Neuer Markt (June 27th, 2001)

ROFIN-SINAR Technologies, Inc., one of the world's leading developers and manufacturers of high performance laser beam sources and laser based solutions, has announced that the Deutsche Borse has now admitted the shares of the Company to be traded on the Neuer Markt.

The Company applied in early June for a secondary listing of its shares on the German Neuer Markt. It is anticipated that trading will commence on July 2, 2001. Rofin-Sinar will continue to be traded on the US NASDAQ market, where it has been listed since 1996.

Thorlabs INTRODUCes THE NEW ASE-FL7003 and the ASE-FL7003-GL (June 26th, 2001)

Thorlabs, Inc. of USA and FiberLabs of Japan announce the introduction of the ASE-FL7003, a broadband white light test source for the C & L-regions (1530nm to 1625nm) and the ASE-FL7003-GL, the same C & L-band ASE source with an optical amplifier over the 1565nm - 1605nm range. It has been > designed to satisfy the demand for higher power, longer wavelength test equipment for the growing L-band market while also supporting the existing market for C-band instruments. The ASE-FL7003 is the lowest noise, high power C & L-band test source available today.

We have made it easy for the user to put this increased power and bandwidth to work in production or development testing. This device takes advantage of an Erbium doped Fluoride fiber that is pumped with a single 1480nm laser diode to produce 30mW of broadband white light. This rare earth fiber design allows for a higher degree of power and wavelength stability than conventional Silica fibers with multiple pumping lasers. The output fiber is a standard SMF 28 Silica fiber.

The ASE 7003 series test sources are designed to perform well

beyond the industry standard. Key features include low noise, broadband output with a single pump laser, and exceptional stability. Average peak to peak noise values are typically in the 0.0025dBm range for the 15 minute stability test, and in the 0.01dBm range for the 48 hour test. Both the short term and long term stability data indicate that we clearly outperform the competition.

FiberLabs is putting the power of Fluoride and Tellurite fibers to work today. Our innovative fibers made from rare earth glasses provide our instrument developers with an unmatched advantage in designing test sources and amplifiers that extend the crowded C-band to the S and L-bands. Optical test equipment and amplifiers made from Fluoride and Tellurite fibers provide levels of stability, power and amplification that are not possible with Silica fiber amplifiers.

For further information, contact: europa@thorlabs.com

Powerful continuous light source replaces 10W Laser (June 25th, 2001)

A laser was replaced by a 7KW Xenon Light source with optics designed to deliver approx. 4-8 times the power of the laser in the wavelength range of 500-550 nm. The application is Vascular Enlargement growth hormone studies.

For further information, contact: HGBeck@spectralenergy.com

LASER OPTICAL SPEED SENSOR HAS EXTREME HIGH SPEED CAPABILITY (June 22nd, 2001)

The MiniVLS series of Optical Speed Sensors from Compact Instruments can operate at speeds up to 250,000 rpm, well in excess of most similar products.

Primarily designed for speed related use, the sensors can also be used for the high speed detection of object presence. In controlled conditions, this can be achieved without the need for retro-reflective targets.

The MiniVLS sensors offer the operator an exceptionally large range of mark to space ratios, invaluable in certain rotational situations that could not be read by most other sensors.

The devices are housed in a Proximity Sensor style stainless steel housing and can be easily mounted either permanently or temporarily. They are ideal for use with digital tachometers, ratemeters, counters and rotation monitoring applications.

With a wide angle operation of up to 80 degrees and a long optical range of 2 metres, the MiniVLS series is specifically designed for R&D and test applications, especially in automotive applications and continuous speed monitoring.

Compact offers a choice of negative or positive outputs and a variety of mating cable connector options to match the integral Sensor connector.

An Optical Lens Adaptor can be supplied for special applications where a conventional target is not available on the application.

The sensors are invaluable in a wide range of applications such as vehicle emission testing, conditioning monitoring and stroboscope triggering applications in addition to hard to access test applications such as strimmers, cutters, grinders, centrifuges and turbines.

Optics and Coatings for Fiber Bragg Grating Manufacturers (June 21st, 2001)

Acton Research Corp. is pleased to announce the availability of high performance optics for Fiber Bragg Grating (FBG) manufacturers. Optics and coatings for these systems include beam-turning mirrors, laser cavity optics, beam-splitters, attenuators, lenses, and anti-reflection coatings; all available for wavelengths ranging from 193nm through 355nm. Acton Research has over 40 years experience providing a full range of UV optics with superior performance and exceptional damage resistance to a variety of cutting-edge applications. As a matter of fact, our 193nm optics have "set the standard" for long-life operation in OEM applications.

Some of the specific optical components for FBG manufacturers are high-power laser mirrors for 244-248nm which offer 97 - 99% reflectance at 244-248nm @ 45° AOI. They can be provided on UV-grade fused silica or applied to customer supplied material. These coatings are designed for use with high energy, high rep. rate lasers, and have yielded some of the highest damage thresholds in the industry.

Additionally, Acton Research output couplers for 244-248nm are multi-layer dielectric coatings optimized for 50% transmittance and 50% reflectance. Coatings are available with customized % R and %T values and can be provided on UV-grade fused silica substrates or on customer supplied material.

For further information, contact: dfbaum@acton-research.com

**Spectra-Physics Lasers, Inc. Becomes Spectra-Physics, Inc.
(June 20th, 2001)**

Spectra-Physics (Nasdaq:SPLI), a majority-owned subsidiary of Thermo Electron Corporation and a leading supplier of semiconductor-based lasers and optics, today announced that it has changed its corporate name from Spectra-Physics Lasers, Inc. to Spectra-Physics, Inc., effective immediately. The name change coincides with the 40th anniversary of Spectra-Physics' founding as the world's first commercial laser company in 1961.

"This return to the original corporate name leverages Spectra-Physics' 40 years of brand equity as one of the early Silicon Valley companies," said Patrick L. Edsell, chairman, president and chief executive officer. "At the same time, it reflects the broader base of our business as a manufacturer of both lasers and optics. Our fastest growing market today is telecommunications, and our leading products for this market are optical filters and related components for dense wavelength division multiplexing (DWDM) systems in fiber optic networks. In this market, as well as our five core markets, the Spectra-Physics brand represents 40 years of technological leadership."

**Acton Research Corporation Personnel Announcement
(June 19th, 2001)**

We are pleased to announce that Jay Zakrzewski has joined the Acton Research Corporation team as Director of Business Development. Jay's background includes seventeen years in the optics, coatings, grating and instrumentation fields. His past positions include Sales Manager at Optometrics, American Holographic and OCA Microcoatings. He most recently held the positions of Business Unit Manager and Commercial Manager at Corning NetOptix.

Jay's primary focus will initially direct the Acton Research products for the Instrument Division forward into the industrial marketplace; both in OEM business and commercial applications. He will also be focusing on strategic partnerships for technologies that are necessary to push Acton's instrumentation line ahead into markets we chose to pursue. Jay's background will also benefit our optics division as we move to commercialize the new Nd:YAG coating technology and pursue strategies toward securing additional OEM business for the UV optical components.

Dick Merk, Vice President of Instrumentation, adds "We're all very enthused to have Jay join our team. His background in optics and instrumentation lends itself well to the full selection of products offered by Acton, and his experience in the commercial marketplace will help us chart our future direction more

efficiently."

Acton's optics division manufactures high performance, long-lifetime excimer and Nd:YAG laser mirrors and coatings, VUV/UV broadband optics and VUV/UV optical filters used in numerous demanding research and OEM applications. Acton Research currently provides optical components for industries including semiconductor, medical, spectroscopy, telecommunications and environmental, among others.

Lambda Physik Publishes Excimer Laser Technology: Laser Sources, Optics, Systems and Applications Handbook (June 18th, 2001)

Lambda Physik recently published a comprehensive guide highlighting current excimer laser applications. Leading authorities on the subject of excimer lasers and related topics investigate the current range of excimer laser technology, applications and devices, as well as the future of new technologies, such as F2 laser technology.

Excimer Laser Technology: Laser Sources, Optics, Systems and Applications communicates the technical fundamentals and possibilities of the excimer laser and relevant optics without going too deeply into theoretical details. By starting at the basics of laser physics and laser-related optics, it provides a simple introduction into the subject. The book includes fundamental descriptions about microlithography, TFT annealing, Fiber Bragg Gratings, micro-fabrication and refractive laser surgery (PRK, PTK and LASIK). This not only illustrates where excimer laser technology is today, but also provides an effective introduction to the most cost-effective excimer laser tools for specific applications.

Excimer Laser Technology: Laser Sources, Optics, Systems and Applications, takes a close look at the way that excimer-laser-based applications affect our high-tech-dominated daily life: whether it be the manufacturer of highly integrated microchips through excimer laser lithography, the precise drilling of micro-nozzle arrays for ink jet printers, the re-crystallization of TFT/AMLCD flat panel displays through excimer laser annealing, or photo-refractive surgery for vision correction.

The book is not only intended for laser technology students and process application researchers and engineers, but also for anyone interested in understanding why advances in laser technology are consistently beneficial for the development of new products, processes and practices. The bound book contains approximately 300 pages and includes approximately 180 color and black/white photographs, diagrams and tables. To order a copy, contact Lambda Physik.

Lambda Physik is the worldwide technology leader for pulsed UV and tunable laser sources for industrial, lithography, science and medical applications.

For further information, contact: marcom@lambdaphysik.com

Infineon Technologies and Canon launch joint research project (June 15th, 2001)

Infineon Technologies AG and Canon Inc. has announced an agreement to launch a joint research project for the development of photolithography systems utilizing 157nm (nanometer) exposure technology via F2 (fluorine) laser illumination.

The joint effort is expected to accelerate the development of 157nm lithography systems, and the subsequent introduction of these systems in the manufacturing process of semiconductor devices. Infineon plans to introduce 157nm lithography for the production of memory and logic products at its advanced production sites.

Infineon Technologies will join in Canon's development effort to speed up the realization of Canon's first-generation F2 exposure system, which is scheduled for delivery to Infineon Technologies in the second quarter of 2003. Until that time joint research activities will be conducted at Canon Inc.'s Utsunomiya Optical Products Operations, comprising the gathering of process data regarding actual device manufacturing to enable the development of 70nm compatible exposure systems.

Afterwards, the research will move to Infineon Technologies' facilities for joint process development through the end of 2004. Canon requires various process data regarding actual device manufacturing in order to develop 70nm-compatible F2 exposure systems to succeed its ArF (argon fluoride) laser lithography tool lineup.

Infineon and Canon believe that semiconductor device manufacturers will need F2-laser based exposure systems, with the shorter 157nm wavelength, for the development and manufacturing of devices with 70nm groundrules. Exposure systems employing KrF (krypton fluoride, 248nm) and ArF (193nm) lasers are not able to pattern the fine lines required by the chip industry for miniaturization below 90nm and, thus, are not suited for the continued shrinking of device design rules. In order to stay on the International Technology Roadmap for Semiconductors (ITRS), which expects the volume production of 70nm memory devices to commence in 2006, the 157nm equipment will be needed for the development and prototyping of these devices several years in advance.

Dr. J.C. Chiao Presents Paper On Liquid-Crystal Optical Switches (June 14th, 2001)

Dr. J.C. Chiao from Chorum Technologies in Richardson, Texas, presented a paper on liquid-crystal optical switches at the Integrated Photonics Research and Photonics in Switching

Symposium at the The Doubletree Hotel at Fisherman's Wharf Monterey, California yesterday afternoon. The symposium was sponsored by the Optical Society of America and the technical cosponsor is the IEEE/Lasers and Electro-Optics Society. Dr. Chiao is Chorum Technologies' senior technology advisor for liquid crystal products, including attenuators, switches, cross connects, attenuator arrays, harmonic equalizers and advanced optical processors. Prior to Chorum he served as a research scientist at Telcordia in the Optical Networking Systems and Testbeds group. He also was an assistant professor and is now an adjunct professor in the Department of Electrical Engineering, University of Hawaii at Manoa. Dr. Chiao has published 53 technical journals and conference papers. He is one of the authors of the book Active and Quasi-Optical Arrays and holds 14 pending patents in RF MEMS, MEMS optics and liquid-crystal technologies. In 1995, he received his Ph.D. from the MMIC group in the Department of Electrical Engineering at the California Institute of Technology.

Chorum Technologies, Inc. is a leading provider of all-optical processors and subsystems in the fast-growing fiber-optics market. The company's PolarWave(TM) family of optically filtering, switching, routing and processing technologies enables networks that are faster, more flexible and more cost effective than today's networks. Chorum Technologies Inc. was founded in 1996 and is based in the Telecom Corridor(R) of Richardson, Texas.

For further information, contact: ktompkins@chorumtech.com

LASERVALL M3 Design™ new line of DPSS lasers (June 13th, 2001)

An innovative family of Diode Pumped Solid State lasers sources has been conceived, introducing the new concept of M3 Design™ developed by Laservall S.p.A. in close cooperation with Bright Solutions s.r.l..

This cooperation consolidates the three-years productive experience in the field, proposing to the market its last achievements oriented to the productive industrial sectors, and specifically to those regarding the industrial engraving, the precision cutting, the micro/macro machining. This, offering a wide range of powers and wavelengths sources.

The M3 Design™ new assembling philosophy enhances the laser beam quality mode and fully satisfies the application needs; basis of the plan are the research and the creation of a new opto-electronic component which performs at extremely high Q-switching frequencies, therefore allowing a huge devising flexibility.

Nowadays, the new generation of M3 Design™ DPSS air cooled Violino sources represents the comparison term the competitors

have to face: Small, at low power consumption, with high electro-optic efficiency, at convenient cost, delivered in short time, suitable for industrial engraving applications and to retrofit old marking systems. They are available in three sizes of 5, 10 and 20 Watts for the 1064 nm wave length; Q-Switching driven up to 300 KHz; another 7 Watt size is available for the 532 nm wave length and a 5 Watt for the 355 wave length in U.V. region. M3 Design™: M2< 2 Quality Mode.

And now, the brand new laser source model Sagitta™ is the actual worldwide State of the Art. Conceived with the M3 Design™ philosophy, Sagitta™ is the result of the most innovative ideas combined with the present diode pumping technology, providing the high output power necessary for heavy industrial applications as for the deep/very fast marking, the creation of 3D-dies, the precise metal cutting.

150 optic Watts, 1064 nm wave length, new technology Q-Switching driven up to 200 KHz, M2< 6 Quality Mode. So far, the world market has not provided the industrial field with such a tool yet: The possible applications of Sagitta™ have all to be discovered!

Joining large automobile body parts economically (June 12th, 2001)

Although the application of welding techniques produces high-strength joints, this method involves high temperature work, which causes the workpieces to become distorted. The galvanized sheet steel used in the automotive industry, can frequently be joined sufficiently firmly in a hard soldering operation, which causes considerably less distortion. However when larger parts such as automobile body parts are involved, conventional MIG hard soldering is uneconomical. The diffuse nature of the temperature increase in the part, results in a protracted machining operation, which often ends with a low quality joint. Laser soldering can provide the answer to this problem.

The Fraunhofer Institute of Production Technology IPT will present preliminary results relating to the use of the high power diode laser (HDL) in hard soldering operations, at Laser 2001. The laser, which was previously used only in soft soldering operations, permits localized heating of the part at specified times. This allows metal to be joined flexibly and economically. In contrast to the welding operation, the part is not melted and the level of distortion is low. This is an enormous advantage, particularly when galvanized sheet steel is concerned, since the layer of zinc does not vaporize but remains largely intact. The result is a clean, corrosion-resistant seam, which requires little finishing work.

The use of high power diode lasers also allows the soldering process to be automated. The small dimensions and

straightforward control of the HDL, make it easy to integrate within existing equipment. Test series are currently under way at the Fraunhofer IPT, to investigate the use of various soldering materials, the most suitable machining strategies and part positioning. The results are already being used in the automotive industry.

The advantages of the HDL are opening up the way for technological advances in many other areas of application. In a pilot project funded by the BMBF, the Fraunhofer IPT is currently developing the first prototype machine worldwide for HDL laser-assisted milling. So-called hybrid processes, i.e. those combining conventional manufacturing processes with innovative technologies, are being investigated at the Fraunhofer IPT in the fields of laser-assisted milling, turning and flow forming. The results obtained, are used to produce industry-oriented prototype machines.

The Fraunhofer IPT will be presenting its expertise in laser hard soldering, laser-assisted processes, selective laser sintering and in machining optics for lasers, at Stand 141 in Hall B3 at Laser 2001.

For further information, contact: bausch@ipt.fhg.de

ROFIN-SINAR PLANS SECONDARY LISTING ON THE NEUER MARKT (June 11th, 2001)

ROFIN-SINAR Technologies, Inc., one of the world's leading developers and manufacturers of high performance laser beam sources and laser based solutions, today announced that it has recently applied for a secondary listing of its shares on the German Neuer Markt.

Rofin-Sinar has been listed on the US NASDAQ market since 1996. In line with previous announcements, the company has applied for admission to the Geregelter Markt at the Frankfurt Stock Exchange with trading on the Neuer Markt. Hamburgische Landesbank assisted the company with its application.

Following stock exchange review, the Company anticipates that such application will be approved later this month.

With operational headquarters in Plymouth, Michigan and Hamburg, Germany, Rofin-Sinar Technologies, Inc. designs, develops, engineers and manufactures laser sources and laser-based system solutions for a wide range of applications.

LASER ENGRAVING WITH DELCAM'S ARTCAM (June 8th, 2001)

A new 3D laser engraving option has been added to Delcam's ArtCAM Pro software. This allows laser technology, rather than traditional CNC machining, to be used for high-precision manufacturing operations in the jewellery and toolmaking

industries. The software is supplied with direct interfaces for a range of laser equipment, including machines produced by Foba and Baubllys.

Applications in the jewellery area include the manufacture of small pieces that incorporate high levels of detail or the addition of intricate decoration to larger pieces. For example, the process provides a very efficient method for the hallmarking of items made from precious metals.

Within the toolmaking industry, there are two potential applications: high precision machining of very small moulds, principally for the medical industry; and adding fine detail to moulds or casting equipment. Applications of the latter type include texturing of the mould, for example when producing plastic parts with a leather-like appearance, and adding lettering details like part numbers or sizes.

The basic process with a laser requires CNC instructions similar to those used when machining. The material is removed progressively in a series of Z-levels until the required depth has been cleared. One important difference is that the laser path must be indexed through an angle between each pass to give more consistent metal removal and a smoother final surface.

For further information, contact: marketing@delcam.com

ESI Introduces 5410 as the Fastest Dual Head UV Laser Microvia Drilling System (June 7th, 2001)

Electro Scientific Industries Inc. (Nasdaq: ESIO) today introduces the newest member of its dual head microvia drilling platform, the Model 5410 Shaped UV Laser Microvia Drill, at the Japan Printed Circuit Association (JPCA) show. The show runs June 6-8 at the Big Sight Conference Center in Tokyo.

Targeted at IC packaging markets, the 5410 makes high powered UV lasers practical for advanced packages requiring via diameters as small as 25 microns. With high accuracy to +/- 10 microns, it is capable of drilling vias with a pulse repetition frequency of up to 40 kHz, doubling throughput over earlier methods. This is achieved by using a technique that "punches" the vias rather than the standard trepanning method.

The 5410 features a patented technique that shapes the laser beam to create highly circular vias and does not damage the copper at the bottom of the via. Because the vias are left without residue, they require no additional copper etching steps and are ready for plating more quickly, increasing throughput and lowering manufacturing costs.

"The 5410 laser is a state-of-the-art piece of equipment that is the premier choice for drilling high quality blind vias in advanced packages," said Tom Richardson, general manager for ESI's advanced packaging products. "Customers will benefit from significant increases in manufacturing productivity and will be

able to produce high-volume, precise microvias to meet market demands."

AMS Technologies AG präsentiert auf der Laser 2001 elektronische Komponenten führender Hersteller (June 6th, 2001)

Die AMS Technologies AG präsentiert auf der diesjährigen Laser (München) vom 18. bis 22. Juni in Halle B1, Stand 107 elektronische Komponenten und Systeme führender Hersteller. Als Schwerpunktthemen wird der Distributor Produkte aus den Bereichen Stromversorgung, Tele- und Datenkommunikation über Glasfaser, Laser für industrielle Anwendungen sowie Thermal Management und Thermische Simulation zeigen.

For further information, contact: jneidiger@ams.de

TurboPlane is the laser robot of the future (June 5th, 2001)

Noncontacting laser materials processing is a prime example of what TurboPlane can do, since beam-guidance systems equipped with our TurboPlane two-dimensional drives require virtually no maintenance and are easy to use, compactly designed, and rugged, consist of few parts, and are easily assembled.

- * Large travels combined with low moving masses.
- * Virtually nonwearing, require virtually no maintenance, simple to use, and highly reliable.
- * Versatile, adaptable to suit virtually any application.
- * Multifunctional, e.g., marking lasers and/or finished-parts handling mechanisms may be readily added.
- * Reasonably high translation rates and accelerations, without the accompanying disadvantages or sacrificing utility.
- * Extremely accurate positioning, thanks to their position-monitoring systems.
- * Workspaces may be readily changed without readjusting motor drive powers.
- * Throughput may be doubled by adding a second, independent, set of focusing optics.
- * Readily adapted to processing tubing or three-dimensional workpieces.
- * Allow using any and all types of workpiece transport and clamping mechanisms.
- * Provides constant beam-path lengths when used with CO₂-lasers.
- * May be used for beam guidance with high-power CO₂-lasers and Nd:YAG-lasers.
- * Includes a general-purpose CNC-controller equipped with a servomotor controller.
- * Unbeatably low capital costs and operating costs compared to

other systems with comparable performance.

The major prerequisites for rapid acceptance by the laser materials-processing and industrial-automation industries for use on handling mechanisms, automated assembly equipment, and metrological and test equipment are thus met. All you need to do is take the plunge and secure a position for yourself as a leading-edge supplier to the market for cost-effective laser materials-processing systems.

For further information, contact: lstelb@ins.at

Lambda Physik's New Training Center (June 4th, 2001)

Lambda Physik recently opened a new lithography laser training center at its US operations facility located in Fort Lauderdale, Florida. The center was established in response to growing customer demands for professional laser training for Lambda Physik lithography laser systems. The new training center will enable OEM, end-customer engineers, and Lambda Physik service personnel to experience classroom and hands-on applications from manufacturer-trainer instructors.

The offered classes can accommodate up to six students and the center features the latest Lambda Physik ArF, KrF and Fluorine lithography laser systems. The curriculum topics range from basic laser theory and operation, system operations, maintenance, new test equipment procedures and the latest technology upgrades to advanced hands-on troubleshooting. The content of each training class is customized to the specific needs of the participants. Most classes are scheduled for 2-5 days.

The training staff consists of an experienced team of professionals, ready to respond to individual customer needs. The center also offers refresher training courses, which must be completed by all Lambda Physik Lithography Service Engineers every six months.

For further information, contact: marcom@lambdaphysik.com

systems Opto mechanics Optical manufacturing techniques Fibre Optics Optical fibres Fibre-optic components Optical Signal Transmission Systems Optical fibre installation Opto-electronics Opto-electronic components Electro optics Acousto-optics Display technology Opto-electronic tubes Optical Sensors Sensors for geometric units Sensors for dynamic units Sensors for optical units Sensors for other physical units Test & Measurement Laser test and measurement Opto-electronic measurement/analysis systems Industrial image processing Measurement equipment for optical fibres Holographic test and measurement Accessories for holographic measurement technology Laser Production Engineering Laser material processing systems Laser production engineering - system components Laser aided product design and development systems