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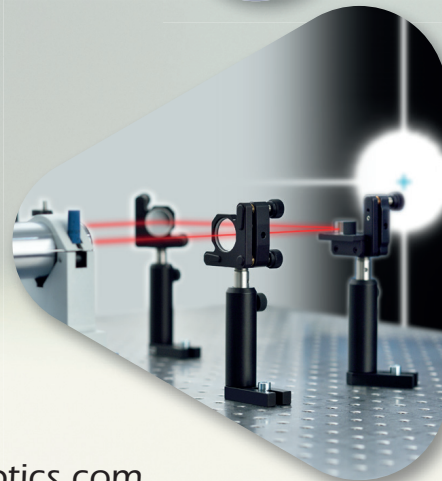
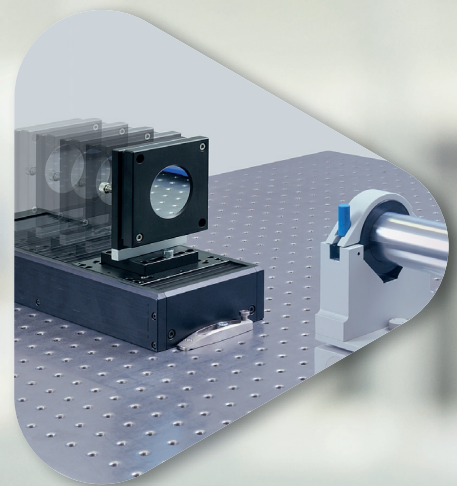


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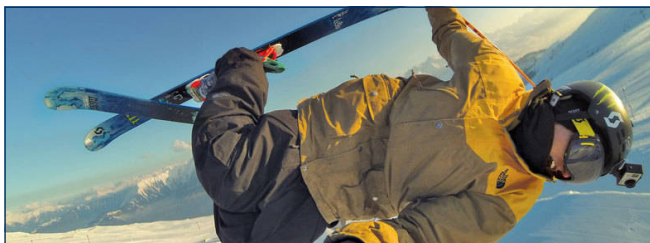
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Laser sensor could replace finger-prick diabetes test

Non-invasive device could end daily discomfort for people with diabetes; Leeds, UK, group aiming for market in 2-3 years.

A new laser sensor that monitors blood glucose levels without penetrating the skin could transform the lives of millions of people living with diabetes, say the developers at the University of Leeds, UK.

The new technology, developed by Professor Gin Jose and his team, uses a small device with low-powered lasers to measure blood glucose levels

infrared light when illuminated by low power laser light. When the glass is in contact with the users' skin, the extent of fluorescence signal varies in relation to the concentration of glucose in their blood. The device measures the length of time the fluorescence lasts for and uses that to calculate the glucose level in the bloodstream, a process that takes less than 30s.



Professor Gin Jose with the prototype diabetes tester.

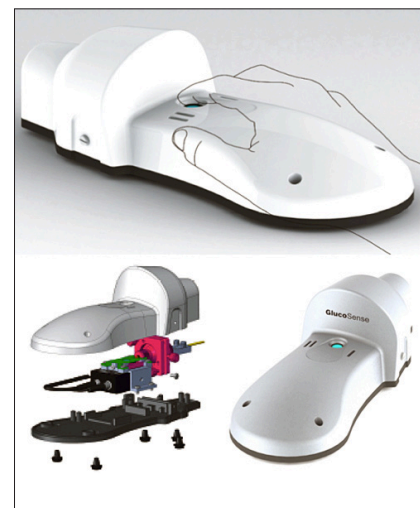
non-invasively. Jose told optics.org, "This could give people a simpler, pain-free alternative to finger pricking, squeezing drops of blood onto test strips, and processing the results with portable glucometers.

"Our technology has continuous monitoring capabilities making it ideal for development as a wearable device. This could help improve the lives of millions of people by enabling them to constantly monitor their glucose levels without the need for an implant or frequent invasive tests."

At the heart of the glucose sensor is a piece of nano-engineered silica glass, embedded with ions that fluoresce in

Leeds for scale-up is scheduled to be ready by 2016."

The results of a pilot clinical study, carried out at the Leeds Institute of Cardiovascular and Metabolic Medicine supervised by Professor Peter Grant, suggest that the new monitor can perform as well as conventional technologies. More clinical trials and



GlucoSense's "prototype I", the benchtop device. It is designed to validate the non-invasive technology; the group's plan for next stage development is to incorporate into a wearable design.

product optimization are required for regulatory approvals.

Professor Grant, Professor of Medicine at the University of Leeds and Consultant diabetes specialist, said, "Non-invasive monitoring will be particularly valuable for people with Type 1 diabetes. Within this group, those attempting precise control such as pregnant women or people experiencing recurrent hypoglycaemia could find this technology very useful."

Commercialization

The glucose-sensing technology is licensed to Glucosense Diagnostics, a spin-out company jointly formed

continued on next page

Benchtop prototype

Professor Jose commented, "The glass used in our sensors is hardwearing, acting in a similar way as that used in smartphones. Because of this, our device is more affordable, with lower running costs than existing self-monitoring systems.

"We are currently piloting a benchtop version in our clinical investigations and we aim to develop two types of devices for the market. One will be a finger-touch device similar to a computer mouse. The other will be a wearable version for continuous monitoring. An EPSRC-funded £1.4 million pilot manufacturing facility at

continued from previous page

Laser sensor could replace finger-prick diabetes test

and funded by the University of Leeds and NetScientific plc, a biomedical and healthcare technology group specialising in commercialising transformative technologies from leading universities and research institutes.

Sir Richard Sykes, Chairman of NetScientific, said, "Diabetes is a growing problem, with the need for non-invasive glucose monitoring becoming ever more critical. This technology could help empower millions of people to better manage their diabetes and minimise interventions with healthcare providers. The ultimate development of two distinct products - a finger-touch and a wearable - could give people with different types of diabetes

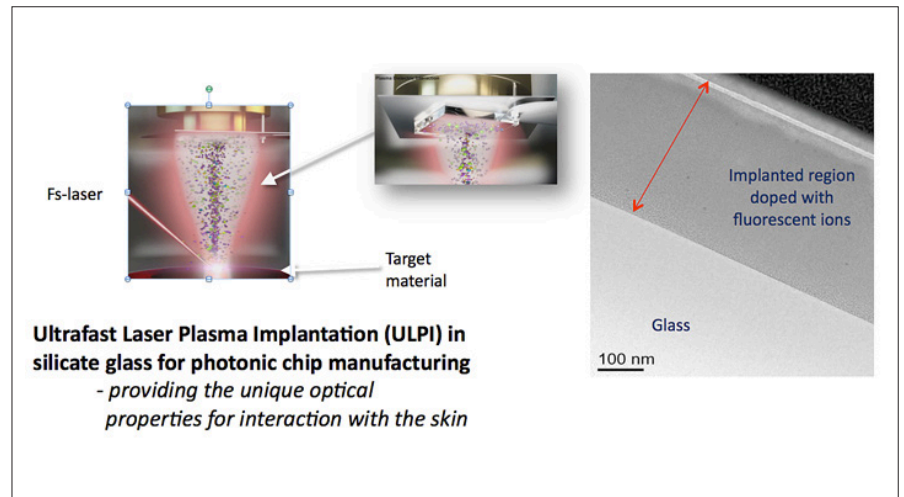
the option of a device that best suits their lifestyle."

Prof Jose added, "We believe that the global market for this capability is currently worth at least £6 billion per year. There are about 400,000 people with Type I diabetes in the UK alone. It is possible that our new device could be deployed effectively against the disease in this group. It is also possible

that device could be used to measure other conditions besides diabetes; in the longer term we believe we can develop other sensors to identify stroke risk and other cardio-vascular potential problems. We are applying for further research funding to develop such applications."

<http://optics.org/news/6/7/17>

(All information correct at time of publication.)



Ultrafast Laser Plasma Implantation (ULPI) in silicate glass for photonic chip manufacturing. An EPSRC-funded £1.4 million pilot manufacturing facility at Leeds for scale-up is scheduled to be ready by 2016.

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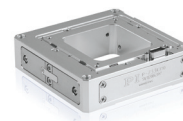
NANO-POSITIONING FOR MICROSCOPY & IMAGING

PI

Booth #519



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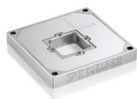
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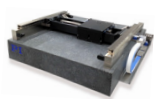
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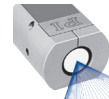
Air Bearings



Piezo Mechanics



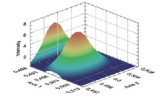
Hexapods



Beam Steering



Mini Stages



Fiber Alignment

JDSU splits into Lumentum and Viavi next month



Soon to be known as Lumentum and Viavi Solutions.

Formal separation on August 1; offshoots Lumentum and Viavi to trade on NASDAQ; shareholder terms revealed.

JDSU has announced several key dates in connection with the splitting off of its Communications & Commercial Optical Products business segment, which is to be named Lumentum Holdings, and the associated special dividend distribution of approximately 80.1% of Lumentum's common stock to JDSU shareholders.



Tom Waechter, president and CEO of JDSU, and CEO-designate for Viavi Solutions.

JDSU's other business lines will be grouped together as Viavi Solutions, including monitoring equipment for both optical and wireless networks, and the former optical security and performance division. This week's announcement was made 10 months after the split was first announced in September 2014.

Tom Waechter, president and CEO of JDSU, and CEO-designate for Viavi Solutions, commented, "By operating as two independent companies, we believe Lumentum and Viavi Solutions will each be able to leverage a strong history while being more flexible and better positioned to capitalize on new opportunities in their respective markets."

For every five shares of JDSU common stock held, existing JDSU shareholders will receive one share of Lumentum common stock. Shareholders will receive cash in lieu of fractional shares. The special dividend distribution is expected to be effective on Saturday, August 1, 2015. The distribution

will be paid on the first trading day thereafter, Monday, August 3, 2015, to JDSU shareholders as of the close of business on July 27, 2015 who continue to hold shares until the ex-dividend date.

JDSU's statement added, "The distribution of Lumentum common stock will complete the formal separation of CCOP from JDSU. After the distribution, Lumentum will be an independent, publicly-traded company. JDSU will be renamed Viavi Solutions and, at the time of the distribution, will retain ownership of approximately 19.9% of Lumentum's outstanding shares.

"Based on approximately 235.3 million shares of JDSU common stock outstanding as of June 27, 2015, a total of approximately 47.1 million shares of Lumentum common stock will be distributed to shareholders and approximately 11.7 million shares will be retained by Viavi. Viavi is committed to liquidating these shares within three years from the closing."

The company also stated, "Prior to the distribution date, JDSU will mail information statements to all shareholders of JDSU common stock as of the record date. The

information statement is an exhibit to the Form 10 that describes Lumentum, including the risks of owning Lumentum common stock, and other details regarding the separation, including information regarding the procedures by which the distribution will be effected and other details of the transaction. The information statement will be available on the US Government's Securities and Exchange Commission website.

New fiber lasers

JDSU's lasers and photonics division, which will soon be known as Lumentum, has recently launched a series of multi-kilowatt lasers based around its 2.1 kW "Corelight" module, which it demonstrated at last month's LASER 2015 expo in Munich.

At the show, JDSU said its fiber laser development strategy "exploits the state-of-the-art laser diode manufacturing expertise at its San Jose, Ca, US, wafer production facility, which delivers high-brightness sources with the kind of reliability credentials built up through its long-standing experience in the telecommunications industry."

<http://optics.org/news/6/7/19>

(All information correct at time of publication.)



JDSU's Corelight laser platform, demonstrated at LASER 2015 in Munich.

Photo: Matthew Peach

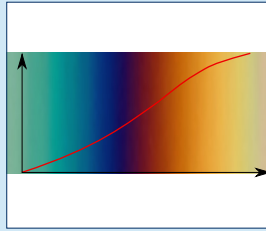
Delta Optical Thin Film A/S

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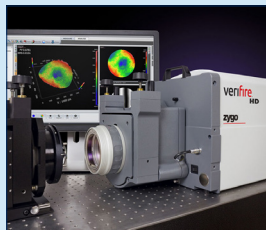
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Product Page Link: www.zygo.com/?/met/interferometers/verifire/hd



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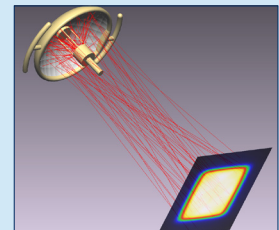
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ASML eyes another record year

Lithography giant set to post record sales as chip makers fill new fabs and extreme UV source upgrades are rolled out.

Netherlands-based lithography equipment specialist ASML looks likely to post record sales for the second year in succession, as demand from memory and logic chip manufacturers remains solid.

CEO Peter Wennink told investors that the two application sectors were driving revenues equally, while service options such as adding holistic lithography were proving increasingly popular with customers.

Payment for tools being shipped to new fabs drove ASML's total sales to €1.65 billion in the second quarter of the year, slightly up on the opening three months of 2015. Wennink now expects the second half of the year to remain just as strong, with annual sales likely to eclipse last year's record figure of €5.9 billion as a result.

While those figures relate almost entirely to deep-UV lithography tools, on the extreme ultraviolet (EUV) front ASML booked orders for six systems from the "major US customer" that in April was revealed to be purchasing 15 of the €100 million-plus tools. That customer is presumed by Wall Street to be Intel. Two production systems will be shipped this year, followed by another four next year.

And while only five EUV systems in total are now expected to ship in the remainder of this year – a planned sixth has been pushed back to early 2016 – Wennink highlighted a recent upgrade of EUV sources already in the field from 40 W output to 80 W output as evidence of the progress being made.



Image: Nasdaq.com.

After rising in value by around 5 per cent following the company's latest financial update, ASML's market capitalization stood at close to \$47 billion in early trading on July 15.

Productivity targets

Wennink said that EUV source power of 130 W had now been demonstrated internally, while average system availability – the other critical contributor to tool productivity – had improved from a typical level of 50–55 per cent to more than 70 per cent at multiple customer sites.

A new drive laser from Trumpf that will ship with the latest "NXE:3350B" systems will provide a source power of 125 W, something that at current system availability levels will deliver a throughput of around 750 wafers per day. Improvements to tin droplet generators and other system tweaks should increase that figure to the targeted 1000 wafers per day at some point next year, by pushing the availability figure closer to 85 per cent.

"Given the recent advances in EUV productivity and availability, we believe that EUV is moving closer to volume production," he added in a statement issued by the Veldhoven firm. "In preparation for pilot production, several customers have run or are running marathon tests on their NXE:3300B systems." One customer has achieved an average tool availability of 70 per cent over a four-week period.

Speaking in a conference call with investors from San Francisco – where the Semicon West trade show is currently taking place – the CEO expanded on that, noting that one customer had now managed to expose 1022 wafers to EUV during a 24-hour period.

"EUV faces normal new technology introduction challenges but its adoption is now a matter of when, not if," reported the firm in its investor presentation. "EUV will continue to enable Moore's law and will drive long term value for ASML."

7 nm 'node' insertion

Although there is a possibility that some additional EUV systems will be ordered for the later stages of the 10 nm technology "node" for which logic chip makers are currently making plans, Wennink said: "It is clear that the [EUV] insertion is now focusing on [the] 7 nm [node]."

In the meantime, the average selling price of deep-UV lithography tools being sold by the company is going up, driven by the additional complexities involved in manufacturing the latest semiconductor devices.

And in preparation for the anticipated ramp in demand for EUV tools as preparations for the 7 nm node gather momentum, ASML has now opened its new Veldhoven factory dedicated to EUV systems.

The company still expects to ship 24 EUV tools from that factory in 2017, while last month its key laser supplier Trumpf said it would invest €70 million in a new building to make the high-power carbon dioxide lasers that are fired at tin droplets to generate EUV light in the systems.

The drive lasers being built by Trumpf for the first production EUV tools comprise four 16 kilowatt lasers working in concert to generate the necessary source power. The company says that the expansion at its Ditzingen headquarters to accommodate expected EUV demand should be completed within two years.

- ASML's stock rose in value by around 5 per cent in early trading on the Nasdaq exchange following the company's latest earnings call. At around \$108, it continues to trade at close to an all-time high.

<http://optics.org/news/6/7/16>

(All information correct at time of publication.)

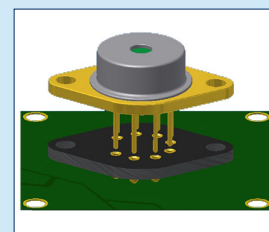
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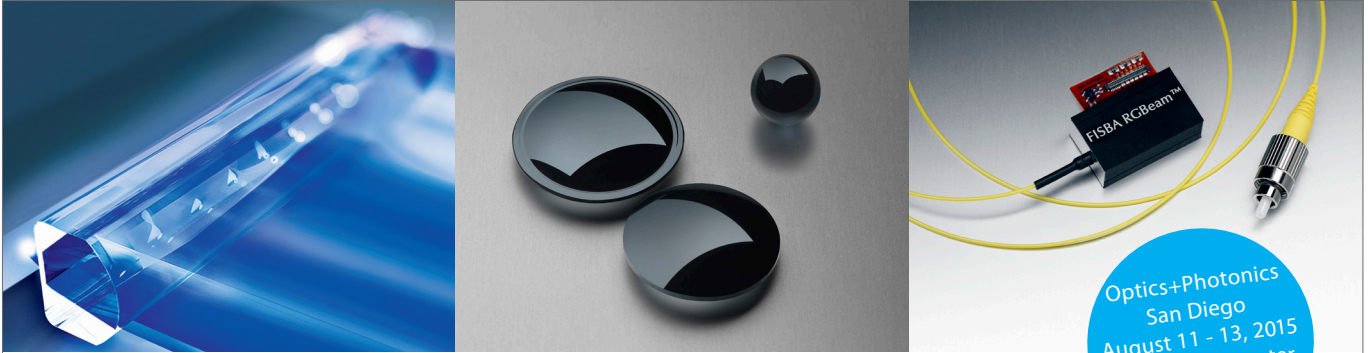
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