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Découpe / Usinage

Advanced circuit packaging with excimer lasers

Source : Industrial Laser Solutions

"The relentless consumer demand for microelectronics products that are more compact, energy-efficient, and deliver greater functionality translates into a need for circuit packaging techniques employing ever-smaller feature sizes. Traditional methods (e.g., photolithography) used for a variety of microstructuring tasks in advanced packaging are becoming less effective and more costly as circuit dimensions shrink, so excimer laser ablation offers an attractive alternative in many cases. This article looks at the use of excimer laser ablation for drilling glass interposers, and reviews how excimers have been successfully employed in a turnkey platform from SÜSS MicroTec (Corona, CA) for other advanced packaging applications."

Lien : http://www.industrial-lasers.com/articles/print/volume-30/issue-5/features/advanced-circuit-packaging-with-excimer-lasers.html

Date de publication : 18/09/2015

Project works to develop new ultrafast laser for microprocessing

Source : Industrial Laser Solutions

"The Photonik-Zentrum Kaiserslautern (PZKL), together with six partners, is coordinating the “HiPoRep” project in which a new ultrafast laser system will be developed and tested in specific applications. Participants are the Ferdinand Braun Institute for High Frequency Technologies (Berlin), the AMPHOS GmbH (Herzogenrath), GWU-Lasertechnik (Erftstadt), TOPAG GmbH (Darmstadt), and GFH GmbH (Deggendorf), who will contribute their know-how to the project. The goal is to develop a new generation of ultrafast lasers to be tested in specific applications, as well as introduce it to industrial processes like laser drilling and micromachining."

Lien : http://www.industrial-lasers.com/articles/2015/09/project-works-to-develop-new-ultrafast-laser-for-microprocessing.html

Date de publication : 08/09/2015

High-power diode laser enables laser cutting of thick stainless steel

Source : Industrial Lasers

"The Brilliant High-Power Diode Lasers for Metal Processing (BRILAMET) joint research project, which concluded in June 2015, involved using a 2.5kW high-power diode laser (HPDL) to conduct extensive experiments in the area of precision cutting for thick metal sheets. For the project, the Laser Center at the Münster University of Applied Sciences (LFM) teamed up with LIMO Lissotschenko Mikrooptik GmbH to conduct extensive experiments in this area.

Lien : http://www.industrial-lasers.com/articles/2015/08/high-power-diode-laser-enables-laser-cutting-of-thick-stainless-steel.html

Date de publication : 28/08/2015

Laser cutting, drilling, and structuring of brittle materials

Source : Laser Focus World

"Laser processing of glass and crystals has always been quite challenging due to low absorption in the visible and near-infrared (NIR) spectrum and low thermal-shock resistance. The most prominent and "obvious" application is laser marking of glass using the high absorbing wavelength of CO2 lasers. For the last couple of years, a more sophisticated way of surface or glass-inside marking became available on the market—using femtosecond lasers. However, due to the higher price tag of those lasers, applications are mainly found in medical devices or packaging for high-end cosmetics and perfumes."

Lien : http://www.industrial-lasers.com/articles/print/volume-30/issue-4/features/laser-cutting-drilling-and-structuring-of-brittle-materials.html

Date de publication : 14/07/2015

Mesure / métrologie

Laser-based non-contact wheel alignment

Source : Novus Light

"Wheel alignment used to be a complicated and time consuming task for workers in auto garages. Beissbarth, a Bosch company based in Munich is one of the pioneers in construction of wheel alignment systems of vehicles. Their system Beissbarth Touchless brings high-tech into the repair shop and by using machine vision and laser measurement; and it improves accuracy and speed of measurement. The system, however, took years of development together project partners in the high-performance laser business."

Lien : http://www.novuslight.com/laser-based-non-contact-wheel-alignment_N4546.html

Date de publication : 24/08/2015

Ultrafast terahertz laser pulses provide quick way to probe potential organic solar-cell materials

Source : Laser Focus World

"Scientists at the National Institute of Standards and Technology (NIST; Gaithersburg, MD) and the Naval Research Laboratory (NRL; Washington, DC) have developed a quick way to test potential new organic photovoltaic materials without having to build a whole solar cell first. The team shows that it is possible to test a candidate material quickly and directly using off-the-shelf ultrafast laser technology, bypassing the costly, time-consuming step of constructing a prototype solar cell for each different material to be evaluated."

Lien : http://www.laserfocusworld.com/articles/2015/07/ultrafast-terahertz-laser-pulses-provide-quick-way-to-probe-potential-organic-solar-cell-materials.html

Date de publication : 17/07/2015

Soudage

Pulsed nanosecond fiber lasers can weld, too!

Source : Industrial Laser Solutions

"The versatility of pulsed nanosecond (ns) infrared fiber lasers is well known, as they are the laser of choice for the majority of industrial marking and engraving applications. Having typically less than a few millijoules in pulse energy and up to 100W of average power, they pack an impressive punch, with high pulse repetition rates and continuous-wave (CW) and modulated quasi-CW (QCW) modes. More recently, they have begun to be used for a variety of micromachining and surface texturing applications and even for remote microcutting applications. The vast majority of these applications involve material removal. Based on this premise, considering this beam source for material joining is counterintuitive. To consider that the same source can join material as well as remove, ablate, engrave, cut, and mark is truly impressive."

Lien : http://www.industrial-lasers.com/articles/print/volume-30/issue-5/features/pulsed-nanosecond-fiber-lasers-can-weld-too.html

Date de publication : 18/09/2015

Innovative laser processes for lightweight constructions

Source : Industrial Laser Solutions

"Increasing challenges to match the requirements of lightweight design and cost-effective production technologies—including the trend to be more design-derivative and to lower lot size—need easy and flexible production processes, and laser remote welding technology can be one solution."

Lien : http://www.industrial-lasers.com/articles/print/volume-30/issue-4/features/innovative-laser-processes-for-lightweight-constructions.html

Date de publication : 29/07/2015

Source laser

Small, inexpensive, and incredibly resilient: A new femtosecond laser for industry

Source : Science Daily

"Scientists have created a laser capable of generating ultrashort pulses of light even under extremely difficult external conditions. This unique combination of precision and resilience is due to the fact that the whole process of generating femtosecond laser pulses takes place within a specially-selected optical fiber."

Lien : http://www.sciencedaily.com/releases/2015/08/150820095451.htm

Date de publication : 20/08/2015

Traitement de surface

Laser process enables refitting of glued saw blades with minimal stress

Source : Industrial Laser Solutions

"Natural stone, like marble or granite, is processed with saw blades with hard-wearing diamond cutting segments. When these are damaged or worn, the cutting segments have to be replaced. Usually, the whole saw blade is sent to a repair shop. Laser Zentrum Hannover eV (LZH; www.lzh.de) and the Institute for Tool Research and Materials (IFW; Remscheid, Germany) have developed a mobile, laser-based process chain for gluing the cutting segments onto the saw blade and subsequently removing them without causing damage."

Lien : http://www.industrial-lasers.com/articles/print/volume-30/issue-5/departments/update/laser-process-enables-refitting-of-glued-saw-blades-with-minimal-stress.html

Date de publication : 18/09/2015

Snake skin-inspired steel could lead to better hard drives

Source : Gizmag

"The study of snakes has given rise to better robot locomotion in sand and autonomous vehicle recharging. And now, the physics of snake scales may help to reduce friction and wear in mechanical systems. Together with Michael Schäfer, Greiner developed a process to transfer the scale structure of reptiles to components of electromechanical systems: With a fiber laser, they milled scales into a steel bolt of 8 mm in diameter."

Lien : http://www.gizmag.com/snake-skin-inspired-steel/38979/

Date de publication : 19/08/2015

Laser cutting can tailor graphene properties

Source : Industrial Laser Solutions

"Graphene, a single atomic-thick sheet of honeycomb carbon lattice, is a promising material for new electronic circuitry, sensors, and optical communications devices. [...] Researchers from the Technological Center AIMEN are exploring the use of ultrafast lasers as a tool for graphene processing, where a precisely focused laser beam can be used to tailor the properties of graphene films in finely defined areas to produce distinct behaviors useful for making these devices."

Lien : http://www.industrial-lasers.com/articles/2015/08/laser-cutting-can-tailor-graphene-properties.html

Date de publication : 28/08/2015

Le laser femtoseconde de micro texturation des surfaces est opérationnel

Source : Cetim

"Après plusieurs années de mise au point, le laser femtoseconde de Manutech USD à Saint-Étienne, servant à la micro texturation de surfaces, est mis au service des industriels."

Lien : http://www.cetim.fr/fr/Actualites/En-France/A-la-une/Le-laser-femtoseconde-de-micro-texturation-des-surfaces-est-operationnel

Date de publication : 27/08/2015

Lasers for lithography

Source : Photonics

"The interaction between light source and process places demands on laser performance and parameters in applications such as semiconductor photolithography, maskless lithography and 3-D printing."

Lien : http://www.photonics.com/Article.aspx?AID=57539

Date de publication : 06/07/2015

Divers

Self-sweeping lasers could make LIDAR systems cheaper

Source : Electronics EETimes

"A team of researchers at the University of Berkeley has developed a novel concept to automate the way a light source changes its wavelength as it sweeps the surrounding landscape. The approach could be used for the design of cheaper LIDAR systems for vehicles."

Lien : http://www.electronics-eetimes.com/en/self-sweeping-lasers-could-make-lidar-systems-cheaper.html?news_id=222925953&cmp_id=7

Date de publication : 04/09/2015

Laser-burned graphene gains metallic powers

Source : Science Daily

"Laser-induced graphene, created by the Rice lab of chemist James Tour last year, is a flexible film with a surface of porous graphene made by exposing a common plastic known as polyimide to a commercial laser-scribing beam. The researchers have now found a way to enhance the product with reactive metals."

Lien : http://www.sciencedaily.com/releases/2015/08/150820134713.htm

Date de publication : 20/08/2015

Matter wave interferometry cools atoms and should cool molecules

Source : Laser Foxus World

"Researchers from the University of Southampton (Southampton, England) demonstrated for the first time a new laser cooling method--based upon the interference of matter waves--that could be used to cool molecules. They say the method, which produces samples of ultra-cold atoms, could revolutionize experimental atomic physics, enabling such devices as atomic clocks (the core of GPS) and a range of quantum devices, including the possibility of a quantum computer."

Lien : http://www.laserfocusworld.com/articles/2015/08/matter-wave-interferometry-cools-atoms-and-should-cool-molecules.html

Date de publication : 19/08/2015

Entries now accepted for the Innovation Award Laser Technology 2016

Source : Laser Focus World

"The Innovation Award Laser Technology is now accepting proposals for the European research and technology prize of 10,000 euros, awarded every two years to recognize outstandingly innovative work in the field of laser technology. The prize is joinly awarded by the Arbeitskreis Lasertechnik e.V. and the European Laser Institute ELI. Closing date for applications is January 15, 2016."

Lien : http://www.laserfocusworld.com/articles/2015/08/proposals-for-the-2016-innovation-award-laser-technology-are-now-open.html

Date de publication : 19/08/2015

Le laser, histoire d'une découverte lumineuse

Source : CNRS Le Journal

"En mai 1960, Theodore Maiman décrit le fonctionnement du premier laser à rubis. Depuis, le laser est devenu incontournable dans l'industrie, la médecine, notre vie quotidienne, mais aussi dans la recherche."

Date de publication : 04/08/2015

ASU researchers demonstrate the world's first white lasers

Source : ECN Mag

"While lasers were invented in 1960 and are commonly used in many applications, one characteristic of the technology has proven unattainable. No one has been able to create a laser that beams white light. Researchers at Arizona State University have solved the puzzle. They have proven that semiconductor lasers are capable of emitting over the full visible color spectrum, which is necessary to produce a white laser."

Lien : http://www.ecnmag.com/news/2015/07/asu-researchers-demonstrate-worlds-first-white-lasers-0

Date de publication : 29/07/2015

Grab your shades — The laser market has a bright future

Source : Photonics

"Growing demand for advanced technology in the defense and security, industrial, and medical markets is driving laser industry evolution."

Lien : http://www.photonics.com/Article.aspx?AID=57540

Date de publication : 06/07/2015

Laser World of Photonics 2015: A look back

Source : Novus Light

"Bringing together all of the world's leading manufacturers of laser technology together in one place is no mean feat. But last week [22-25 juin 2015], that's exactly what the organizers of the Laser World of Photonics did at their bi-annual show in Munich (Germany)."

Lien : http://www.novuslight.com/laser-world-of-photonics-2015-a-look-back_N4377.html

Date de publication : 06/07/2015

Laser beams move closer to controlling the path of lightning

Source : Laser Focus World

"Research conducted at the Advanced Laser Light Source facility of the INRS Énergie Matériaux Télécommunications research centre (Varennes, QC, Canada) published in Science Advances details a much-improved method for potentially controlling the path of lightning using lasers."

Lien : http://www.laserfocusworld.com/articles/2015/06/laser-beams-move-closer-to-controlling-the-path-of-lightning.html

Date de publication : 01/07/2015