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Découpe / Usinage

Nanosecond pulsed fiber lasers advance in metal cutting

Source(s) : Laser Focus World

"While the success of nanosecond pulsed lasers is well known in materials marking applications, a less-publicized and growing application is their use for micro-cutting a wide range of metallic materials without requiring nozzles or assist gases."

Lien(s) : <http://www.laserfocusworld.com/articles/print/volume-51/issue-10/features/photronics-applied-materials-processing-nanosecond-pulsed-fiber-lasers-advance-in-metal-cutting.html>

Date de publication : 13/10/2015

Fabrication additive / Fusion Laser

Fabrication additive partagée au Centre

Source(s) : Cetim

"Le Cetim-Certec de Bourges, centre associé au Cetim, met à la disposition des industriels de la région, une machine de fabrication additive par fusion laser sur lit de poudre aluminium et acier maraging. Utilisée en temps partagé avec l'assistance d'experts et l'appui financier de plusieurs partenaires, cette machine va permettre aux industriels de tester la fabrication additive sur leurs pièces et de s'assurer ainsi de la maîtrise de cette technologie."

Lien(s) : <http://www.cetim.fr/fr/Actualites/En-France/A-la-une/Fabrication-additive-partagee-au-Centre>

Date de publication : 24/11/2015

Thales se dote de sa première usine d'impression 3D

Source(s) : Industrie & Technologies

"Ce centre de fabrication additive métallique sera basé près de Casablanca, au Maroc et comptera une dizaine de machines avec la technologie de la fusion laser de lits de poudre. Il fabriquera dans un premier temps des pièces pour les satellites."

Lien(s) : <http://www.industrie-techno.com/thales-se-dote-de-sa-premiere-usine-d-impression-3d.41571>

Date de publication : 12/12/2015

Additive manufacturing as new standard in microfabrication

Source(s) : Industrial Laser Solutions

"Micro-production of the future requires systems that can provide prototypes, one-off production, and small series quickly and efficiently. This includes highly flexible, intelligent, and high-precision production systems, and the demand for these solutions is driven by the steady trend toward miniaturization in many application areas. [...] With the help of innovative additive-microfabrication technology, these barriers can now be overcome without compromising quality or precision."

Lien(s) : <http://www.industrial-lasers.com/articles/print/volume-30/issue-6/features/additive-manufacturing-as-new-standard-in-microfabrication.html>

Date de publication : 11/11/2015

3-D laser printing of whispering-gallery-mode microcavities

Source(s) : Phys.org

"Whispering-Gallery-Mode (WGM) microcavities that confine light in a small volume with high quality (Q) factors and enhance interaction of light with matters inside the cavity have shown promising applications as an element for a variety of devices such as micro-lasers, micro-sensors, micro-filters, and thus are becoming the basic building blocks of integrated photonic systems. This leads to tremendous progress in the development of micro-scale high-Q microcavity processing technologies."

Lien(s) : <http://phys.org/news/2015-10-d-laser-whispering-gallery-mode-microcavities.html>

Date de publication : 30/10/2015

Additive manufacturing advances: Printing electronics

Source(s) : nanowerk

"Researchers from the Naval Research Laboratory in Washington, D.C. are doing their part to boost the burgeoning field, popularly known as 3-D printing, but more generally named additive manufacturing. The group has demonstrated that a combination of two technologies -- one to create a thin film and the second to "cut" designs out of the film -- could be a potentially powerful tool to create custom electronic components."

Lien(s) : <http://www.nanowerk.com/news2/gadget/newsid=41643.php>

Date de publication : 20/10/2015

Les constructeurs de machines-outils s'approprient la fabrication additive

Source(s) : Industrie & Technologies

"Sur l'EMO de Milan, le salon de la machine-outil qui a fermé ses portes vendredi 9 octobre, la fabrication additive était peu mise en avant par ses spécialistes. C'est du côté des grands de la machine-outil comme Mazak et DMG Mori que les lignes bougent. Ils cassent la frontière entre fabrications par enlèvement et ajout de matière."

Lien(s) : <http://www.usinenouvelle.com/article/les-constructeurs-de-machines-outils-s-approprient-la-fabrication-additive.N356426>

Date de publication : 13/10/2015

Mesure / métrologie

SciAps announces updated laser technology for handheld alloy analysis

Source(s) : AZO Materials

"SciAps, Inc., the leading provider of handheld analytical instruments, is releasing an advancement to their proprietary laser design for the Z-series handheld LIBS analyzers. The updated laser operation (patent pending) operates at 50 Hz for sample surface preparation. It fires 10 laser shots in 0.2s at the same location to burn off surface material, then relaxing to 10 Hz operation for gated spectral data collection – critical for low concentration measurements."

Lien(s) : <http://www.azom.com/news.aspx?newsID=44779>

Date de publication : 11/11/2015

Vector network analysis using lasers

Source(s) : Phys.org

"Vector network analyzers (VNA) are among the most precise high-frequency measurement devices available today. Due to continuous development within the last decades VNAs are usable up to frequencies of 1 terahertz (10¹² Hz) and complex error correction algorithms exist. However, VNAs are very expensive and require multiple frequency extenders in order to cover a wide frequency range. At the Physikalisch-Technische Bundesanstalt (PTB) a VNA has been developed which utilizes optoelectronic techniques based on femtosecond lasers. Such devices constitute a cost-effective alternative to conventional VNAs and might be used for high-frequency measurements in the future."

Lien(s) : <http://phys.org/news/2015-11-vector-network-analysis-lasers.html>

Date de publication : 05/11/2015

LIDAR nears ubiquity as miniature systems proliferate

Source(s) : Laser Focus World

"As light detection and ranging instrumentation shrinks in size from benchtop- to module- to even chip-sized systems, LIDAR is becoming ubiquitous for infrastructure monitoring, surveillance, and a host of other tasks that even unmanned drones can perform."

Lien(s) : <http://www.laserfocusworld.com/articles/print/volume-51/issue-10/features/lidar-lidar-nears-ubiquity-as-miniature-systems-proliferate.html>

Date de publication : 13/10/2015

Deformation Measurement: Crosshair laser method is new twist on wind turbine measurement

Source(s) : Laser Focus World

"From wind-turbine blades to large vehicle frames, offshore oil rigs, boat hulls, and prefabricated bridges, many applications exist where engineers need to accurately measure deflections and twists in large structures. For many of these situations, however, it is not practical to use traditional methods, such as accelerometers or other ground-referenced techniques. Now, a modular laser-based tool from Boxboro Systems (Boxborough, MA), called the DTMS (deflection and twist measurement system), enables these deformations to be measured in real time, at high spatial resolution, and over large displacement ranges."

Lien(s) : <http://www.laserfocusworld.com/articles/print/volume-51/issue-10/world-news/deformation-measurement-crosshair-laser-method-is-new-twist-on-wind-turbine-measurement.html>

Date de publication : 13/10/2015

Soudage

Welding steel and aluminum with lasers produces thick metal sheets for light ships

Source(s) : Industrial Laser Solutions

"A 10-partner project dubbed Laser Welding of Steel to Aluminum for Applications in Shipbuilding (LaSAAS), led by Laser Zentrum Hannover eV (LZH; Hannover, Germany), is working to develop a robust laser welding process for maritime manufacturing."

Lien(s) : <http://www.industrial-lasers.com/articles/2015/11/welding-steel-and-aluminum-with-lasers-produces-thick-metal-sheets-for-light-ships.html>

Date de publication : 05/11/2015

Source laser

Diamond metasurfaces increase damage thresholds in high-power laser systems

Source(s) : Laser Focus World

"Synthetic diamond supermaterials company Element Six (Santa Clara, CA), a member of the De Beers Group of Companies, has developed a new diamond optics product called Diamond PureOptics. Drawing inspiration from the antireflective structure of a moth's eye, Element Six says the all-diamond solution offers improved reliability and even higher power density levels for high-power carbon-dioxide (CO₂) and other laser systems."

Lien(s) : <http://www.laserfocusworld.com/articles/2015/11/diamond-metasurfaces-increase-damage-thresholds-in-high-power-laser-systems.html>

Date de publication : 07/11/2015

Driver creates short, powerful pulses with LEDs

Source(s) : Photonics

"Providing high-brightness, rapidly pulsed, multicolor light, a novel LED driver could displace more expensive lasers and other light sources in scientific, industrial and commercial uses."

Lien(s) : <http://www.photonics.com/Article.aspx?AID=57858>

Date de publication : 22/10/2015

Traitement de surface

Improvements in wear resistance of metallic materials by using laser

Source(s) : Science Daily

"The beneficial effects of a new technique that extends the useful life of stainless steels, aluminum alloys and titanium has been demonstrated by researchers. Due to changes in surface properties, this technique is especially suitable and competitive for future material processing of the aeronautics, nuclear, automotive and biomedical industry."

Lien(s) : <http://www.sciencedaily.com/releases/2015/12/151204094552.htm>

Date de publication : 05/12/2015

New technique traps light at graphene surface using only pulses of laser light

Source(s) : Phys.org

"Physicists from the University of Exeter in collaboration with the ICFO Institute in Barcelona have used a ground-breaking new technique to trap light at the surface of the wonder material graphene using only pulses of laser light. Crucially, the team of scientists have also been able to steer this trapped light across the surface of the graphene, without the need for any nanoscale devices. This dual breakthrough opens up a host of opportunities for advances in pivotal electronic products, such as sensors and miniaturised integrated circuits."

Lien(s) : <http://phys.org/news/2015-11-technique-graphene-surface-pulses-laser.html>

Date de publication : 16/11/2015

Laser surface texturing with new fiber lasers

Source(s) : Industrial Laser Solutions

"Two new fiber lasers with unique processing capabilities have been introduced that add to an existing range of nanosecond fiber lasers. In the first case, the modularity of fiber lasers enables an average power increase into the multi-kilowatt regime. The second laser extends the utility of variable-pulse-duration master oscillator power amplifier (MOPA) fiber lasers by offering shorter pulse lengths into the long picosecond regime at a low cost/watt selling price. Both lasers operate in unexplored irradiance and power regimes and extend the capabilities of current surface preparation, cleaning, and coating removal processes significantly. As well as further reducing reliance on environmentally unfriendly chemical processes, the two fiber lasers enable novel applications such as improving welding of high-reflectivity metals."

Lien(s) : <http://www.industrial-lasers.com/articles/print/volume-30/issue-6/features/laser-surface-texturing-with-new-fiber-lasers.html>

Date de publication : 11/11/2015

Divers

Fraunhofer develops a laser process simulation mobile app

Source(s) : ElectroOptics

"Scientists from Fraunhofer ILT have developed the first-ever laser process simulation software that calculates processes in real time and also runs on tablet computers and smartphones. The new software allows users to simulate processes without the need for expensive and complex experiments and to find optimum process parameters even more effectively."

Lien(s) : http://www.electrooptics.com/news/news_story.php?news_id=2454

Date de publication : 08/12/2015

Laser-induced graphene might make the battery obsolete

Source(s) : Tech Times

"Researchers at Rice University have been working on ways to make microsuperconductors out of LIG [laser-induced graphene], as opposed to the usual lithographic process, which can be painstaking and time-consuming. LIG-produced supercapacitors, however, only take a few minutes to make, and all that is needed to make them are a polyimide plastic sheet and a computer-operated laser."

Lien(s) : <http://www.techtimes.com/articles/114059/20151207/graphene-batteries.htm>

Date de publication : 07/12/2015

Stand collectif "Laser et procédés" - Micronora 2016

Source(s) : Club Lasers et Procédés

"Le salon MICRONORA 2016 se tiendra du 27 au 30 septembre 2016 à Besançon. A cette occasion, le Club Laser et Procédés organise un stand collectif accueillant 14 entreprises acteurs dans le domaine des technologies et procédés laser industriels."

Lien(s) : <http://procedes-laser.over-blog.com/2015/10/stand-collectif-laser-et-procedes-micronora-2016.html>

Date de publication : 09/11/2015

Laser welding pipeline steel: How it got started

Source(s) : Industrial Laser Solutions

"Thirty years ago, the challenge of [laser welding](#) pipeline steel was an intense effort by a small team of individuals in Edmonton, AB, Canada that resulted in the construction of the world's most powerful non-military laser. This was part of a project to design and build a laser welding machine for use on the pipeline projected to be built from the north shore of Alaska to the continental US. A new book by Dr. Vivian Merchant, who was one of the team building the laser system and undertaking the welding development, has been published. Merchant, who is also a [contributor to ILS](#), has firsthand knowledge and knows how to express complex phenomenon in a language that ordinary people can understand. He applies this ability in writing about the various components of a high-power laser system, the constituent parts that make the laser work."

Lien(s) : <http://www.industrial-lasers.com/articles/2015/11/laser-welding-pipeline-steel-how-it-got-started.html>

Date de publication : 04/11/2015

Nanoscale diamond 'racetrack' becomes breakthrough Raman laser

Source(s) : Nanowerk

"In a first-of-its-kind demonstration of diamond's promising technological applications, a team of engineers from Harvard University has developed a new class of Raman laser small enough to operate on a photonic chip. This optical component uses a nanoscale racetrack-shaped diamond resonator to convert one frequency of laser light to an entirely different range of wavelengths, opening up new possibilities for broadband data communications and a host of other applications."

Lien(s) : <http://www.nanowerk.com/nanotechnology-news/newsid=41658.php>

Date de publication : 22/10/2015

Un laboratoire pour les lasers fibrés à Lille

Source(s) : Industrie & Technologies

"Le **CEA**, l'**Université de Lille** et le **CNRS** se sont réunis pour créer un laboratoire de recherche conventionné baptisé "Systèmes lasers fibrés énergétiques" (**SyLFE**). C'est le fruit d'une longue collaboration entre le laboratoire Physique des lasers, atomes et molécules (**PhLAM**) et le département des Lasers de puissance du Centre d'études scientifiques et techniques d'Aquitaine (**CEA Cesta**). 'objectif du SyLFE est de développer des lasers et amplificateurs à fibre optique à forte énergie de dernière génération dédiés à la fois à la recherche de pointe et à des applications industrielles."

Lien(s) : <http://www.industrie-techno.com/un-laboratoire-pour-les-lasers-fibres-a-lille.40242>

Date de publication : 08/10/2015