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Découpe / Usinage

Laser cutting tool empowers the maker movement

"Over the past decade, the so-called "Maker Culture" has emerged as a significant movement of individuals who take the DIY (do it yourself) approach to an amazing extreme, creating everything from fine art pieces to aerial drones. [...] Now, a new generation of laser cutting tools is emerging as an important resource for makers, enabling rapid, high precision fabrication of parts from metals, plastics and many other materials."

Lien : http://www.novuslight.com/laser-cutting-tool-empowers-the-maker-movement_N4196.html

Date de publication : 22/06/2015

Laser World of Photonics 2015: Searching for the perfect laser beam

"Current research is focused on increasing expertise in forming fiber-guided laser beams for sheet metal cutting and transferring that knowledge to damage-free glass cutting in the display industry as well as water-jet-guided precision cutting of small parts. As part of the EU's HALO project ("High power Adaptable Laser beams for materials processing"), scientists at the [Fraunhofer Institute for Laser Technology ILT](#) are working on distributing the laser beam's intensity in a way that meets the highest quality requirements while conserving resources. The project results will be presented at the [Laser World of Photonics 2015](#) in June in Munich."

Lien : http://www.novuslight.com/laser-world-of-photonics-2015-searching-for-the-perfect-laser-beam_N4105.html

Date de publication : 25/05/2015

Femtosecond laser processing of brittle materials

"Laser processing of optically transparent or semi-transparent, brittle materials is finding wide use in various manufacturing sectors. For example, in consumer electronic devices such as smartphones, e-readers, and tablets, cover glass needs to be cut precisely in various shapes."

Lien : <http://www.industrial-lasers.com/articles/print/volume-30/issue-3/features/femtosecond-laser-processing-of-brittle-materials.html>

Date de publication : 12/05/2015

CO2 lasers advance next-generation abrasive disc technology

"In the early days of industrial CO2 lasers, a fair amount of attention was focused on pursuing laser cutting abrasive (sandpaper) discs as a viable market. The logic was clear, as a laser solution would eliminate the need for hard tooling. However, the economics were not favorable, as the capital cost of implementing laser technology was just too high and the production rates were too slow when compared to existing die-cutting solutions. Additionally, those die-cutting processes were well established and there were no compelling reasons to pursue a laser solution because die cutting did not present challenges that a laser process would solve. In recent years, that has changed. This article reviews the history of producing abrasive sanding discs from well-established die-cutting practices to a laser process required to meet new demands placed on abrasive disc manufacturers."

Lien : <http://www.industrial-lasers.com/articles/print/volume-30/issue-3/features/co2-lasers-advance-next-generation-abrasive-disc-technology.html>

Date de publication : 11/05/2015

Laser technology advances microchip production

"A new process for cutting silicon wafers could streamline the production of smaller and more powerful microchips for electronic devices."

Lien : <http://www.sciencedaily.com/releases/2015/05/150519104902.htm>

Date de publication : 20/05/2015

Fabrication additive / Fusion Laser

3D printing breakthrough creates tiny metal structures

"European researchers have come up with a method to 3D print in metal using tiny drops of copper and gold with the help of a laser. The ability to print more structures that better conduct heat and electricity could lead to entirely new devices and components being created."

Lien : <http://www.gizmag.com/3d-printing-gold-copper-twente/37966/>

Date de publication : 11/06/2015

Laser technique for low-cost self-assembly of nanostructures

"A low-cost technique that holds promise for a range of scientific and technological applications has been developed by scientists. They have combined laser printing and capillary force to build complex, self-assembling microstructures using a technique called laser printing capillary-assisted self-assembly (LPCS)."

Lien : <http://www.sciencedaily.com/releases/2015/05/150525095330.htm>

Date de publication : 25/05/2015

Disney Researchers develop soft 3D printer that creates objects with layered felt

"For all of the additive manufacturing technologies that we've seen to date, most - if not all - have focused on creating hard objects using any number of materials ranging from plastics to metals and food items to ceramics. Now, a team of researchers at [Disney Research](#) and Carnegie Mellon University have developed a 3D printer that layers together sheets of laser cut fabric to create three-dimensional objects using STL files similar to traditional 3D printers."

Lien : <http://www.3ders.org/articles/20150417-disney-researchers-develop-soft-3d-printer-that-creates-objects-with-layered-felt.html>

Date de publication : 17/04/2015

Le CTIF et Spartacus 3D unissent leurs moyens en fabrication additive métallique

"Le Centre technique de la fonderie et le prestataire Spartacus 3D vont partager leurs savoirs et moyens techniques pour mieux comprendre les phénomènes métallurgiques intervenant lors de la fabrication additive métallique. L'objectif est d'aider au développement de cette filière prometteuse en France."

Lien : <http://www.industrie-techno.com/le-ctif-et-spartacus-3d-unissent-leurs-moyens-en-fabrication-additive-metallique.37627>

Date de publication : 15/04/2015

Short laser pulses for material deposition with cold-spray technology

"In a new EU-funded project, ultra-short laser pulses modify material surfaces so that metal powder from a cold gas jet can adhere more easily. With cold-spray technology, coating lightweight materials such as plastics or carbon-fiber-reinforced plastic (CFRP) becomes significantly simpler. The EU research project "[Efficient Manufacturing of Laser-Assisted Cold-Sprayed Components](#) (EMLACS) unites five partners from industry and research who want to extend low-pressure cold-gas spraying to new applications."

Lien : http://www.novuslight.com/short-laser-pulses-for-material-deposition-with-cold-spray-technology_N3984.html

Date de publication : 13/04/2015

Marquage

Laser applications for printing and embossing

"The industrial market for processing large-scale films has seen dramatic changes since the 1980s and has almost completely been replaced by lasers and digital processes. A commonly used technology for engraving screens in the printing industry, well known since then, is the use of RF-excited CO2 lasers with a beam power up to about 1kW modulated in accordance to the pattern to be engraved. A mesh is covered with a thin polymer layer and the modulated laser beam engraves this layer, where holes in the mesh have to be opened. This is a very efficient way to produce printing plates and cylinders, especially when it comes to high-volume printing. Almost all printed textiles, carpets, wallpapers, and some features of banknotes use this technique."

Lien : <http://www.industrial-lasers.com/articles/print/volume-30/issue-3/features/laser-applications-for-printing-and-embossing.html>

Date de publication : 11/05/2015

Mesure / métrologie

Mini laser for real-time quality control

"Good quality and precision are essential – a dictum that also applies to products from the pharmaceutical and chemical industry. While the quality of chemical products is often still being monitored manually during the production process, a laser-based system could take over this task in future, allowing for a continuous monitoring in real time."

Lien : <http://www.sciencedaily.com/releases/2015/06/150611090351.htm>

Date de publication : 12/06/2015

Perseverance paves way for wind laser

"Developing new satellite instruments is always challenging, but at times more head-scratching is needed to create something truly cutting-edge. ESA's Aeolus mission may have caused a few headaches along the way, but its wind lasers are now ready and the task of putting the rest of the instrument together can begin for launch in 2016."

Lien : <http://phys.org/news/2015-04-perseverance-paves-laser.html>

Date de publication : 22/04/2015

Soudage

Lasers improve blade maintenance for stone cutting

"Lasers and glue could replace the solder used today to attach diamond segments to rotary blades used in stone cutting. A new mobile, laser-based process for attaching and removing cutting segments virtually eliminates the thermal stress caused by soldering, which can warp blades and degrade cutting quality. Developed by researchers at Laser Zentrum Hannover EV (LZH) and the Institute for Tool Research and Materials in Remscheid, the new process consists of four stages."

Lien : <http://www.photonics.com/Article.aspx?AID=57550>

Date de publication : 30/06/2015

Better welding with speedy laser mirrors

"Silicon micromirrors can guide laser beams at extremely high speeds, allowing operators to dose heat input to workpieces with absolute precision. But to date they have not been robust enough to be used for laser cutting and welding. Now a Fraunhofer team has managed to develop fast, durable mirrors that are capable of performing challenging cutting and welding tasks."

Lien : <http://www.sciencedaily.com/releases/2015/06/150601082410.htm>

Date de publication : 01/06/2015

Lasers are the key to mastering challenges in lightweight construction industries

"Many joining and cutting processes are possible only with lasers. New technologies make it possible to manufacture metal components with hollow structures that are significantly lighter and yet just as stable as solid components. In addition, lasers can be used to combine various lightweight construction materials and steels with each other. The Fraunhofer Institute for Laser Technology ILT in Aachen is presenting a range of such solutions at the LASER World of Photonics trade fair from June 22 to 25, 2015 in Munich, Germany."

Lien : <http://phys.org/news/2015-05-lasers-key-mastering-lightweight.html>

Date de publication : 29/05/2015

Laser welding technology produces safe contacts between battery cells

"The Fraunhofer Institute for Laser Technology (ILT) has developed a new laser welding technology for temperature-sensitive cylindrical battery cells that is now ready for series production. Since 2009, the experts in Aachen have been working on battery joining—the process of connecting individual cells into packs. They are currently working with other Fraunhofer institutes to put together a complete battery pack."

Lien : <http://www.industrial-lasers.com/articles/2015/04/laser-welding-technology-produces-safe-contacts-between-battery-cells.html>

Date de publication : 30/04/2015

Laser hybrid welding adds to capability at French shipyard

"Saint-Nazaire, France – In efforts to modernize their shipyard's panel welding machinery, shipbuilder STX France added new laser welding technology to achieve more capacity, better quality, and faster performance."

Lien : <http://www.industrial-lasers.com/articles/2015/04/laser-hybrid-welding-adds-to-capability-at-french-shipyard.html>

Date de publication : 24/04/2015

Source laser

Optical module increases productivity of ultrafast laser systems

"The Fraunhofer Institute for Laser Technology (ILT) has developed an optical module that shortens the pulse duration of powerful ultrafast lasers by a factor of four. The compact module is suitable for use in lasers with up to 1kW average power and energy from 10 to 200µJ. A 1ps pulse can thus be compressed to about 250fs, during which less than 10% of energy is lost and the beam quality is maintained."

Lien : <http://www.industrial-lasers.com/articles/2015/06/optical-module-increases-productivity-of-ultrafast-laser-systems.html>

Date de publication : 30/06/2015

Développement d'un projecteur laser destiné aux téléphones mobiles

"L'un des premiers projecteurs laser pouvant être intégré à un smartphone est développé à l'université polytechnique de Varsovie (WUT). Sa consommation est sensiblement inférieure à celle des produits existants ce qui lui permettrait d'être utilisé pour afficher des hologrammes dans une salle lumineuse sans vider la batterie du téléphone. Il s'agit du premier dispositif de tête de projection laser utilisant une toute nouvelle méthode holographique afin de former en temps réel des images animées."

Lien : <http://www.bulletins-electroniques.com/actualites/78648.htm>

Date de publication : 12/06/2015

Gas Lasers: Carbon monoxide laser aims at high-power applications

"While carbon monoxide (CO) lasers, which emit at wavelengths near 5 µm, have been around for decades, they have not been used nearly as much as the similar carbon dioxide (CO₂) laser, which has a primary output wavelength of 10.6 µm. Now, Coherent (Santa Clara, CA) has unveiled a CO laser designed for materials-processing applications such as glass cutting, as well as medical, spectroscopic, and research uses."

Lien : <http://www.laserfocusworld.com/articles/print/volume-51/issue-06/world-news/gas-lasers-carbon-monoxide-laser-aims-at-high-power-applications.html>

Date de publication : 08/06/2015

Laser beam compressed into thin filament

"Scientists have been researching the process of laser pulse filamentation -- the effect produced when a laser beam propagating in air focuses into a filament. The researchers discovered how this process influences the preliminary transition of a beam passing through quartz glass, which has applications in the field of nonlinear optics."

Lien : <http://www.sciencedaily.com/releases/2015/05/150529112113.htm>

Date de publication : 30/05/2015

Des lasers pas si instables

"Le milieu amplificateur et les modes de rayonnement sont des caractéristiques fondamentales des lasers. Le cas où le milieu est une fibre optique et où le mode est dit "verrouillé" est d'un intérêt particulier pour la production de lasers délivrant de courtes et intenses impulsions lumineuses. Cependant l'augmentation de la longueur des fibres, requise pour aller vers des énergies de plus en plus importantes, conduit à une perte de cohérence et à un comportement temporel de plus en plus instable. Dans un article publié récemment par la revue "Nature Communications", une équipe de 7 scientifiques [...] a montré qu'une étude théorique et expérimentale approfondie de ces lasers "temporellement instables" en révélait des régularités spatio-temporelles insoupçonnées. Cela ouvre potentiellement la voie à une maîtrise technique, jusqu'à présent inenvisageable, de tels dispositifs."

Lien : <http://www.bulletins-electroniques.com/actualites/78539.htm>

Date de publication : 28/05/2015

Mastering the art of using ultrafast industrial lasers

"Ultrafast lasers, also known as ultrashort-pulse lasers, are now available from a large number of manufacturers, with new players entering the field at a rapid pace. These lasers, both picosecond and femtosecond, were just cool toys in the research lab a few years ago. Now they being used extensively in production environments, allowing the microprocessing of materials and in applications that are not possible using longer pulse length lasers."

Lien : <http://www.laserfocusworld.com/articles/2015/04/mastering-the-art-of-using-ultrafast-industrial-lasers.html>

Date de publication : 30/04/2015

Laser diodes have come a long way and brought five Nobel prizes

"Once the weaklings of the laser world, unable to emit a few milliwatts continuously at room temperature, laser diodes have become workhorses. Today they power the Internet, pump multikilowatt lasers, and weld plastics. There's a lot of innovation in those tiny chips."

Lien : <http://www.laserfocusworld.com/articles/print/volume-51/issue-04/features/photronics-frontiers-laser-diodes-looking-back-looking-forward-laser-diodes-have-come-a-long-way-and-brought-five-nobel-prizes.html>

Date de publication : 08/04/2015

New laser-light source to shed light on fundamental physics

"With the aid of extremely short and highly intense pulses of laser light, scientists have made great strides in their efforts to observe and control particle motions outside the confines of atomic nuclei. Indeed, the future of electronics lies in optical control of electron flows. That would enable data processing operations to be performed at frequencies equivalent to the rate of oscillation of visible light -- some 100,000 times faster than is feasible with current techniques. To reach this goal, advances in laser technology are essential. Physicists have now developed a new laser-light source that will lead to significant advances in research on fundamental physics."

Lien : <http://www.sciencedaily.com/releases/2015/05/150505082940.htm>

Date de publication : 05/05/2015

Fiber laser micromachining in high-volume manufacturing

"A new generation of fiber lasers operating in the near-infrared (NIR) at 1070nm has unique properties such as high pulse energy with high peak power, high average power, and very good beam quality. Consequently, extreme high-power densities are possible, allowing for adequate coupling and high-quality machining of materials that are typically transparent at these wavelengths. These lasers, known as quasi-continuous-wave (QCW) ytterbium fiber lasers, can operate with variable pulse length in pulsed mode at high peak power and high repetition rate, as well as in continuous-wave (CW) mode at high average power. This translates into high-throughput machining, from drilling to scribing and cutting."

Lien : <http://www.industrial-lasers.com/articles/print/volume-30/issue-3/features/fiber-laser-micromachining-in-high-volume-manufacturing.html>

Date de publication : 11/05/2015

Laser Pump Sources: Four 800 kW laser-diode arrays to pump high-pulse-rate HAPLS petawatt laser

"Lawrence Livermore National Laboratory (LLNL; Livermore, CA) has installed and commissioned the highest-peak-power laser-diode arrays in the world, which in total produce a peak power of 3.2 MW. The diode arrays, which were developed and fabricated by Lasertel (Tucson, AZ), will act as the primary pump source for the High-Repetition-Rate Advanced Petawatt Laser System (HAPLS), currently under construction at LLNL. When completed, the HAPLS laser system will be installed at the European Union's Extreme Light Infrastructure (ELI) Beamlines facility, which is under construction in the Czech Republic."

Lien : <http://www.laserfocusworld.com/articles/print/volume-51/issue-05/world-news/laser-pump-sources-four-800-kw-laser-diode-arrays-to-pump-high-pulse-rate-hapls-petawatt-laser.html>

Date de publication : 28/04/2015

Scientists develop first liquid nanolaser

"Scientists at [Northwestern University](#) outside Chicago, Illinois (US), have developed the first liquid nanoscale laser. And it is tunable in real time, meaning you can quickly and simply produce different colors. The laser technology could lead to practical applications, such as a new form of a "lab on a chip" for medical diagnostics."

Liens : http://www.novuslight.com/scientists-develop-first-liquid-nanolaser_N4036.html
<http://www.gizmag.com/liquid-nanolaser-different-colors/37234/>

Date de publication : 27/04/2015

Des scientifiques tchèques et espagnols ont mis au point le premier laser liquide à base de borane

"Des scientifiques de l'Institut de chimie inorganique de l'AVCR dirigé par le Dr. Michaela G. S. Londesborougha en collaboration avec des collègues du Conseil national de recherche espagnol ont développé un nouveau type de laser. Le premier laser dans le visible fut créé il y a environ une cinquantaine d'années. Les lasers dans le visible n'ont commencé à devenir réalité qu'en 1960. Le laser était obtenu dans un milieu solide, un rubis et la lumière était de couleur rouge. Aujourd'hui le défi consiste à émettre dans le bleu."

Lien : <http://www.bulletins-electroniques.com/actualites/78315.htm>

Date de publication : 16/04/2015

Solution-grown nanowires make the best lasers

"Take a material that is a focus of interest in the quest for advanced solar cells. Discover a "freshman chemistry level" technique for growing that material into high-efficiency, ultra-small lasers. The result, disclosed today in Nature Materials, is a shortcut to lasers that are extremely efficient and able to create many colors of light."

Lien : <http://www.nanowerk.com/nanotechnology-news/newsid=39731.php>

Date de publication : 13/04/2015

Efficient nanolaser is built from three-atom-thick semiconductor sheet

"Scientists at the University of Washington (Seattle, WA) have built a new nanometer-sized laser or nanolaser using the thinnest semiconductor available today that is energy efficient, easy to build, and compatible with existing electronics."

Lien : <http://www.laserfocusworld.com/articles/2015/04/efficient-nanolaser-is-built-from-three-atom-thick-semiconductor-sheet.html>

Date de publication : 05/04/2015

Traitement de surface

Making new materials with micro-explosions

"Scientists have made exotic new materials by creating laser-induced micro-explosions in silicon, the common computer chip material. The new technique could lead to the simple creation and manufacture of superconductors or high-efficiency solar cells and light sensors, said leader of the research, Professor Andrei Rode, from The Australian National University (ANU)."

Lien : <http://www.ecnmag.com/news/2015/06/making-new-materials-micro-explosions>

Date de publication : 29/06/2015

Laser World of Photonics 2015: Excimer lasers for display and semiconductor industries

"Lasers play an enabling role in microelectronics and particularly in display manufacturing. Owing to its ability to interact selectively and flexibly, laser processing is successfully employed particularly in the fabrication of thin film microelectronics."

Lien : http://www.novuslight.com/laser-world-of-photonics-2015-excimer-lasers-for-display-and-semiconductor-industries_N4176.html

Date de publication : 01/06/2015

Spiraling laser pulses could change the nature of graphene

"A new study predicts that researchers could use spiraling pulses of laser light to change the nature of graphene, turning it from a metal into an insulator and giving it other peculiar properties that might be used to encode information."

Liens : <http://www.sciencedaily.com/releases/2015/05/150527133934.htm>
<http://www.laserfocusworld.com/articles/2015/06/spiraling-laser-light-could-change-graphene-s-material-properties.html>

Date de publication : 27/05/2015

How exclusive 'laser shock peening' technology is improving aircraft reliability and lifetime

"Researchers S.R. "Manny" Mannava and Vijay K. Vasudevan, both professors in the department of mechanical and materials engineering in the College of Engineering and Applied Science, have joined in a unique partnership with Airbus to make airplanes more resilient, longer lasting and more efficient. In a nutshell, their research uses a laser to alter the physical, mechanical and environmental properties of a metal; making it stronger, more durable, and less sensitive to corrosion, while increasing its longevity."

Lien : <http://phys.org/news/2015-05-exclusive-laser-peening-technology-aircraft.html>

Date de publication : 15/05/2015

New technique directly prints silicon on paper using excimer laser

"Researchers from [Delft University of Technology](#), in the Netherlands have formulated a fabrication method which allows silicon in polycrystalline form, as found in circuitry, to be manufactured directly on a substrate using liquid silicon ink along with a single laser pulse. This new method has the potential to beat all other recently created ultra-thin substitutes."

Lien : <http://www.azom.com/news.aspx?newsID=43680>

Date de publication : 22/04/2015

Silicon nanoparticles and cells can now be printed with lasers

"An article in SPIE Newsroom (Boris Chichkov et al., DOI: 10.1117/2.1201503.005750, March 30, 2015) describes how Laser Zentrum Hannover (Hannover, Germany) researchers are printing biological cells and silicon nanoparticles using lasers. The technique prints spherical silicon (Si) nanoparticles onto a specific position of a receiver glass substrate. The printed nanoparticles have a predefined size and are characterized by unique optical properties. With sizes of 100-200 nm in diameter, they exhibit pronounced electric and magnetic dipole resonances within the visible spectral range. Due to these resonances, they appear colorful in a dark-field microscopic image."

Lien : <http://www.laserfocusworld.com/articles/2015/04/silicon-nanoparticles-and-cells-can-now-be-printed-with-lasers.html>

Date de publication : 09/04/2015

Divers

Laser beams move closer to controlling the path of lightning

"Research conducted at the Advanced Laser Light Source facility of the INRS Énergie Matériaux Télécommunications research centre (Varenes, 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

Building a better semiconductor

"Research could someday lead to the development of new and improved semiconductors. Scientists detail how they developed a method to change the electronic properties of materials in a way that will more easily allow an electrical current to pass through."

Lien : <http://www.sciencedaily.com/releases/2015/06/150627081220.htm>

Date de publication : 29/06/2015

Laser-beam scanning illuminates new details in dinosaur fossils

"Scientists have developed methods of using commercial-grade laser equipment to find and analyze fossils of dinosaurs. The new laser method causes fossil samples to fluoresce, revealing complex details unseen with traditional visual enhancers like ultraviolet light."

Lien : <http://www.sciencedaily.com/releases/2015/05/150527180908.htm>

Date de publication : 28/05/2015

Sweeping lasers snap together nanoscale geometric grids

"Down at the nanoscale, where objects span just billionths of a meter, the size and shape of a material can often have surprising and powerful electronic and optical effects. Building larger materials that retain subtle nanoscale features is an ongoing challenge that shapes countless emerging technologies. Now, scientists at the U.S. Department of Energy's Brookhaven National Laboratory have developed a new technique to rapidly create nano-structured grids for functional materials with unprecedented versatility."

Lien : <http://phys.org/news/2015-06-lasers-snap-nanoscale-geometric-grids.html>

Date de publication : 23/06/2015

Laser zone annealing technique enables rapid self-assembly at the nanoscale

"Researchers from the [Brookhaven National Laboratory](#) of the US Department of Energy have succeeded in developing a laser-based method for executing self-assembly at the nanoscale with excellent ease and efficiency."

Lien : <http://www.azom.com/news.aspx?newsID=43807>

Date de publication : 18/05/2015

Using a new laser process to custom shape optical fibers

"Modern medicine relies on optical fibers to cauterize unhealthy veins in a minimally invasive way. Now, Fraunhofer researchers have developed a laser processing method that facilitates automated series manufacture of these fibers at a much finer quality than ever before."

Lien : <http://phys.org/news/2015-05-laser-custom-optical-fibers.html>

Date de publication : 05/05/2015

Ultrafast lasers enable techniques for the manufacturing of tomorrow

"Laser technology plays an outstanding role in the German economy, as approximately 40 percent of beam sources sold worldwide and 20 percent of laser systems for material processing come from Germany. And when it comes to laser use in manufacturing, German companies are at the forefront. To preserve and build on these strengths, the German Federal Ministry of Education and Research (BMBF) founded the Digital Photonic Production (DPP) research campus, which will be funded by €2 million (\$2.1 million) annually for up to 15 years. In a collaboration that brings together RWTH Aachen University, the Fraunhofer Institute for Laser Technology (ILT), and industrial partners, the Femto Photonic Production joint research project intends to lay the foundations for the use of ultrafast lasers in industrial manufacturing processes."

Lien : <http://www.industrial-lasers.com/articles/2015/04/ultrafast-lasers-enable-techniques-for-the-manufacturing-of-tomorrow.html>

Date de publication : 17/04/2015

Espace Laser 2015

"Espace Laser est l'évènement français de référence pour les technique de fabrication par laser. D'envergure international, il propose des solutions technologiques de pointe aux industriels."

Le salon se tiendra les 23 et 24 septembre 2015 à Villeurbanne

Liens : <http://www.cetim.fr/fr/Actualites/Agenda/Evenements-exterieurs/Espace-Laser-2015>
<http://www.espace-laser.biz/>
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