

S P O T

--- MONSTER WAVE

A team at the **University of California, Los Angeles (UCLA)** headed by Daniel Solli has proved that freak waves can also occur in optical fibers. Optical experiments can help explain the secret behind monster ocean waves. www.newsroom.ucla.edu

--- PHOTONICS FOR POLAND

By forming the **Photonics Society of Poland (PSP)**, Polish scientists have committed to laser technology as a promising market of the future. www.photonics.pl

--- 150 TERAWATTS

The **Dresden-Rossendorf Research Center** has been able to build a high-intensity laboratory in only one year. The ultrashort pulse laser installed there generates light pulses with 150 terawatts of power. www.fzd.de

--- IN PRACTICE

Beam sources with extreme ultraviolet (EUV) radiation will play a central role in chip production in the future. In Hawaii more than 100 EUV lithographers are working to hasten this technology from the laboratory into the practical realm. www.euvlitho.com

--- SMOOTH THROUGH GLASS

Researchers at **Laser Zentrum Hannover e.V.** are working on a project involving the laser boring of glass as an eco-friendly, versatile and cost-effective alternative to mechanical processing. www.lzh.de

--- INVESTOR SUMMIT

Bordeaux, France, will be the setting for the first **Laser Technology Investor Summit**. Both established and young entrepreneurs will meet with investors on December 11 and 12, 2008. www.invest-in-photonics.com

--- RUSSIAN PROJECTS

European and Russian experts identified ten promising joint projects during **PHOTONIKA in Moscow**. www.photonics21.org



“Wuhan is the Chinese boomtown of laser technology.”

Bo Gu from GSI electronics

Bright Future

Wuhan — from commercial metropolis to photonics stronghold

The Chinese city of Wuhan is booming. Many people, like Bo Gu from the GSI Group, predict a bright future for the “Optic Valley” in China. This confidence is not based on mere speculation. More than 100 companies are working on optoelectronics systems and solutions in Wuhan. No less than 56 research centers, 12 machine manufacturers and 14 development laboratories are focusing on laser technology and optoelectronics innovations. The only state-run Chinese research institute in the industry, the National Laboratory of Optoelectronics, is also located here. More than 200,000 well-trained employees are working on the future of laser technology in Wuhan. Bo Gu says, “Infrastructure, trained staff and vigorous state subsidies are boosting Wuhan.” For this reason, Wuhan is the setting for the upcoming PICALO Conference of the Laser Institute of America (LIA). www.gsig.com

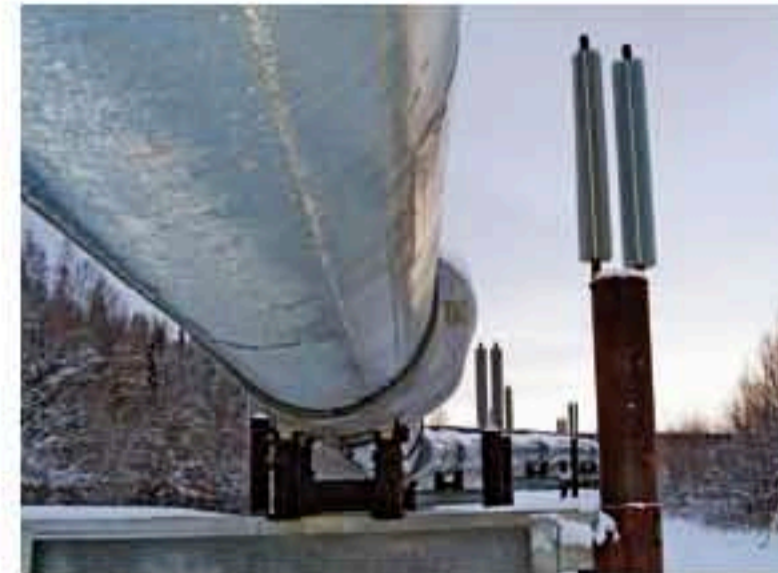
Powder for Planes

Joining Technologies embraces laser metal deposition



Dave Hudson of Joining Technologies is investing as promised.

Laser metal deposition is an effective repair technology for both aviation and aerospace. And the U.S. company **Joining Technologies** has now invested in this type of machinery, an investment for which Dave Hudson, the company’s president, kept true to his word. In the edition 1/2007 of Laser Community, Dave Hudson announced that he would install a powder-based laser metal deposition system within one year. He plans to use the new laser system primarily for repairs in aviation and aerospace technology. The system has a six-axis robot and a rotating workstation for complex jobs. Joining Technologies works for clients such as **Boeing** and **Pratt & Whitney**. www.joiningtech.com



Pipelines, ships, bridges: The high welding speed is especially useful for long weld seams.

“Hybrid Laser Welding helps the heavy industry to catch up in productivity,” says Ed Hansen, Product Manager at ESAB Welding and Cutting Products in the U.S.



“A seminal combination”

Hybrid Laser Arc Welding: A sunrise technology?
Ed Hansen from ESAB explains

What is unique about Hybrid Laser Welding?

A laser beam and a gas metal arc are used as a common energy source to weld work pieces. The material processing head in this technique is a combination of a laser and a gas metal arc welding torch using either metal inert gas (MIG) or metal active gas (MAG) methods. The laser creates deep penetration and helps to stabilize the arc process. This leads to an increase of energy density, very high welding speeds and the ability to bridge gaps and create weld contours and fillets.

What industries benefit from refining Hybrid Laser Welding, and why?

Especially for “heavy” industries, such as pipeline construction or shipbuilding, it is becoming ever more important to introduce methods and processes that adapt to their requirements in material and production processes. ESAB has adopted this process with an eye on helping our customers manage their costs. Hybrid Laser Welding is an established technique for metal plates with wall thicknesses up to 15 mm — with the advantage of deeper penetration at small spot sizes with a lower total heat input. This minimizes shrinkage and weld-induced distortion, which is one of the factors limiting the opportunities for modernization and automation of heavy industries.

How do you assess the upcoming advancements?

We believe that Hybrid Laser Welding will become a dominant welding process within 10 to 15 years. This will coincide with the automation of many welding processes. ESAB shifted from using CO₂ Lasers to using primarily solid-state lasers. This has allowed great flexibility in the beam delivery and mechanization of the weld process, which will reduce costs and simplify the whole method.

Contact: Ed Hansen, ESAB Welding and Cutting Products,
Phone: +1 207 443-6906, ehansen@esab.com, www.esab.com



AKL Prizewinner: The RobScan Welding Robot

Innovative

For their development of the robot-guided laser welding process, RobScan, Bertold Hopf and Dr. Klaus Debschütz, from Daimler AG, received the innovation prize for laser technology from the European Laser Institute (ELI) and the Arbeitskreis Lasertechnik e.V. (AKL). RobScan combines robot-guided scanner optics with a new process that uses an online quality control system. Lumera Laser GmbH was also recognized for its industrial-grade pico-second laser and TRUMPF Laser GmbH + Co. KG was recognized for an ultrashort pulse disk laser with up to 50 W of power.

www.akl-ev.de



Prof. Eckhard Beyer, recent recipient of the 2008 Schawlow Award

Commitment

The 2008 Schawlow Award from the Laser Institute of America goes to Germany: Prof. Eckhard Beyer, director of the Institute for Surface and Production Technology at Dresden Technical University, has made major progress with fiber lasers in recent years. Since 1982, the Schawlow Award has recognized people who have made outstanding contributions to laser research as well as to laser technology applications in industry. www.laserinstitute.org

Photo: D. Eckhard Beyer, Daimler AG; ESAB Welding and Cutting Products; Foraly; Joining Technologies / Steve Adams