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## Press Release

### Key role of laser systems in the electronics industry With laser accuracy into new electronic worlds

Ivanka Stefanova-Achter  
Tel. +49 89 949-21488  
Fax +49 89 949-97-21488  
[Ivanka.Stefanova-Achter@messe-muenchen.de](mailto:Ivanka.Stefanova-Achter@messe-muenchen.de)

**Munich.** It is only the use of laser systems in manufacturing that make smart phones the compact all-rounders that delight the world. It is only precise labeling with focused light that ensures the traceability of electronic components, notwithstanding increasing miniaturization. Lasers pave the way for flexible displays, three-dimensional circuits and operationally reliable high-voltage batteries.

**LASER World of PHOTONICS**, the world's leading trade fair, which will be taking place at the Messe München site from June 22 - 25, 2015, will be a showcase for the light that is making the mechanically impossible possible in the world's electronic factories.

Curved screens are on trend. Whether for televisions, smart phones or smart watches - lightweight, flexible displays are in demand. They were long held to be a distant prospect. A new laser technique is now helping them to break through.

Lasers play a key role in the electronics industry as an enabling technology. Accurate, non-contact laser machining of various material is the driving force behind miniaturization and the guarantor of quality for component structures visible only by microscope. Lasers are at home where mechanical systems are reaching their limits. And as the diversity of beam sources is constantly increasing, meaning therefore that users can fine-tune ever more specific powers, wavelengths and pulse durations, lasers are constantly opening the way to new applications.

### Laser process enables flexible and lighter displays

One of these applications is the aforementioned laser process for flexible screens. Since the sensitive displays built up on 100 micron-thin polymer layers are almost impossible to handle in factories, manufacturers are using glass substrates. Displays are built up on them a layer at a time: the polymer

Messe München GmbH  
Messegelände  
81823 München  
Germany  
[www.messe-muenchen.de](http://www.messe-muenchen.de)

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film, silicon circuits, then the functional layers, followed by sealing. The crux lies in separating the tack-dried polymer, together with its superstructure, from the supporting glass layer. The solution is provided by shortwave light pulses – laser lift-off. The UV pulses (directed through the glass to the polymer by excimer laser) vaporize only the atomic layers adhering to the glass. The functional layers are unaffected.

Laser lift-off can also be used for large surface-area OLED light fields. Eliminating the glass reduces display weight by half and thickness by one third. This creates space for new functions in smart phones and the like. And as they can initially be manufactured on glass in the accustomed way, the legacy production facilities can continue to operate.

### **LASER World of PHOTONICS - the world's biggest Showcase**

With its focus areas “Laser and Optoelectronics” (Halls B2 and B3) and “Lasers and Laser Systems for Production Engineering” (Halls A2 and A3) the world's leading trade fair will be a showcase for laser technology, which makes the seemingly impossible possible. Laser lift-off systems from a number of manufacturers will be on show.

The Application Panels at the “Industrial Laser Applications” Forum in Hall A3 and the World of Photonics Congress will also offer insights into research and development and new electronics applications. They will cover a wide range of areas from printed photovoltaics, laser printing of nanoparticles to the growing diversity of ultrashort pulse laser techniques and micro material processing. A number of sessions at the CLEO Europe-EQEC will provide information on the latest research results on every facet of micro and nanophotonics and material processing using lasers, among other subjects. The “Lasers in Manufacturing” (LiM) conference deals with the processing of both transparent materials and surfaces and discusses new concepts in manufacturing systems and process control. For the first time there will be a lecture series on the laser machining of glass in addition to the traditional Application Panel on “Lasers in Microelectronics”.

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### **Laser as the tool of choice in the miniature world of electronics**

Whether drilling micro holes in printed circuit boards leaving no residue, the precise cutting of ever thinner wafers, the removal of material or increasing functional integration: focused light is indispensable in electronics factories. In striving for space and lighter devices, mobile phone and notebook manufacturers are progressively integrating circuits and aeriels directly within plastic case components. Lasers are taking on the structuring task prior to metalization. They are also used in 3D chip manufacturing. Here too glass is separated by laser lift-off; shortwave laser pulses gently separate the chips from the substrate.

### **Laser labeling is a growth market**

The same holds true in the growing market of product labeling in which many of the LASER World of PHOTONICS exhibitors are actively engaged. Their laser systems label metal, plastic, paint, foil, ceramics or glass with up to 1000 characters per second. Lasers cause metals to change color by thermal input, remove surface material or burn into the material. Plastic foaming also leaves behind pin sharp labeling as does so-called carbonization for changing the color of plastics and ceramics.

The laser labeling market is growing in the high single digit range. The electronics industry is not alone in looking to it. Automotive manufacturers as well use lasers for labeling interior buttons, levers and switches – requiring component labeling even where it is not visible. Because it ensures components are identifiable and traceable and provides protection against product pirates.

### **Laser technology for batteries, electric motors and power electronics**

Electronics have featured increasingly in the car for years. Electro-mobility will reinforce this trend. Voltage transformers, new control devices, batteries and electric motors are all intended to endure a vehicle's life cycle. This presupposes precise manufacturing in reproducible quality. This is what laser systems deliver. They are already required for cutting and welding stators for electric motors and battery electrodes.

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An additional key component is the power electronics in which semiconductors can be found at work. The wafers are produced using a laser process which is also behind the constant improvement in CMOS image converters for digital cameras.

All these laser technology-enabled electronics innovations and processes used in the electronics industry can be marveled at this year's LASER World of PHOTONICS in Munich.

This and other press releases: [here](#)

More on World of Photonics Congress: [here](#)

Photos LASER World of PHOTONICS 2013 and logos: [here](#)

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#### **About LASER World of PHOTONICS**

The LASER World of PHOTONICS trade fairs and their congresses are the most important marketplaces and think tanks for the worldwide laser and photonics industry and its users. They combine research and applications and promote the utilization and further development of optical technologies.

Messe München International has held LASER World of PHOTONICS every two years since 1973. The fair was the first event to focus on the sector for optical technologies in the world.

At the same time the World of Photonics Congress - Europe's largest and the world's third biggest photonics congress - is held in cooperation with the world's leading organizations in this field.

A spin-off event, LASER World of PHOTONICS China, is the leading regional trade show for optical technologies in China. It takes place in Shanghai every year in March.

The LASER World of PHOTONICS INDIA takes place since 2012 every year and is a regional trade fair for optical technologies in India. It takes place every September, rotational either in Bangalore, Mumbai or New Delhi.

With a total of **1,860 exhibitors and more than 70,000 visitors** in Munich, Shanghai and India, Messe Muenchen International is the world's leading trade show organizer for lasers and photonics.

The websites at HU [www.world-of-photonics.net](http://www.world-of-photonics.net)UH feature information on the photonics trade shows, industry information, product innovations, and application reports and are a virtual platform for optical technologies.

#### **About the conference program at the World of Photonics Congress**

The world's leading scientific organizations in the field of photonics will organize conferences under the umbrella of the World of Photonics Congress from June 21 – 25, 2015:

- "CLEO/Europe-EQEC", organized by the European Physical Society (EPS), sponsored by the EPS Quantum Electronics and Optics Division, OSA, IEEE/LEOS
- "Optofluidics", "Manufacturing of Optical Components" and "Advanced Optomechanical "Engineering, organized by the European Optical Society (EOS)
- "LiM - Lasers in Manufacturing", organized by the Scientific Laser Society (WLT);
- "ECBO - European Conference on Biomedical Optics", organized by the Optical Society of America (OSA) and the International Society for Optics and Photonics (SPIE)
- Optical Metrology, organized by SPIE Europe

The conference program is rounded out by application panels featuring practical lectures about laser and photonics applications organized by Messe München.

#### **Messe München International**

Messe München International is one of the world's leading trade show companies. In Munich alone it organizes around 40 trade shows for capital and consumer goods, and key high tech industries. Each year more than 30,000 exhibitors and around two million visitors take part in the events held at the Messe München exhibition center, the ICM – International Congress Center München, and in the MOC Veranstaltungszentrum München.

The leading international trade fairs of Messe München International are all independently audited.

In addition, Messe München International organizes trade shows in China, India, Turkey and South Africa. With a combination of affiliates abroad – in Europe, Asia and in Africa – and over 60 foreign representatives actively serving over 100 countries, Messe München International has a worldwide business network. The Group also takes a pioneering role as regards sustainability: It is the first trade-fair company to be awarded energy-efficiency certification from the technical inspection authorities TÜV SÜD.

#### **Press Contact:**

Ivanka Stefanova-Achter

Trade Fair PR Contact – Messe München GmbH

Phone: +49 89 949 21471

E-mail: [ivanka.stefanova-achter@messe-muenchen.de](mailto:ivanka.stefanova-achter@messe-muenchen.de)

[www.messe-muenchen.de](http://www.messe-muenchen.de)