

# PRESS RELEASE

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**PRESS RELEASE**March 9, 2016 || Page 1 | 3  
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## **LOPEC 2016: Laser innovations for structuring and ablating in organic electronics**

**The Fraunhofer Institute for Laser Technology ILT will be presenting laser innovations for printed and organic electronics to an audience of industry professionals at the LOPEC 2016 trade fair in Munich on April 6-7, 2016. The presentation will show the laser structuring processes used for flexible organic electronics and OLED technology.**

For several years now, the electronics and other industries have been abuzz about an entirely new spectrum of applications below the familiar field of silicon technology. The object of all this excitement is organic and printed electronics, which make it possible to produce thinner, lighter and more flexible components. Application areas for this pioneering new technology include lighting elements, TV and cell phone displays, photovoltaics and intelligent packaging such as RFID tags.

### **Fraunhofer ILT inscribes OLEDs**

The LOPEC (Large-area, Organic & Printed Electronics Convention) trade fair in Munich is the leading exhibition for printed electronics worldwide with the most important conference, according to its organizers, and it has been presenting the latest developments in the field for seven years now. Fraunhofer Institute for Laser Technology ILT has responded to the significance of this venue, working in cooperation with COPT NRW to exhibit its research developments, which support companies in the manufacturing of new components using organic and printed electronics. Currently, Fraunhofer ILT is developing a method for adding inscriptions to OLED components. "We have succeeded in producing an inscription in the illumination surface by means of selective deactivation of organic material," explains Fraunhofer ILT researcher Christian Hördemann. "We use a laser beam activated in ultrashort pulses. Together with our partner company OLEDWorks, we are working on developing a novel process to achieve long-term stable inscription and customization of OLEDs." An additional focus of their work entails laser microstructuring. The benefits of this process include its high resolution in the  $\mu\text{m}$  range, its high throughput for large surfaces, and its wide range of design possibilities.

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#### **Editorial Notes**

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**FRAUNHOFER INSTITUTE FOR LASER TECHNOLOGY ILT**

### **Laser structuring for flexible solar cells**

In Munich, Fraunhofer ILT will be showcasing additional applications involving laser microstructuring of extremely thin layers to demonstrate how the properties of organic components can be influenced using this technology. Picosecond lasers, for instance, can be used for roll-to-roll production of organic solar cells. Processes for the roll-to-roll production of organic solar cells are being researched in collaboration with Coatema Coating Machinery GmbH from Dormagen and Solarmer Energy, Inc. from the US. A good example of this method being used in production is the "Mini Module" flexible solar cell. "At the moment we have achieved efficiency over 6% by using laser patterned ITO in the fabrication of our mini-sized flexible OPV modules," explains Dr. Yanping Wang, Principal Researcher at Solarmer Energy, Inc. "Our flexible OPV enables versatile designs for applications that were not possible before, especially the low-power application in the rapidly emerging wearable electronics and Internet of Things markets."

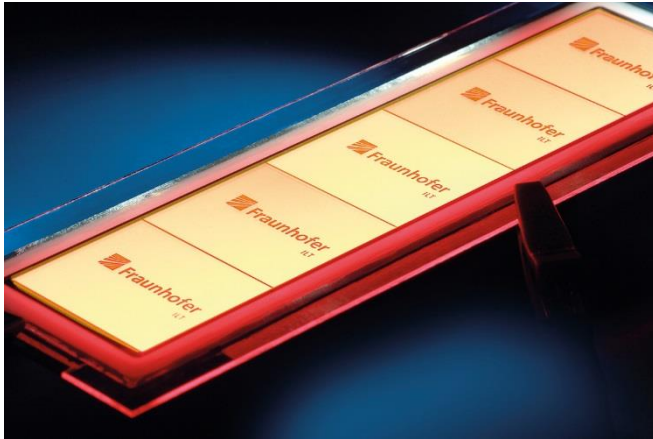
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**PRESS RELEASE**

March 9, 2016 || Page 2 | 3  
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### **Our experts at LOPEC 2016**

Further information and additional laser innovations for printed and organic electronics will be on hand at the joint booth of COPT NRW and Fraunhofer Institute for Laser Technology ILT at the LOPEC exhibition on April 6-7, 2016 in Munich (hall B0, booth 404).

FRAUNHOFER INSTITUTE FOR LASER TECHNOLOGY ILT



**Picture 1:**  
**A legible solution:**  
Fraunhofer ILT demonstrates how to inscribe organic LEDs at LOPEC.  
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**PRESS RELEASE**

March 9, 2016 || Page 3 | 3  
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**Picture 2:**  
**Flexible and organic:** A semifinished flexible solar cell is produced on a roll-to-roll system using laser structuring, and will then be finished in a printing process.  
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The **Fraunhofer-Gesellschaft** is the leading organization for applied research in Europe. Its research activities are conducted by 67 institutes and research units at locations throughout Germany. The Fraunhofer-Gesellschaft employs a staff of nearly 24,000, who work with an annual research budget totaling more than 2.1 billion euros. Of this sum, around 1.8 billion euros is generated through contract research. More than 70 percent of the Fraunhofer-Gesellschaft's contract research revenue is derived from contracts with industry and from publicly financed research projects. International collaborations with excellent research partners and innovative companies around the world ensure direct access to regions of the greatest importance to present and future scientific progress and economic development.

**For further information**

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