

PRESS RELEASE

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3D printing for optical components

Fraunhofer IOF presents optical high-tech solutions for medical technology at COMPAMED 2021

Jena / Düsseldorf (Germany)

Medicine and technology in focus: That's COMPAMED 2021. At the trade fair for high-tech solutions in medical technology, the Fraunhofer Institute for Applied Optics and Precision Engineering IOF will present cost-efficient manufacturing processes for "lab-on-a-chip" systems as well as technologies for 3D printing of optical components from November 15 to 18.

As an international trade fair for the medical supply industry and product development, COMPAMED opens its doors again at the Düsseldorf exhibition center in November. More than 750 national and international exhibitors and suppliers will present high-tech solutions for the medical industry - including Fraunhofer IOF.

Increased cost efficiency for "lab-on-a-chip" systems

A macroscopic laboratory compressed to the size of a chip card: this is the idea behind "lab-on-a-chip" systems. Due to their space-saving and mobile nature, these systems are of interest for medical first aid outside of hospitals or medical practices. They make healthcare and other life sciences faster and more accurate.

A new production set developed at Fraunhofer IOF enables a particularly flexible and, moreover, cost-effective generation of functionalities for "lab-on-a-chip" systems. This combines additive inkjet printing processes with molded microstructures. Thanks to the increased cost efficiency, the new process also makes it possible to use lab-on-a-chip systems for disposable chips. The use of conventional manufacturing processes used to limit the possibilities here for a long time.

3D inkjet printing for customization of micro and macro optics

Additive manufacturing, commonly known as 3D printing, opens up new possibilities in development processes when applied to micro and macro optics as well as optical systems. For example, 3D printing enables the production of small series or the customization of individual products from mass production.

3D inkjet printing technology can be used to develop highly individualized and highly integrated optical components and systems. Even lenses for reading glasses are

Editorial Notes

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possible. In addition to the possibility of manufacturing optics with glass-like properties, which cannot be produced using conventional processes, the new process is characterized by a high integration potential of additional functionalities. For example, conductors, LEDs, and photodetectors can be integrated directly into the optics.

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COMPAMED 2021

COMPAMED will take place from November 15 to 18 at the Messe Düsseldorf. You will find the Fraunhofer IOF booth D60 in hall 13. COMPAMED Düsseldorf takes place parallel to the world's largest medical trade fair MEDICA.

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Further information

[3D Printing Technologies at Fraunhofer IOF](#)

About Fraunhofer IOF

The Fraunhofer Institute for Applied Optics and Precision Engineering IOF in Jena conducts application-oriented research in the field of photonics and develops innovative optical systems for the control of light - from its generation and manipulation to its application. The institute's range of services covers the entire photonic process chain from opto-mechanical and opto-electronic system design to the production of customer-specific solutions and prototypes. At Fraunhofer IOF, around 330 employees work with an annual research volume of 40 million euros.

For more information about Fraunhofer IOF, visit: www.iof.fraunhofer.de

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Fig. 1.: Printed functionalities on a flexible polymer foil for covering microfluidic chips.

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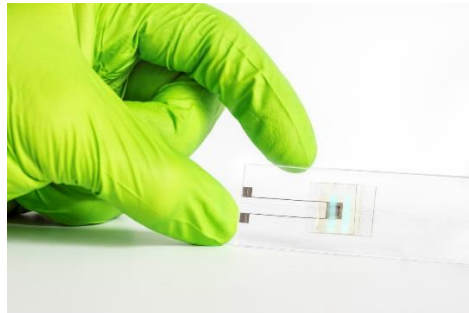


Fig. 2: Inkjet-printed functionalities for flexible and low-cost "lab-on-a-chip" systems.

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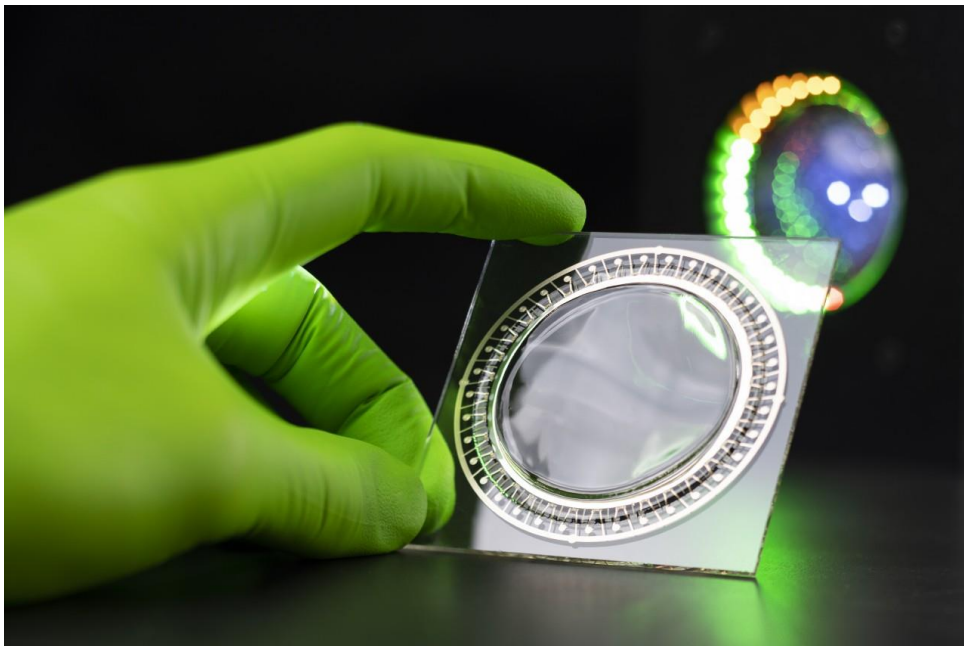


Fig. 3: 3D inkjet-printed waveguide for a LED-Matrix.

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