

# PRESS RELEASE

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Fraunhofer IPMS presents its latest research in industrial automation at "all about automation" trade fair in Chemnitz, Germany

## **Miniaturization saves energy in industrial automation**

**At the leading trade fair for industrial automation "all about automation", Fraunhofer IPMS will present the latest developments in industrial and production control on September 28 and 29 in Chemnitz. For example, the micromechanical systems developed by the research institute support the ongoing miniaturization of components and devices, which is essential for any fast-growing technical industry.**

The "all about automation" (aaa) is the leading trade fair for systems, components, software and engineering for industrial automation and communication. At the trade show, the Fraunhofer Institute for Photonic Microsystems IPMS will present to regional users, for example, solutions for micropositioning, contactless analysis of substances, or the latest LiDAR technologies.

### **Novel electrostatic micropositioning platform**

One of this year's research highlights of Fraunhofer IPMS presented at the aaa are micropositioning platforms. These are systems in which a defined, usually centrally located surface can perform highly precise lateral, rotational, tilting or lifting movements as well as combinations of these. Fraunhofer IPMS developed electrostatic bending transducers for this purpose. The drive is based on Nanoscopic Electrostatic Drives, or NED for short. This is based on a novel micro-electro-mechanical actuator principle. It enables large displacements with low control voltages to be achieved with high micro-positioning accuracy and extremely low energy requirements. An alternative indirect drive is provided in the form of the "inchworm" principle, which allows larger precise travel ranges.

Applications of the micropositioning platform can be found, for example, in the active and precise positioning of system components, such as sample placement. Other areas of application include optical analytics for particularly flat and mobile microscopy systems, high-precision optical setups or medical instruments such as micro-endoscopes or the focus lens in laser scalpels.

### **Fraunhofer IPMS presents latest developments at aaa**

In addition to the micropositioning platform, the Fraunhofer IPMS researchers will also be presenting other innovations from the institute. "At our booth visitors will have the opportunity to see a demonstrator for near-infrared spectral analysis, which illustrates

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**FRAUNHOFER INSTITUTE FOR PHOTONIC MICROSYSTEMS IPMS**

the contact-free analysis and detection of white powders such as salt, sugar, starch or flour," explains Sandra Maria Stumpe, event manager at Fraunhofer IPMS. This system enables reliable detection and classification of a wide range of visually similar substances. Due to their miniaturization and energy efficiency, the underlying components can also be used for mobile applications. This opens up a wide range of possible applications, for example in fresh food testing, substance analysis in pharmaceuticals and industry, or soil or ripeness analysis in agriculture.

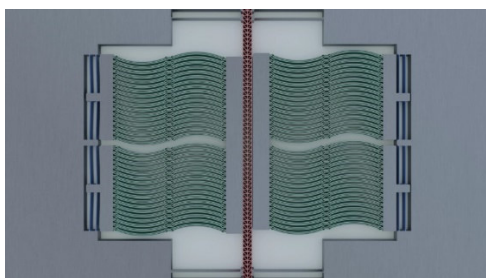
More information on the research of Fraunhofer IPMS can also be discovered in a digital showroom. It is available online as well as directly at booth #1-213. "Our colleagues will gladly be available to trade fair visitors for a personal discussion," concludes Sandra Maria Stumpe.

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### About Fraunhofer IPMS

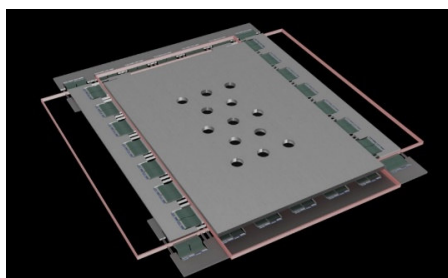
The Fraunhofer Institute for Photonic Microsystems IPMS stands for applied research and development in the fields of intelligent industrial solutions, medical technology and improved quality of life. Our research focuses on miniaturized sensors and actuators, integrated circuits, wireless and wired data communication, and customized MEMS systems.

### Images



*Basic concept NED-Inchworm motor: blocks of actuators on both sides of a feed element, can push it up or down in the plane. Clamping here occurs electrostatically.*

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*Superimposed planes of two NED inchworm motors for combining an X and Y movement. The optics (lens matrix) located on the upper plane, is connected to the feed elements and is consequently movable in X and Y direction.*

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