PRESS RELEASE

Innovative 2K OLED microdisplay for near-eye applications

Scientists at the Fraunhofer Institute for Photonic Microsystems IPMS have developed an innovative 2K OLED microdisplay. They will present initial results at SID Display Week 2026 in Los Angeles, USA, from May 5–7, 2026, at Booth 1146.

OLED microdisplays are a mature technology for generating high-resolution images for a wide range of optical applications. Recently, particular attention has been given to specially designed integrated driver circuits, known as microdisplay backplanes. These circuits drive pixels with comparatively high voltages and currents, enabling high brightness and a strong contrast ratio, especially in augmented reality applications.

Fraunhofer IPMS is expanding its portfolio with a high-resolution OLED microdisplay for stationary and portable optical systems. The new 2K OLED microdisplay (2,048 x 2,048 pixels, 9.3 µm x 9.3 µm RGB stripe, and 1.07 inches) is the highest-resolution model in the Fraunhofer IPMS microdisplay family. It is based on the institute's proprietary high-voltage backplane circuit concept. This technology controls multiple stacked OLEDs, resulting in high brightness.

"In addition to its expanded ability to drive pixels across a wide dynamic range, the display can be controlled via an on-chip LVDS interface, reducing the number of required interconnects. This enables high data bandwidth and allows for refresh rates of up to 120 Hz. A novel microdisplay module package has been developed to generate all the necessary voltages for the display chip directly on the module, so that only a single supply voltage is needed. This significantly reduces the effort required to integrate it into existing optical systems," explains Philipp Wartenberg, Head of the IC & System Design Department at Fraunhofer IPMS.

The researchers welcome the expansion of the microdisplay family and look forward to adapting the new 2K display to new, customer-specific applications. Evaluation kits are available for this purpose.

Editor
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Images

OLED microdisplay with 2K resolution (2,048 × 2,048 pixels, 1.07 inch).
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Fraunhofer IPMS at SID Display Week 2026:

Exhibition booth: German Pavilion, Nr. 1146

Poster: **P.266** 1-inch 2k High-Voltage OLED Microdisplay Realizing a Wide Range Luminance Drive
Session P10: Emerging Technologies and Applications Posters
Thursday, May 7, 2026 | 5:00–7:30 PM

Poster: **P.272** WUXGA Micro-LED Backplane Derived from an Existing OLED Microdisplay–Design Aspects, Characterization Results and Optimization
Session P11: Emissive, Micro-LED, and Quantum-Dot Displays Posters
Thursday, May 7, 2026 | 5:00–7:30 PM

About Fraunhofer IPMS

Fraunhofer IPMS is a leading international research and development service provider for electronic and photonic microsystems in the application fields of Intelligent Industrial Solutions, Medical Technology and Health, Mobility, Green and Sustainable Microelectronics. The institute works on electronic, mechanical, and optical components and their integration into miniaturized devices and systems. The service range includes everything from concept development to product development and pilot manufacturing in its own laboratories and clean rooms.