



Fraunhofer Institut
Photonische
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World of Photonic: MEMS/MOEMS/OLEDs

Fraunhofer IPMS is one of the worlds leading addresses in the field of micro systems engineering for photonic devices and systems and keeps ready latest technologies and experiences for the development of innovative customized photonic systems solutions.

- **Micro scanning mirrors** enable the one or two-dimensional deflection of a laser beam. The scanning range of the 1-3 mm mirrors is up to 80°. The mirrors are extremely insensitive against vibration and shock. Main application areas are reading bar codes, projection displays, image acquisition, light barriers, object measurement and spectroscopy.
- **Programmable masks** are used in lithography to transfer structures to substrates with a high throughput. They consist of up to 1 million individually controlled micro mirrors. The frame rate amounts up to 2 kHz. By use of gray levels extreme requirements on resolution and CD homogeneity can be fulfilled. The main application area is mask writing. Further application areas like the exposure of printed-circuit boards or also material processing are prepared by technology optimization.
- **Wave front correctors** are employed mainly in adaptive optics. Micro-mirror arrays with 48,000 pixels correct picture distortions at a frame rate of up to 200 Hz. Besides the mainly addressed area of ophthalmology applications like astronomy, microscopy and laser pulse forming move into the focus of development.
- Based on our **Organic Light-Emitting Diodes (OLED)** fabrication technology Fraunhofer IPMS offers organic based MOEMS. OLEDs allow the integration of highly efficient light sources into silicon to establish a new class of microsystems. The Fraunhofer IPMS offers development activities in this novel application area, including driving electronics and system design.
- In our 1500 m² class 10 clean room both development and fabrication are carried out. **Analog, digital and mixed-signal ASICs** to drive MEMS devices are developed at the institute and manufactured together with well selected partners. Customized **System developments** are carried out using MEMS components, driving and/or readout ASICs or FPGAs, software and all further electronics.