



- 1 *Flexible polymer display.*
- 2 *Illuminated key pad.*
- 3 *Transparent OLED.*

## OLED

The basic technologies for the production of organic light-emitting diodes (OLEDs) are well known. Specific applications present challenges such as the geometric structuring of the OLEDs. The structuring is performed by means of photolithographic steps in a series of deposits or by structured deposition of the materials in combination with structured electrodes. Various printing processes for OLED production based on polymers are currently being evaluated world-wide and have already been integrated into pilot or industrial plants. While processes like screen and gravure printing for such applications are still under development, ink-jet printing has already reached an advanced stage of development. OLEDs are very thin and light, which saves energy and costs. OLEDs provide a larger angle of view, show a brighter image. By combining OLEDs with polymer-electronic components, there is the possibility of building completely flexible displays. OLEDs can also be combined with other functional elements such as foil

keyboards. These new OLED keyboards consist of two superimposed layers. One contains the flat OLED element, while the other ensures the functionality of the keyboard. These new applications require completely new technological steps, including development of the layout of the display or illuminated area, the architecture of the series of deposits, and the effective encapsulation of the components.

### Fraunhofer Institute for Applied Polymer Research IAP

Potsdam-Golm Science Park  
Geiselbergstr. 69  
14476 Potsdam

#### Contact

**Dr. Armin Wedel**

Phone +49 331 568-1910  
Fax +49 331 568-3000  
armin.wedel@iap.fraunhofer.de

[www.iap.fraunhofer.com](http://www.iap.fraunhofer.com)