

Luminescent Polymers

In a new high-tech research lab, the Schott technology group has launched one of its key projects for the future – organic light-emitting diodes for lighting elements.

► At Schott's Mainz production facility, around 20 scientists are set to lay the foundations for producing large-area components based on luminescent synthetic materials. The technology is known as organic light-emitting diodes, or OLEDs (see Schott Info 99, p. 2ff). "Schott leads the way in OLEDs for lighting applications," said Schott Board Member Dr. Udo Ungeheuer, speaking at the opening of the clean-room laboratory. "With our know-how and technological expertise, we have the potential to take the development of large-area lighting elements a decisive step forward."

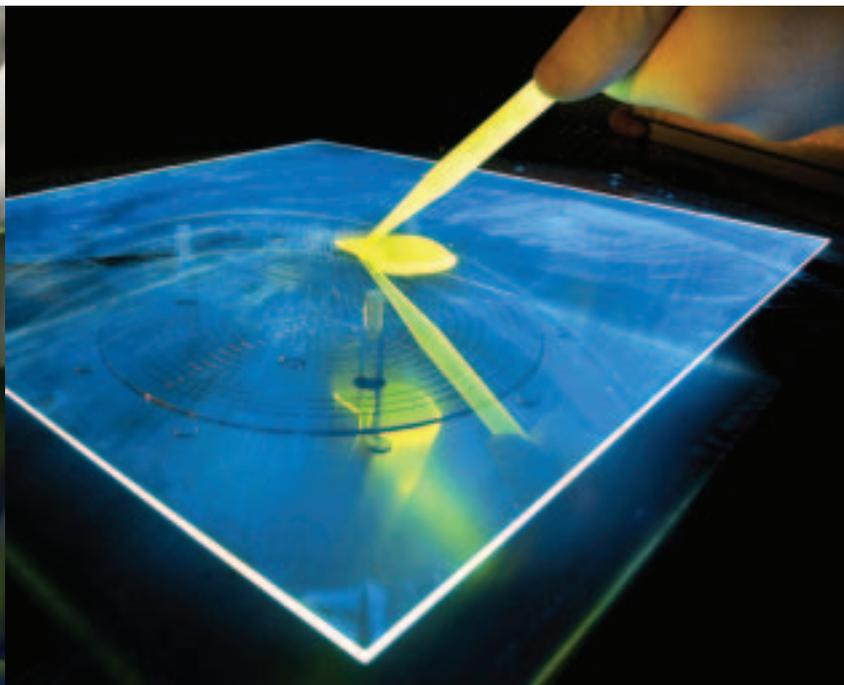
Indeed, Schott contributes extensive knowledge of thin-glass substrates, lighting, large-area coating processes, encapsulation methods, analytical methods and measuring

techniques to the project, which also involves partners from industry and the academic world. The OLED activities are scheduled to run for a preliminary term of three years, and are designed to lead to a pilot production.

The fascination of OLEDs lies especially in characteristics such as low weight, high energy efficiency, wide angle of emission, color brilliance and high luminosity. Until now the attraction of organic light-emitting diodes was focused on displays. Now the potential of this relatively new technology for the lighting sector has been recognized. Schott is one of the first companies to become active in this market segment. The Mainz researchers see highly promising applications for OLED light sources in the

automotive, design, advertising, consumer products, laboratory equipment and traffic engineering sectors.

OLEDs consist of a substrate, a transparent electrode, thin organic layers only nanometers thick, and a backplate electrode. Their functioning is based on injection electro-luminescence. When an electric current is applied to the electrodes, light is emitted from the organic layers. ◀





Practical and aesthetic:
OLED light sources are
characterized by a wide angle
of emission, color brilliance,
high luminosity and high
energy efficiency.



Coating processes are tested in a special
"research tool."



OLED components are processed in inert gas and
vacuum conditions due to their sensitivity to oxygen
and humidity.