

Rapid Development Con

The Society for Information Display (SID) held a conference at Schott in Mainz. Topics included the trends and future prospects of various display technologies.

Is there any chance of the cathode ray tube surviving? What technology has the best prospects for the future? What is the current state of development of organic light emitting diodes (OLEDs)? For two days, questions like these were discussed by around 100 experts from research and industry, who had been invited by Schott to attend the Society for Information Display (SID) conference held in Mainz. As host, Schott itself is an active player in this sector in many respects. "As far as we're concerned, this market is most attractive because it directly involves our core competencies, the development and processing of special glass," says Schott Board Member Dr. Udo Ungeheuer, explaining the interest shown by the technology group.

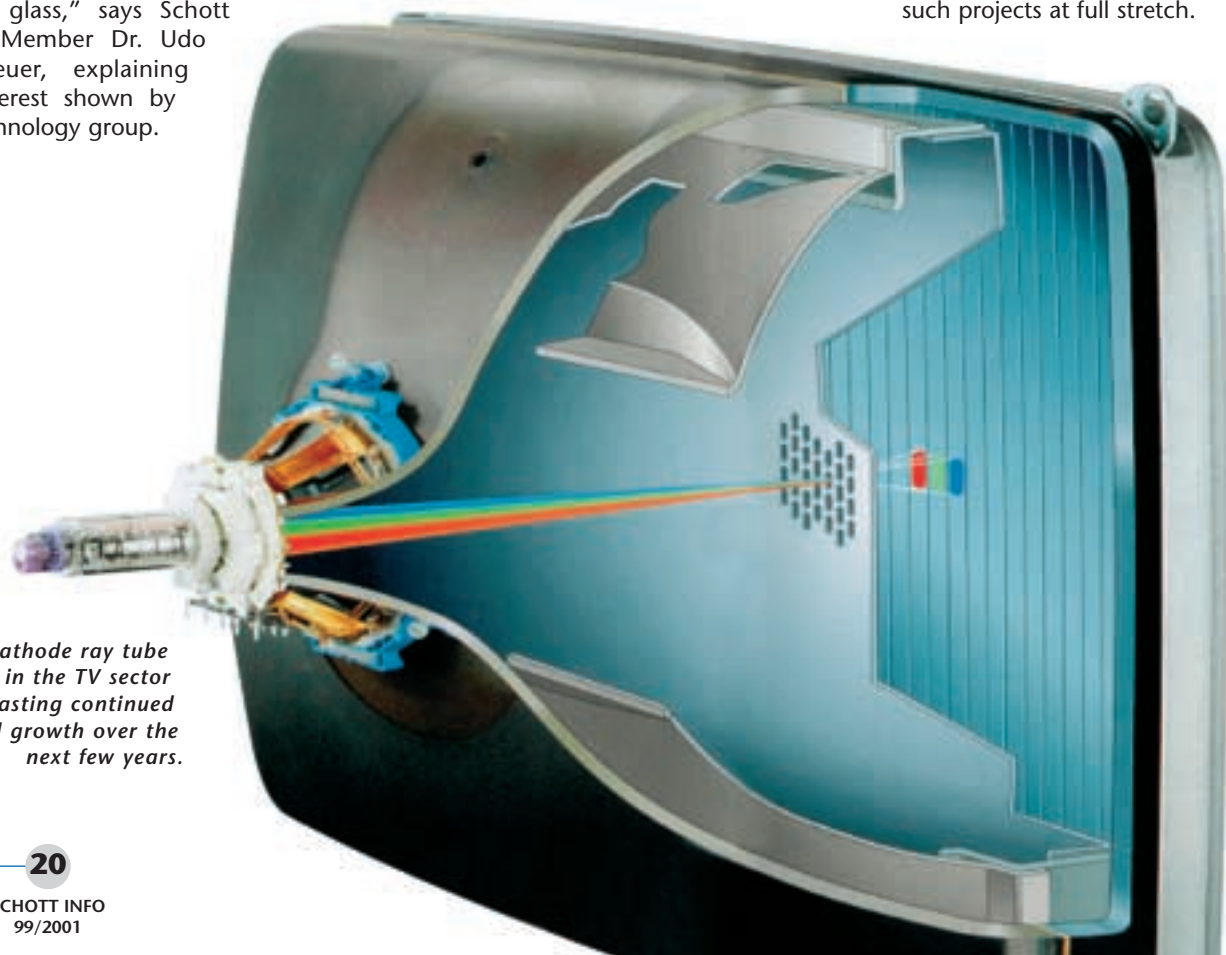
High-Level Growth for CRTs

According to a survey conducted by market research company DisplaySearch (Austin, Texas) the TV sector is currently growing at about 6.6% a year and its volume will have reached 201 million units by 2005. The demise of the cathode ray tube (CRT), which was invented by the German physicist Karl Ferdinand Braun back in 1897, was often predicted, but it is still unlikely to occur within the next few years. Its widespread growth remains much higher than the share accounted for by all the alternative concepts like plasma, liquid crystal or projection TV sets. For Schott, the largest European manufacturer of glass funnels and panels for CRT televisions, this is an important forecast, especially because the company offers lightweight solutions for funnels already and conducts ongoing research into further development.



A look at manufacturing practice: SID conference attendees viewing Schott TV glass production.

"Important objectives in this field include reductions in the amounts of glass and energy being used," explains Stefan Hergott, head of Development and Innovation in Schott's Display Business Segment. By optimizing press parameters and product design the weight can be reduced by 15% to 20%. Another challenge for the manufacturers is the depth of the set. "If we manage to reduce the depth to book format, that is, 25 to 30 centimeters, and retain the screen diagonal of 80 centimeters, we'll have gained a few years in the race against alternative types of displays," says expert Stefan Hergott. So it's no wonder the entire industry is working on such projects at full stretch.



For the cathode ray tube experts in the TV sector are forecasting continued high-level growth over the next few years.

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**Displays More Colorful,
Flatter and Flexible**

While the TV market continues to be dominated by the CRT, liquid crystal displays (LCDs) are showing strong growth in the computer monitors sector. "From 2001 to 2005 we're expecting an increase from 14 to 46 million units," explains Ross Young, President of DisplaySearch. On the one hand, North America and Europe are increasingly gaining ground on Japan, while on the other hand the trend is toward larger sets and higher definition.

There's no doubt about it, in the future displays are going to become more colorful, flatter, and possibly even flexible. Important basic features are being developed by the Schott Display Business Segment. "The idea is to use a composite material comprised of glass and plastic, which combines the properties of the two materials," explains Andreas Weber, who is in charge of thin glass production. Glass is an excellent barrier against water and oxygen and has a high level of thermal and chemical resistance – for example to solvents, acids, and bases. Plastic, on the other hand, has good mechanical strength, flexibility, and is lightweight. Already Schott manufactures glass substrates in the range of tenths of a millimeter and, like a film, the polymer will only have a thickness 5 to 10 thousandths of a millimeter. Experts agree that such thin layer solutions will have a great future both in LCD and OLED applications.

**OLED Prospects are
Promising**

Organic LEDs (see also the article on page 2 of this issue) were an important topic at the conference. The leading manufacturer for the complex structure color molecules, Covion Organic Semiconductors GmbH in Frankfurt, Germany, has developed a new, promising class of substances. "This so-called spiro material offers a number of advantages. It has the entire spectrum of colors, red, green, and blue, it has high thermal stability due to its three-

dimensional structure, and is not inclined toward aggregation, also on account of its molecular structure," says Jürgen Steiger in charge of printing techniques in the R&D department at Covion. The new dyes are ideally suited for flexible displays and chip cards.

Flat panel displays, especially for computer monitors, are up and coming. Schott is developing thin-layer solutions for the next generation of displays.



One thing became quite clear at the meeting of experts in Mainz: The field of display technology continues to remain extremely exciting both scientifically and commercially. It is one good reason for Schott to continue its high level of commitment in many different fields ■