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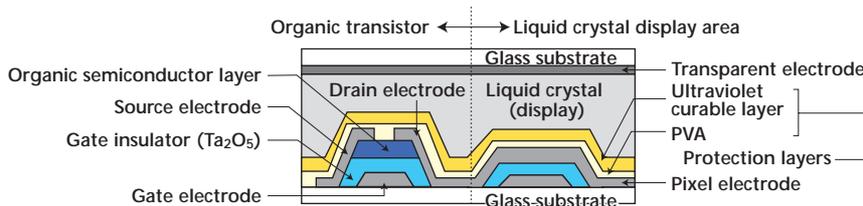
High-performance Organic Transistor for Driving Liquid Crystal Devices

STRL has been researching organic thin film transistors (OTFT) as a flexible driving devices for liquid crystal (LC) displays or organic electro-luminescent displays. These devices are intended for future ultra-thin, flexible TV displays. Conventional OTFTs have the disadvantage of having a high operating voltage. We have recently developed an OTFT that can operate at a low voltage and a prototype of LC cell driven by the OTFT.

We used Tantalum-oxide (Ta_2O_5) as the gate insulator of the OTFT. The insulator can be fabricated at low temperature with

the anodic oxidation method and the OTFT operates well on a plastic substrate with a low operating voltage of 3 volts, because of the large dielectric constant of the insulator.

We also developed a new protection layer that isolates the OTFT from the LC and fabricated a prototype OTFT-driven LC cell using the layer. We confirmed that the OTFT could drive LC with a low driving voltage. Future tasks include improvements to the characteristics of the OTFT and the cell and increasing the number of pixels.



Prototype Organic TFT Driven Liquid Crystal Cell
(The area of the OTFT is approximately 1/25th of the liquid crystal display area.)



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From the Editors

For the special event commemorating 50 years of TV broadcasting, on September 20, 2003, NHK did a HDTV relay broadcast from the Antarctic and showed simultaneous aurora observations in the Arctic and Antarctic. The research results of STRL were used in the TV program. Although aurora in the Antarctic could not be observed due to bad weather that day, NHK had succeeded in making simultaneous aurora observations in the Arctic and Antarctic a few days before. Aurora images were taken using the ultrahigh-sensitively HDTV New Super-HARP cameras. Moreover, the moving images of aurora were distributed through the Internet and an electronic watermark was embedded into the images by means of our technology. Furthermore, "Live captioning" in the program was provided for the first time in general NHK programs, in order to help the elderly and the hearing impaired. The caption was created automatically by the closed-captioning system based on speech recognition technology developed by STRL.

STRL is committed to advancing broadcasting and will continue to turn its reviewers dreams into reality.

