Tatsuo Uchida ／Professor ／Graduate School of Engineering

Profile

Prof. Uchida received his BSc, MSc and PhD degrees in electronic engineering from Tohoku University in 1970, 1972 and 1975, respectively.

From 1975 to 1982 he was Research Associate, from 1982 to 1989 Associate Professor, and since 1989 he has been Professor in the Department of Electronic Engineering, Tohoku University. From 2002 to 2007 he was Leader of the 21st Century COE Program. Since 2006 he has been Dean of the Graduate School of Engineering and Faculty of Engineering, Tohoku University. He received the Award of the Science and Technology Contributor from the Director of the Science and Technology Agency in 1986, the Special Recognition Award from SID in 1988, the Niwa-Takayanagi Achievement Award from the Inst. Television Eng. Japan in 1990, The Achievement Award from Japanese Liquid Crystal Society in 2001, The Inoue Harunari Award from Japan Science and Technology Corporation in 2001, the Jan Rajchman Prize from SID in 2004, The Minister of Education, Culture, Sports, Science and Technology Prize in 2005, the Slottow-Owaki Prize from SID in 2008, and many other awards. Prof. Uchida is Fellow of SID, IEICE, and ITE.

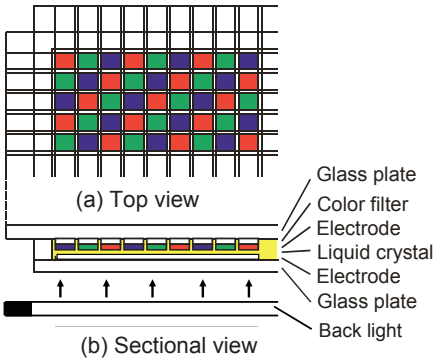
Research Activities

Prof. Uchida Started his research at the dawn of liquid crystal display (LCD) in 1970. It was an untrodden path for electronics because organic material as well as liquid phase had never been used in electronic active devices. He challenged in this field and has contributed to realize high performance liquid crystal displays as follows.

(1) He has analyzed the mechanism of molecular alignment of liquid crystal on substrate surfaces and has established a procedure to control the alignment, which was applied to the production process of the liquid crystal display, and has contributed to establish precise and reproducible manufacturing technology.

(2) He has devised and developed several new LCDs including color LCDs, reflective LCDs, wide-viewing angle LCDs and fast response LCDs.

Especially for color LCDs, he has first devised and developed color LCDs using micro color filters inside of the cell and reflective color LCDs without back light, which have been widely used in LCD televisions, notebook PCs, mobile phones, etc.



Color liquid crystal display

First trial color liquid crystal display

Message

When I was a high school student, I heard that the Department of Electronic Engineering of Tohoku University had the most excellent and strongest professoriate, and I decided to enter Tohoku University leaving Shizuoka Prefecture, far from Sendai. I measured in semiconductor and finished the undergraduate course and research. When I entered graduate school, so many students desired to major in semiconductor research that the students were selected by lot. As a result, I failed the selection and had to change my research theme to liquid crystals, against my wish.

I started my research on liquid crystals alone in the laboratory with almost no information, no know-how, no equipment and no liquid crystal material. First of all, I had to synthesize the liquid crystal material and purify it without sufficient chemical knowledge. It took more than three years to get satisfactory liquid crystal materials.

I took a roundabout way and wasted a lot of time, but I could meet and became intimate with many physicists and chemists besides electronic engineers. In addition, I could learn many things in the new field, especially the spirit of challenge. I also learned that in the field of Engineering just one person can change the world.