Ferroelectric liquid crystal conference 2018

The series of International Conferences on ferroelectric liquid crystals (FLCs) were devoted to basic and applied aspects of new self-assembling materials possessing chiral and polar structures and properties. These conferences have been organised in odd years in between International Conferences on Liquid Crystals.

More than 2 years passed from the last FLC Conference in Prague, which was perfectly arranged by its Chair Milada Glogarova and her very efficient team composed of people from the Institute of Physics of the Czech Academy of Sciences and University of Chemistry and Technology.

Since 1987 when first FLC Conference was arranged in Arcachon (France) only two FLC Conferences were in Asia in 1993 and 2007 and both of them were held in Japan. This was a high time to arrange the next FLC Conference, this time in Hong Kong, China.

The basic topics of the Conference were Design of new polar liquid crystals (LCs), chirality and polarity, phase transitions, theory and modelling, hybrid systems based on LCs, macromolecular self-assembling materials, surface effects and alignment, electro-optic and photonic properties, technological applications.

The application of FLC for high speed communication systems, producing elements that are extremely fast, stable, durable, of low loss, operable over a wide temperature range, and that require small operating voltages and extremely low power consumption when using bistable and multi-stable switching with optical memory. Passive FLC elements for fibre optical communication systems (DWDM components) based on LC cells can successfully compete with the other elements used for the purpose, such as micro electromechanical, thermo-optical, optomechanical or acousto-optical devices.

The prototypes of the novel photoaligned LC devices may include field sequential colour (FSC) LC with a high resolution, low power consumption and extended colour gamut, which can be used in the screens of portable PCs, mobile phones, Personal Digital Assistants (PDAs). The switchable goggles and lenses based on new FLC prototypes can be efficiently applied in the new generations of switchable 2D/3D LCD TV. FSC LC microdisplays, which is now one of the most advanced technologies for pico-projectors can be also made.

Our Conference welcomed many guests from US, Europe, Asia and shown, that FLC is the real future of LC display and photonics devices. We have 51 participants with 5 Plenary, 14 Invited, 6 Oral and 23 Poster presentations from 17 countries: India, Korea, Japan, Poland, Russia, Czech Republic, Taiwan, Ukraine, Hong Kong, USA, Ireland, UK, Luxembourg, Prague, Slovenia, Sweden and China. The Conference was held in Hong Kong University of Science and Technology, State Key Lab for Advanced Displays and Optoelectronics Technologies (www.pskl.ust.hk). The Conference participants were welcomed by Prof. Tim Cheng, the Dean of HKUST School of Engineering (please see the photo below)
The five winners of Best Poster Award
New ferro and anti FLC components and materials were highlighted in the invited presentation of Prof. Kula Przemysław, Warsaw Academy of Science, Poland, and Prof. Michal Kohout, University of Chemistry and Technology, Prague, as well as Prof. Yury Panarin, Trinity College, Dublin and Prof. Valerii Vashchenko, HKUST, Hong Kong, ferromagnetic LCs were presented by Dr. N. Sebastian, J. Stefan Institute, Ljubljana, Slovenia.

New electrooptical modes and other aspects of FLC applications were mentioned in the talk of Prof. Junhee Na, Chungnam National University, Korea, Prof. Ian Underwood, University of Edinburgh, UK, Prof. Abhishek Srivastava, SKL, HKUST, HK. The review of new FLC developments and the trends for applications of FLC applications in displays and photonics were given in the plenary talk of Prof. Vladimir Chigrinov, SKL, HKUST, HK. Some very interesting new aspects of FLC optics were considered in the plenary talk of Prof. Hideo Takezoe, Japan and invited lecture of Prof. Valyukh, Linkoping U, Sweden.

Chirality and polarity in LCs were also considered in the plenary talks of Prof. Noel Clark and Prof. David M. Walba, University of Colorado, USA, invited talks of Prof. Antal Jakli and Jonathan Selinger, Kent State University, USA, Prof. Corrie T. Imrie, University of Aberdeen, UK and Prof. Lech Longa, Jagiellonian University, Kraków (PL).

The best poster Awards were given to Wanlong ZHANG (HKUST), Photo-Emissive Nanorods Display Based on Ferroelectric Liquid Crystal Cell, Anna Poryvai (UCT Prague), Ferroelectric liquid crystals: The effect of central aromatic units on mesomorphic properties, Atsushi SEKI (Kagawa University, Japan), Bulk photovoltaic effect in π-conjugated ferroelectric liquid crystals based on an oligothiophene skeleton, Jakub Herman (Military University of Technology, Poland), Design of New Reactive Mesogens for Antiferroelectric Materials, V. Mikhailenko (SSI ‘institute for single crystals’, Ukraine), Chiral trifluoromethylalkyl esters of terphenyldicarboxylic acid – highly effective components for short-pitch FLC mixtures. The Awardees are shown in photo below.

The next Conference of FLC will be held in 2019 by Prof. Noel Clark and Prof. David M. Walba, University of Colorado, USA. We hope it will be also a great event as it was in 1991.

FLC Conference has an interesting cultural programme as it was held in Hong Kong, one of the best cities in Asia. It was great banquet with singing and dancing and an interesting boat trip around HK Island. Some photos are provided below.

V. Chigrinov
Department of Electronic and Computer Engineering, Hong Kong University of Science and Technology, Hong Kong

eechigr@ust.hk