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SPIE/IS&T Conference — “Liquid Crystal Materials, Applications & Devices” San José, California, USA, February 1992

Paul S. Drzaic^a

^a Raychem Corporation,

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MEETING REPORTS

SPIE/IS&T Conference — “Liquid Crystal Materials, Applications & Devices” San José, California, USA, February 1992 *a report from Paul S Drzaic, Raychem Corporation*

This 2 1/2 day conference was part of a larger symposium on Electronic Imaging sponsored by the International Society for Optical Imaging (SPIE) and the Society for Imaging and Technology (IS&T). Like the previous three conferences in this series, the nearly 40 papers presented spanned a broad range of topics all related to the development of liquid crystals and their applications.

Session 1 contained papers involving polymer-dispersed liquid crystals. The emphasis of the papers was on analysis of the operational principles behind these devices. Among the topics covered included light scattering, structure/property relationships, and electrical models for PCLC films. Reamey showed video-micrographs of an interesting disclination structure that appears during the reorientation of nematic droplets in an electric field, while Drzaic described work on phenomenological models for light scattering in PDLC films. A particularly intriguing paper was given by Stein, who drew parallels between light scattering in PDLC films and scattering from polymer crystallites within amorphous polymers, a process that has been studied extensively for decades.

Session 2 was devoted to ferro-electric liquid crystals and devices. Papers by Escher and Mochizuki detailed efforts in solving some of the outstanding problems present in surface-stabilised FLC devices. Several papers reported new materials useful for FLC devices, both in the surface-stabilised mode and newer implementations like the deformed helix mode. Ferroelectric side-chain liquid crystalline polymers were described, with a demonstration of a flexible FLC display film by Yuasu. The potential of FLC devices for

use in spatial light modulators was also discussed by Crossland.

Session 3 was devoted to materials and processes that might prove useful in future applications of liquid crystalline materials. The papers in this section covered a range of topics, with the unifying theme being the preparation and application of novel anisotropic materials. Among the topics presented were novel methods of aligning liquid crystals and polymers using fluoropolymers (Motamedi), photochemically-active liquid crystal materials (Ikeda), and nonlinear optical materials and devices (Dalton). A particularly interesting phenomenon was described by Gibbons, who showed that intense, linearly-polarised lasers can be used to change the orientation of homogeneously-aligned liquid crystals, presumably by altering the preferred azimuthal anchoring direction of the polymer alignment coating on the glass substrate.

Sessions 4 and 5 were concerned with liquid crystal devices and applications. The papers in this section spanned a diverse range of topics, including liquid crystal Fabry-Perot filters (Patel), high speed nematic modulators (Wu), and two papers on PDLC projection display systems. Several papers reported work on spatial light modulators, including work by Marrakchi on adaptive micro-optic devices. Javidi described recent work on information processing and pattern recognition using liquid crystal light valves. Each author submitted a detailed manuscript which complements and summarises the presentations at the conference. These will be published as the *Proceedings of the Conference*, and are available from:

SPIE, PO Box 10, Bellingham
WA 98227-0010, Conf. No 1665.

British Liquid Crystal Society Annual Meeting, Oxford, 6-8 April 1992

A wide range of topics was covered by the 150 participants, and there were presentations on continuum mechanics, the measurement of thermal gradients of turbine blades, the synthesis of new materials, and the operation and construction of new display devices.

The annual conference provides the forum for the presentation of a number of prizes: that for the best talk by a young member of the Society went to Michael Wali (Univ of Sheffield) for his talk on the

synthesis of metalloporphyrins. The Society's Young Scientist award, for a member under 30 who is judged to have made the most significant contribution to an area of liquid crystal science or technology, went to Dr Mark R Wilson (Univ of Lancaster), for his work on computer simulations of real liquid crystal systems.

An important new event was the first Sturgeon Memorial Lecture (*see p 3*). The UK Chapter of the Society of Inform-

Brazilian Liquid Crystal Group, Annual Meeting Caxambu, Brazil, May 1992

*Summary from Marcos B Lacerda Santos,
Dept de Fisica, Univ de Brasilia, Brazil*

The Liquid Crystal Group met within a large National Annual Meeting on Condensed Matter Physics. The delegates (about 20) represented most of the liquid crystal groups working in Brazil. Subjects reflected the dominant common interest in lyotropic liquid crystals. In the only invited talk, the related topic of the physical chemistry of micellar systems was discussed by Prof Quina from the Institute of Chemistry [IQ] at the Univ of São Paulo (USP). The Liquid Crystal session was chaired by Prof T Kroin from the Univ of Santa Caterina, who also presented results on densitometric measurements in the binary system $\text{D}_2\text{O} + \text{water}$.

Figueiredo Neto's group (Inst of Physics [IF] at USP) presented results related to lyotropic liquid crystals, focussing on phase transitions, mechanical instabilities and anchoring properties. The group also presented recent results on ionic ferrofluids which show liquid crystalline behaviour. The latter was done in collaboration with F A Tourinho, who recently moved to the Dept of Chemistry at the Univ of Brasilia (UnB), where he is forming a new ferrofluids group, including collaboration with physicists. A preliminary report on one experiment from this group on optical characterisation was presented by G J da Silva (Dept of Physics, UnB).

Other groups from USP were represented at the meeting: Lia Amaral's group (structural studies on the lyotropic phase transitions) from the IF, and J A Vanin's group (synthesis and characterisation of cholesteric lyomesophases) from the IQ.

Other contributions came from Lacerda Santos (Dept of Physics, UnB) on new light scattering data on micellar nematics; and Palangana (State Univ of Parana at Maringa) discussed theoretical aspects of smectic A — cholesteric phase transition.

The next meeting of the group will be chaired by Rosangela Ytri (IF-USP).

ation Displays (SID) has also commemorated the part played by Ben Sturgeon in the development of liquid crystal displays and an annual prize has been instituted, jointly with the BLCS, for the member under 27 who is judged to have published the most significant contribution in a subject close to liquid crystal displays. This prize was awarded jointly to Dr J C Jones and Dr M J Towler, of RSRE, now part of the Defence Research Agency.

J W Emsley, Univ of Southampton