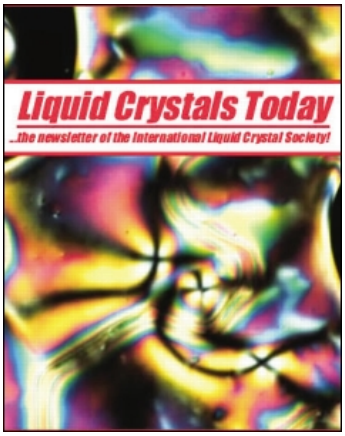

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Annual Meeting of the American Chemical Society

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Conference Report

Annual Meeting of the American Chemical Society

Two-Day Symposium on Ordered Fluids and Liquid Crystals

Anaheim, CA April 5–6, 1995

by **George Nounesis**

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Ordered Fluids and Liquid Crystals was the focus of the two-day symposium on April 5 and 6 in Anaheim, California that was sponsored by the Division of Colloid and Surface Chemistry, during the Annual Meeting of the *American Chemical Society*. The organizers were S. Rananavare of the Oregon Graduate Institute and R. Shashidhar of the Naval Research Laboratory who did a magnificent job in arranging a program that was faithful to the title and addressed issues on nearly all topics of liquid crystals research and technology. Both days were packed with presentations that covered lyotropics, ferroelectrics, liquid crystal polymers, molecular theory, new materials, and, of course, applications.

Tom Lubensky opened the symposium with an exciting lecture on liquid crystalline order in membranes and brought-up the possibility of the twisted-grain-boundary (TGB) phase in lyotropic systems. Other presentations on lyotropic systems included structural studies of the bicontinuous cubic phase (B. R. Ratna), the melting of self assembled phospholipid based tubules (R. Shashidhar), and micellar disk-like nematic phases (K. Jolley). Presentations on new materials encompassed some huge non-polymeric macromolecules (molecular weight ~30,000) that exhibit liquid crystalline mesophases (V. Percec), a novel class of dopants (tolane cinnamates) that are very promising for device applications (M. D. Wand), new ferroelectric liquid crystals with large spontaneous polarizations and first order smectic A–smectic C* phase transitions in either the monomeric or polymeric state (K. Takahashi), and liquid crystal elastomers with every intriguing piezoelectric properties (R. Zentel). On the synthesis of new chiral smectic materials with siloxy chains we heard from J. Naciri, on the design and synthesis of radial liquid crystals from K. M. Blackwood, and on ferroelectrics with optically active sulfinyl groups from D. Guillon.

Polymer-dispersed liquid crystals were certainly a hot topic with several talks starting with R. Marin on volume-stablized liquid crystals, K. Amundson on anchoring transitions in PDLC films, Sin-doo Lee on the electro-optic properties of confined ferroelectric liquid crystal composites, and M. Srinivasarao on real-time observations of these films during their formation. Structural studies on liquid crystal films using the X-ray reflectivity techniques were presented by S. Kumar and R. Geer.

Interesting molecular theories covering such topics as the uniaxial–biaxial nematic transition were discussed by P. L. Nordio and phase transitions between uniaxial nematics were presented by G. Nounesis. The origins of anti–ferroelectricity were discussed by H. Takazoe and a new approach for understanding smectic fluctuations was covered by L. Golubovic. Electronic transport in discotic, columnar liquid crystals was the focus of a very interesting presentation given by N. Boden. The use of magnetic resonance techniques to understand liquid crystal phases, properties, and dynamics was also represented in several lectures. We heard from J. Freed on the use of ESR to solve fundamental dynamic problems in liquid crystals, from E. Burnell on the anisotropic properties of intermolecular forces in nematics, from R. Dong and B. Fung on ^{2}H and ^{13}C NMR, respectively, and from G. Gothe on NMR studies of polymeric liquid crystals.

Finally, on the application front, three talks highlighted the current trends. Dave Walba spoke on second-order nonlinear optic possibilities in ferroelectric liquid crystals, K. Johnson on polarization interference tunable filters, and J. Patel on liquid crystal Fabry-Perot filters for applications in communications.