

This article was downloaded by:

On: 16 January 2011

Access details: *Access Details: Free Access*

Publisher *Taylor & Francis*

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Liquid Crystals Today

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713681230>

Fifth International Symposium on Metallomesogens Neuchtel, Switzerland, 3-6 June 1997

Günter Lattermann^a

^a Makromolekulare Chemie I, Universität Bayreuth, Germany

To cite this Article Lattermann, Günter(1997) 'Fifth International Symposium on Metallomesogens Neuchtel, Switzerland, 3-6 June 1997', *Liquid Crystals Today*, 7: 3, 10 – 11

To link to this Article: DOI: 10.1080/13583149708047679

URL: <http://dx.doi.org/10.1080/13583149708047679>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.informaworld.com/terms-and-conditions-of-access.pdf>

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

systematic searches for new LC structures (Buka, Ungar, Kratzat—micelles) or for correlations between physical properties and chemical structure within homologous series of substances (Guillon—electro-optical parameters, Rauch—phase and ferroelectric parameters) were discussed.

However, the conference was in general dominated by oral presentations of essentially purely phenomenological studies with no attempt at convincing explanations or quantification of the observed results, interpreted with old, if not outmoded theories, and only occasional forays into proper modelling of the observed phenomena. Notable exceptions included presentations on modelling surface phenomena of the lyotropic LC, solidly supported by experimental results and/or numerical modelling (Galatola, Neto), and of Stark on topological defects in the water-surfactant-liquid crystal mixture, in particular hyperbolic hedgehog defects separating water rich regions. Osipov discussed different aspects of induced ferroelectricity in the nonchiral smectic C by a chiral dopant within the framework of molecular statistical theory.

Similar completeness characterized a substantial number of presentations on molecular dynamics studies often involving sophisticated contemporary experimental techniques (e.g. Sastry's talk of 2D-FT EPR studies) and theoretical modelling (Dunmur, Sastry, Shilov).

Despite the conference program announcements, presentations on biological systems were surprisingly few and a very stimulating invited lecture of Petrov on biophysical mechanisms present in membranes, such as flexoelectricity, electric conductivity, and capacitance was not enough to fill the gap alone.

The participation in the conference of a large number of graduate students was very encouraging as well as a substantial number of communications on internationally cooperative research. Young researchers mostly reported on their work during poster sessions. Many participants admired a poster by Brazovskaia on the analogies to quantum mechanics of the behaviour of a steel ball deposited on a free standing smectic film and excited by acoustic waves, a conceptually simple and very

instructive experiment. Zihel's poster presentation of cooperative work of scientists from many European countries and the USA on non-monotonic behaviour of optical phase retardation in a nematic layer was upgraded in the course of the meeting to an oral one and turned out to be one of the best given. A number of other reports also stemmed from international cooperation, e.g. Sastry reviewed results of an experimentally extremely challenging and time consuming study of spin-probe dynamics in liquid crystals by two-dimensional Fourier-transform EPR performed with the Freed group at Cornell University, and Urban lectured on a pressure dependence study carried out with the Wurflinger group at Ruhr University Bochum. Finotello discussed results of cooperative work (Garland group at MIT) on thermodynamic properties of liquid crystals in restricted geometries, in particular the influence of confinement on the NS and NI phase transitions.

Selected Conference contributions will be published as two separate issues of *Proceedings of SPIE*.

Metallomesogens are a relative young group of liquid crystals which add to the well-known characteristics of mesophase forming species the specific properties of metal complexes. The Fifth International Symposium on Metallomesogens, held at the beautiful Swiss Jura mountain site of Chaumont above Neuchâtel, provided the forum for presenting the state of the art in this increasing area of liquid crystal research. The symposium was carefully and pleasantly organized by R. Deschenaux, Neuchâtel.

Participants from 9 European and 4 overseas countries presented their contributions, starting with an introduction into structural investigation methods of metallomesogens, given by D. Guillon, Strasbourg. In a second part of his lecture, he presented his own investigations, among others on the continuous variation of packing parameters during transitions from columnar to cubic phases. The large group of metallomesogens with macrocyclic ligands was introduced by G.

Fifth International Symposium on Metallomesogens

**Neuchâtel, Switzerland,
3-6 June 1997**

*Report by Günter Lattermann,
Makromolekulare Chemie I,
Universität Bayreuth, Germany*

Lattermann, Bayreuth, who reported additionally on new results in the field of metallomesogens with related linear and branched ligands. Several authors presented further contributions on macrocyclic metallomesogens, i.e. tetrapalladium complexes (S. Diele, Halle; D. Singer, Washington), metallo-phthalocyanines (K. Ohta, Ueda), metalloporphyrins (Y. Shimizu, Ikeda; A. Suste, Exeter) and dibenzotetraannulenes (S. Forget, Orsay). It became obvious that apparently in this group of

metallomesogens still new developments are possible. This was additionally demonstrated by investigations on complexes with azacyclic ligands (A. Facher, Bayreuth) and by the report on metallacrowns, which seem to be very promising candidates for analogous metallomesogens with interesting magnetic properties (S. Pecoraro, Ann Arbor). A further group which attracts considerable attention are liquid crystalline ferrocenes, presented by contributions of S. Diele, Halle; T. Seshadri, Paderborn; M. Schweissguth, Neuchâtel and T. Turpin, Neuchâtel.

Besides new classes of ligands like di(hexadecyl) phosphate (F. B. Cukiernik, Nunez), tropolone derivatives (J. R. Chipperfield, Hull), *o*-phenylenediamine compounds (J. Szydłowska, Warsaw), and pyridine ligands (L. Y. Park, Williamstown), other contributions reported on cobalt soaps (Van Hecke, Claremont), polar copper complexes of low symmetries (N. Hoshino-Miyajima, Sapporo) and metallomesogens linked onto cyclic and

polymeric siloxanes (P. Styring, Hull). Furthermore, the induction of meso-phases by doping palladium complexes with acceptor molecules (M. B. Ros, Zaragoza) has been presented.

Chiral β -diketone complexes are described as the first switchable metallomesogens with columnar phases (T. Sierra, Zaragoza), whereas with chiral dopants in achiral metallomesogens the ferroelectric S_C^* phase has been induced (M. A. Athanassopoulou, Darmstadt).

Research on metallomesogens is leaving the initial stage of synthesis and characterization. This was once more

demonstrated by the investigations on magnetic properties (I. Ovchinnikov, Kazan; M. Bose, Calcutta), but also by redox and conductivity measurements of metallomesogen-doped nematic solutions in order to clarify conduction mechanisms in metallomesogens (F. Lelj, Potenza). In connection with this, eutectic metallomesogen mixtures as materials for electro-optical application have been described (H. Hakemi, Milano).

Last but not least we report on the overview on lyotropic metallomesogens, given by D. Bruce, Exeter, who

emphasized the increasing interest in this recent field of research, additionally underlined by reports from his own group on the lyotropic behaviour of phthalocyanine complexes (H. Eichhorn, Exeter) and chiral ruthenium surfactants (H. Jervis, Exeter).

The Symposium was sponsored by KGF (Novartis AG, Hoffmann-La Roche AG, Lonza AG), by FSRAO (Sovar), by the Swiss Academy of Science, the Swiss Telecom and by the University of Neuchâtel.

The 28th International Society for Information Display (SID) Symposium and Exhibition was held at the Hynes Convention Center in Boston on 11–16 May 1997. Boston is one of America's most agreeable cities providing participants with a rich variety of history, architecture, and entertainment. The annual SID event is the leading international forum for advances in electronic display applications and products, technology, manufacturing, testing, and human factors. This year's assembly was most significant because it celebrated two of the display industry's most significant accomplishments; the 100th anniversary of the modern cathode-ray tube (CRT) and the 25th anniversary of the active matrix liquid crystal display (AMLCD). The CRT was first invented at the University of Strasbourg by Karl Ferdinand Braun in 1896–97, and Peter Brody and a team at Westinghouse in Pittsburgh, Pennsylvania fabricated the first operational AMLCD in 1972. Keynote addresses were presented by Peter Brody and Shinji Morazumi on AMLCDs, and Peter Keller on CRTs to celebrate the significance of these two major inventions which can confidently be said to have revolutionized the world.

According to many articles in the technical literature and trade magazines, one may be led to believe that LCDs will be replaced in the future by field emitting displays (FEDs), organic light emitting diodes (OLEDs), etc., but I can safely say that competing technologies have a long way to go. Just spend a few days at the annual SID show and one immediately

1977 Society for Information Display (SID) Symposium

by Gregory P. Crawford,
Brown University,
Providence,
USA

concludes that nothing could be further from the truth. This year's SID was dominated by compelling advances in LCD technologies on both the product and research fronts. As competing technologies continue to work toward the performance benchmark of the AMLCD, liquid crystal technologies are continually evolving, prices on AMLCDs continue to drop, and new liquid crystal configurations with unique product potential are on the horizon. The 'Achilles Tendons' of LCDs, such as the viewing angle, operational temperature range, and power (required backlight), have been solved and implemented into many display products. As competing technologies struggle to keep up with the rapid pace of LCDs, liquid crystal scientists and engineers continue to advance their technologies and find new product applications for LCDs.

On the materials side, there was a lot of emphasis on reflective liquid crystal displays and liquid crystal configurations with bistable memory. These sessions were very exciting and well attended. Hook and co-workers are looking at novel

addressing schemes to drive STNs to capitalize on their bistable hysteresis loop. Bryan-Brown and co-workers presented a unique grating aligned bistable nematic device which I am sure we will hear more about in the future, and Martinot-Lagarde reported on a fast switching monostable surface anchoring configuration. Truly reflective displays with bistable memory caught the eyes of many participants. Increasing the dynamic response time of cholesteric displays was reported by Zhu and Yang, and Ma and Yang presented a means for achieving a white reflecting polymer stabilized cholesteric display. Bunz and co-workers presented work on sputtered alignment layers to increase the contrast ratio of cholesteric liquid crystal displays. Buerkle and co-workers reported on a very new application for bistable liquid crystal materials — smart cards — small (credit card size), low resolution displays which can be fabricated onto a plastic card and placed in your wallet or purse. Faster response time, white reflecting displays, and higher contrast for cholesteric bistable displays has been on the minds of researchers and technologies for years, and now promising solutions to these issues are now being disclosed.

Colour displays have become a part of our everyday life — from television to computer monitors to automobile dashboards and even aircraft cockpit instrument panels. The ubiquitous colour CRT and AMLCD has introduced modern colour into most display applications. Colour is a pervasive feature of our everyday environments and therefore it is