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Publisher *Taylor & Francis*

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Liquid Crystals Today

Publication details, including instructions for authors and subscription information:

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

Workshop on Pattern Formation in Liquid Crystals

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To cite this Article Kramer, L.(1999) 'Workshop on Pattern Formation in Liquid Crystals', *Liquid Crystals Today*, 9: 3, 17 – 18

To link to this Article: DOI: 10.1080/13583149908047738

URL: <http://dx.doi.org/10.1080/13583149908047738>

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ductive properties of porphyrin silicon (IV) complexes (T. Sugino), the electrophysical properties of copper phthalocyanine derivatives (N. Usol'tseva), and dielectric properties of metallomesogens (M. R. de la Fuente).

K. Ohta reported on novel alkylthio-substituted phthalocyanines, for which he described their mesomorphic and structural behaviour, and their conductivity properties. In the context of the structure-property relationship in mesogens, N. Hoshino-Miyajima has presented a study on the smectic A/C polymorphism of N-salicylideneaniline derivatives. In the final lecture of the symposium, D. Guillon presented a structural model for the transition between the columnar and cubic mesophases observed in silver (I) complexes, and involving undulations of columns.

In addition, poster presentations took place during two evening sessions where fruitful discussions between the participants contributed to the high scientific level of the symposium. All participants paid compliments to A. M. Giroud who will retire next October. D. Bruce paid tribute to her brilliant scientific career and pointed out her legendary enthusiasm. The celebration was followed by a lecture of A. M. Giroud who presented a summary of

her twenty years of research in the chemistry of metal-containing liquid crystals. K. Praefcke, whose retirement was celebrated last year, also presented a review on the relationship between the molecular design and the columnar stacking of organometallics.

The symposium ended with a general discussion run by G. Lattermann. From the contributions presented, it appeared that the field of metallomesogens is still growing up. It has been pointed out that the future investigations should concern the physical properties (magnetic, photoconductive, electric, etc.) of such materials, their elaboration into thin films and their study with local probe microscopy or freeze fracture for example. The synthesis of new compounds at the interface with biology and in the area of catalysis, and the development of lyotropic systems will present new opportunities.

Let us finish this short report by thanking again the organizers for the wonderful organization of this high level symposium. For those who want to read or download the abstracts of all the presentations, it is possible to obtain them from the web site of the conference at the following address : <http://kondmat.pc.chemie.tu-darmstadt.de/ismm99.htm>.

Workshop on Pattern Formation in Liquid Crystals

**(PFLC'99), 5–7 September 1999 in
Waischenfeld/Bayreuth, Germany**

Report by L. Kramer, University of Bayreuth

This event marked the 10th anniversary of the first workshop on this topic in Bayreuth, which initiated a bi-annual series on pattern formation in complex systems which took place in Kitakyushu, Santa Fe, Copenhagen and Budapest. Some of the topics discussed are reported below (see also www.phy.uni-bayreuth.de/~pflc/).

The many contributions to electroconvection (EC) in nematics demonstrated the continued interest in this subject. The phenomena observed near threshold in the material I52, like spatio-temporal chaos and 'worms' arising subcritically (G. Ahlers and M. Dennin), are now presumably on the way to

being understood (H. Riecke). To do this, the framework of the 'weak electrolyte model' (WEM), which extends the classic Helfrich description of EC to include explicitly the charge carrier dynamics, is called for. On the other hand, the phenomena observed in materials that exhibit a nematic-smectic transition (P. E. Cladis) appear to resist attempts for a quantitative description. During recent years a breakthrough in understanding the behaviour of the traditional materials MBBA and Phase 5 above threshold was achieved by the discovery of 'abnormal rolls', where the director spontaneously rotates out of its usual symmetry plane. This concept comes in naturally in homeotropically aligned cells, but it turns out to be decisive also in conventional planar geometry. It is important also in the dielectric regime and in the formation of chevrons, which has attracted increased attention (R. Stannarius, H.-J. Huh). EC in free standing smectic films works rather differently. Whereas 10 years ago, when this system was presented for the first time, the specific mechanism for space charge generation was not clear, it has now been clarified (S. Morris).

Conceptually (but not experimentally) simpler are some reorientation phenomena resulting from oscillatory shear flow. A new, Fredericks-like instability driven by Poiseuille flow in a homeotropically aligned cell was presented. In the same geometry and in the presence of an electric field above the bend Fredericks transition, elliptic Couette flow leads to a slow precession of the director with a rate which, according to theory, should be related to the flow alignment properties of the material. Experimental demonstration of this prediction remains a challenge. The study of non-equilibrium growth of smectic B

germs from their nematic melt has gone into a new stage by application of a pressure or temperature oscillation and thereby 'regularizing' the sidebranching activity of growing dendrites (A. Buka). Also in Hele-Shaw growth the intrinsic anisotropy of LCs can stabilize dendrites. Evidence from isotropic polymers indicates that (effective) shear thinning may provide the relevant mechanism (P. Palffy-Muhoray).

In addition there were some presentations on patterns in other media (simple fluids, instabilities in chemical and biological systems, granular materials), which stressed the close ties with the general area of pattern formation. It is clear that through their specific material properties LCs by now play an important part in this larger setting. The workshop series will continue in 2001 in Beijing (organizers Lui Lam and Kunquan Lu).

4th INTERNATIONAL MEETING ON LYOTROPIC LIQUID CRYSTALS

LLC 2000

25–28 September 2000

Ivanovo, Russia

This meeting will be the 4th in a series of triennial international conferences and keeps the traditions of the previous meetings on Lyotropic Liquid Crystals, which were held also in Ivanovo. The proceedings of these three meetings were published in Bull. Acad. Sci. of Russia. The main goal is to bring together scientists and students from colloid, inorganic, organic, metal-organic, polymer and

physical chemistry as well as physics, medicine and biology to present and discuss their recent and advanced developments in the area of lyotropic liquid crystals and their practical applications.

Ivanovo is a large city 300 km north east of Moscow, and was the first scientific centre in the USSR where more than 30 years ago Professor Igor Chistyakov revived the investigations of liquid crystals. In memory of Professor I. G. Chistyakov, on the occasion of his 70th anniversary a special section 'Structure and Properties of Liquid Crystals' will be organized during this Meeting.

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N E W P R O D U C T S

(information from Stanford Resources Inc).

Apple Computer, Cupertino, California, is marketing a 22 inch diagonal digital flat panel display as a companion to the G4 computer. The Apple Cinema Display has a 1600 × 1024 pixel format and can display a full 11 × 17 inch image.

Hewlett Packard Company, Palo Alto, California, have announced the HP Pavillion FX70, which has an XGA TFT-LCD with a 15 inch viewable area and 24 bit per pixel

colour. The system is compatible with all PCs with an analogue connection for graphics cards and compatibility for future digital interfaces.

Samsung Electronics has developed a 15.4 inch SXGA TFT-LCD and a 16.5 inch TFT-LCD with a format of 1400 × 1050 pixels for notebook PCs. The company has also developed a 24 inch TFT-LCD with pixel format of 1920 × 1200 for HDTVs.

Nokia Display Products Inc., Irving, Texas, is marketing the 800XA, an 18.1 inch active viewing area display which uses a Super Fine TFT-LCD technology. The display has a 170 degree viewing angle, both vertical and horizontal.