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H. Stegemeyer

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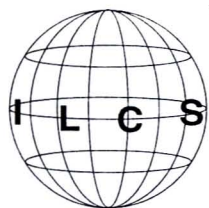
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LIQUID CRYSTALS Today

Vol. 4, No 1 April 1994

EDITORIAL

This will be the last *Liquid Crystals Today* before the 15th International Liquid Crystal Conference to be held in Budapest, Hungary, July 3 - 8, this year. The biennial conferences seem to come around very rapidly, and planning is already taking place for the 1996 ILCC to be held at Kent State University, Ohio, USA, the birthplace of the ILCC. Institutions looking to host the ILCC in 1998 or 2000 should prepare submissions for initial consideration after the Budapest meeting.

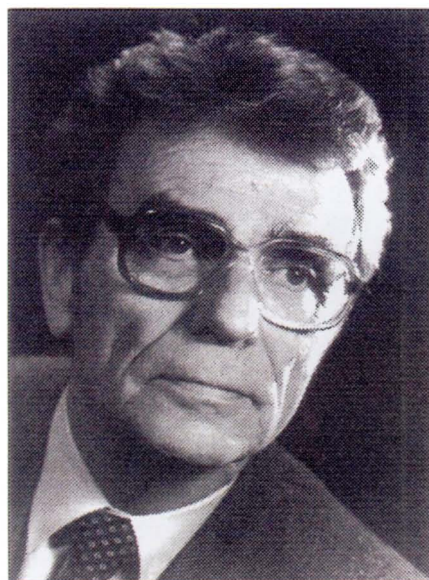
Although it seems only a short time since we all gathered in Pisa, much has taken place on the liquid crystal stage since 1992. The market share of LCDs in the display industry has continued to increase, and ferroelectric LCDs have finally entered the market. On the materials front, considerable advances have been made in composite systems such as PDLCs and LCDPs, while the academic liquid crystal community continues to thrive in difficult circumstances. *Liquid Crystals Today* has tried to chronicle these developments and provide a link between liquid crystallers around the world. After four years as Secretary and Editor, I think that the time has come for new input into the Society and its Newsletter, and I am sure that the Board will be pleased to hear from anyone prepared to take over these demanding but rewarding responsibilities. I look forward to meeting many of you at ILCC Budapest, which I am certain will continue the tradition of excellent science in a friendly environment. *David Dunmur*

CONTENTS:

Profile of Professor Horst Sackmann • Society News • Meeting to mark retirement of Professor George Gray • In Memoriam: Professor J M Janik • A note on the melting point of α -solanine • Liquid Crystals & IT • BLCS Meeting Report • Miscellany • Forthcoming Meetings.

PROFESSOR HORST SACKMANN, 1921 - 1993

*An appreciation from
H Stegemeyer, Paderborn,
Germany*



Horst Sackmann, Emeritus Professor of Physical Chemistry at the Martin-Luther University, Halle Wittenburg, passed away on 2nd November 1993, at the age of 72.

Professor Sackmann was born in Freiburg on 3 February 1921. As a native of Baden he spent his school days in Offenburg. In 1939 he intended to start his studies at the University of Freiburg, but just at that time the 2nd World War broke out and the university was closed because of its exposed geographical location. So he matriculated at the University of Halle and his first contact with liquid crystals was when he was at Halle as a young student, under Wilhelm Kast, then Professor of Physics at Halle.

After Freiburg University reopened he continued his studies in chemistry there, until he was called up for the army in 1941. During his time in the army he was seriously wounded and sent to a hospital in Halle, and after his recovery he continued with his studies at Halle until the end of the War.

In 1945 he did his diploma thesis with Karl Lothar Wolf, then Professor of Chemistry at Halle. Wolf was an enthusiastic adherent of the Goethean morphology and he inspired his young co-

worker to study the influence of the molecular shape on material properties which became the important starting point for Horst Sackmann's further scientific work. His doctoral supervisor was Franz Sauerwald, then Director of the Institute of Physical Chemistry in Halle, who focused Sackmann's interest on the thermodynamics of mixing. In his PhD thesis (1949) entitled "Volume changes during the melting process of organic compounds in homologous series" he detected an odd-even effect of ΔV .

Afterwards, he devoted his attention to material properties of spherically shaped molecules. In 1954 he became qualified to lecture in physical chemistry (in German: Habilitation) by a thesis entitled "Isomorphic relations between the tetrahalides of the IVth group." As a young university lecturer he studied the behaviour of binary liquid mixtures and gave an interpretation of their excess functions in terms of statistical theories.

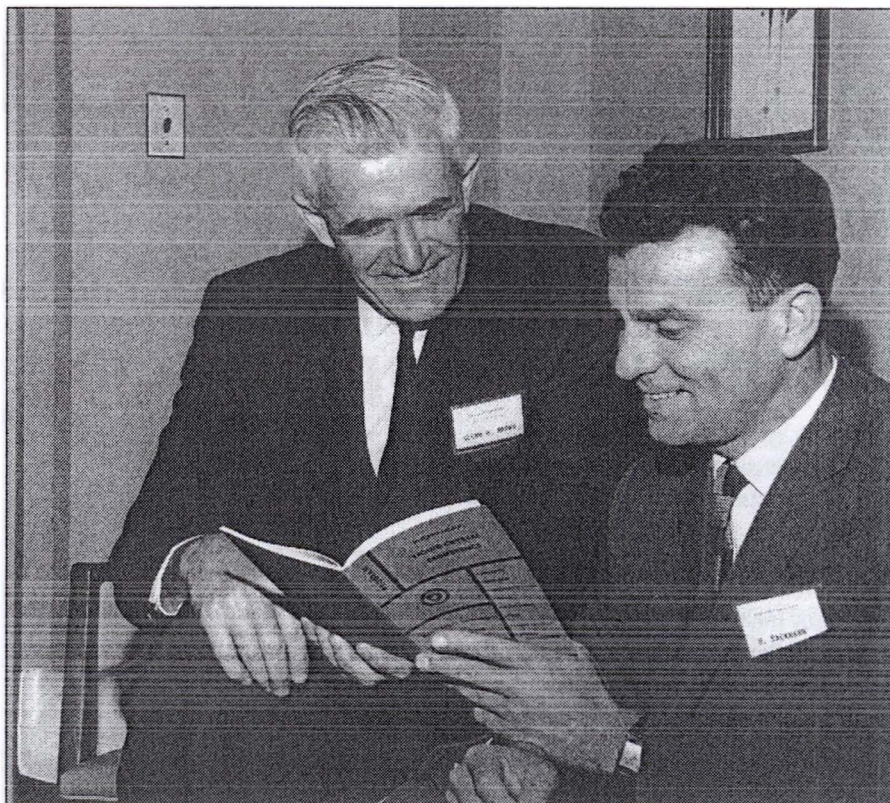
At the end of the 1950s, Horst Sackmann decided to extend his studies on isomorphism to systems with rod-shaped molecules. He found prototypes of those liquid crystal systems of which he first became aware when working with Wilhelm Kast. The extensive collection

of mesogenic compounds still available at the Institute of Chemistry from the time of Daniel Vorländer, the well-known pioneer in liquid crystal research, was an essential prerequisite to his further investigations.

From Vorländer's results and those of his famous French competitor G Friedel, it was known that liquid crystalline compounds could exist as polymorphic modifications. Besides chiral cholesterics, only two modifications were known at that time: the nematic and smectic phases. Polarizing microscopy gave an indication that there could be further polymorphism of smectic phases. Sackmann started his investigations from this point and applied the well-known criteria of isomorphism in solid crystals to liquid crystals, that is i) phase miscibility and ii) similarity of constituent molecules. The crystal lattice geometry was replaced by molecular ordering in the liquid crystalline phases. In the first paper about isomorphism and miscibility of liquid crystals published in 1959 in *Zeitschrift für Elektrochemie* 63, p 1171, he already distinguished three smectic modifications with the heuristic designations "Smectic A, B and C", nowadays the accepted nomenclature.

He arrived at the formulation of his miscibility rule from the sound basis of numerous diagrams of binary mixtures obtained with mesogenic compounds from Vorländer's collection. This rule states: "All liquid crystalline modifications exhibiting complete miscibility in binary systems can be consistently marked by a common symbol. Consistency means liquid crystalline phases of different symbols never show complete miscibility." With this rule Horst Sackmann threw light on the tangle of various polymorphic liquid crystalline modifications. The final result is the establishment of the phase system which nowadays contains 13 smectic modifications (Smectic A to M).

Sackmann solved further puzzling questions. Besides thermodynamic studies of phase transitions in liquid crystals, he elucidated the phase structure of the different polymorphic smectics classified by means of his miscibility rule, through important experimental efforts. Clear experimental evidence of the molecular ordering within the different smectic phases was clarified mainly by optical investigations and small angle x-ray scattering. Model compounds were synthesised to obtain detailed in-



Professor Horst Sackmann (right) with Professor Glenn Brown at the First International Liquid Crystal Conference at Kent, Ohio, USA in 1965.

sight into the correlation between the molecular structure and physical and material properties. Sackmann was appointed a Professor in 1958 and since 1963 served as a Director of the Institute of Physical Chemistry in Halle. His researches were aided by a large number of co-workers whom he successfully motivated to form their own ideas.

The results of his investigations have been published in more than 150 papers and several books. Many honours have been bestowed on him: In 1965 he was elected a member of the Deutsche Akademie der Naturforscher Leopoldina and in 1973 became Vice-President of this, the oldest academy in the world. He was the recipient of an honorary doctorate from the University of Jena in 1985, and in 1991 the Deutsche Bunsen-Gesellschaft für Physikalische Chemie awarded the Bunsen Memorial Medal to him. Posthumously he was honoured by the conferment of the Wilhelm Osterwald Medal of the Sächsische Akademie der Wissenschaften. After his retirement Professor Sackmann actively contributed to the scientific development of his Institute. He was a member of the Glenn Brown Award Committee of the ILCS, and as recently as May 1993 he served as a member of the Scientific Committee of the Bunsen-Conference on Liquid Crystals in Leipzig.

An appreciation of Professor Sackmann's work would not be possible without an emphasis on the political situation in which he had to live. In the communist regime of the former German Democratic Republic (East Germany) there was no freedom of science and a degree of isolation from the western scientific community took place. Only strong characters like Horst Sackmann were able to produce research achievements of international standards despite suffering political pressure. After the reunion of both parts of Germany he exerted all his energies for the political renewal of his University.

Professor Sackmann's system of smectic phase identification is today internationally accepted and established so that its origin and the immense difficulties during its development are often no longer obvious to younger scientists. In outstanding lectures he often reported the results of the Halesian school and nobody could escape the brilliance of his manner of speech. In general Professor Sackmann was a man of deep learning with a widespread interest in philosophy, history, art, literature and music. The international liquid crystal community has not only lost one of its most prominent and creative leaders but also a colleague with high personal standards and great warmth and humanity. □