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On the European Conference on Liquid Crystals ECLC99

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synthesis of okadic acid. This was an impressive example of the power of modern organic synthetic chemistry. The third talk from John Goodby outlined some of the more recent liquid crystal interests at Hull, including smectic-C materials, and then concentrated on a new and promising class of mesogens: the liposaccharides.

The occasion recalled the trail-blazing collaboration between the Department at Hull and RSRE (now DERA) and many key figures from that period attended, including Cyril

Hilsum, Mike Clark (now at Unilever), Peter Raynes (now at Oxford University) and Damien McDonnell. The take-home message from the day's celebrations was that blue sky research can change the world, but scientific innovation cannot be planned. Applications spring up where least expected, and a wise system creates the fertile ground for young researchers to explore their own ideas. It is also usually wise to keep idols at arm's length: the great are often insufferable at close quarters. Newton, for example, is famously said to have been the second most unpleasant person to be born

in Grantham. However, there are exceptions, and there was great pleasure that the talents of George Gray and his scientific success had been recognized by many honours. To misquote Mark, a chemist is often not without honour, except in his own country, and to be recognized on your own ground in this way (especially in Yorkshire) is clearly an outstanding mark of appreciation. For those who remember the poster which used to decorate the back of George Gray's office door two decades ago, it was strangely appropriate that Debbie Harry should be back on top.

The series of European Liquid Crystal Conferences began in 1991 in Courmayeur, Italy, and was the result of a merger between the Liquid Crystal Conferences of the Socialist Countries of Eastern Europe with the Winter Liquid Crystal Conferences and Workshops that had been running for a number of years. This year's meeting was the 5th in the series of biannual conferences, and it was a departure from tradition to deny the participants the opportunities of winter sports. However, the selection of Crete for the venue provided other distractions such as the sun, the sea and above all the history and culture of Crete. Europeans tend to look to mainland Greece as the source of their culture and civilization, but the Minoan civilization was more than 2000 years in advance of Greece, and so it is proper for European science to pay homage to its Cretan roots.

Although European in its description, the ECLC99 like its predecessors was thoroughly international, with participants from all over the world, including scientists from 24 European countries. Organized by the University of Patras and the National Centre for Scientific Research 'Demokritos', ECLC99 provided a forum for the discussion and presentation of the latest liquid crystal research from all areas of the subject. Each of the four invited lectures gave a stimulating perspective on a particular topic of current interest. **C. Tschierke** (Halle) gave an account of the importance of micro-segregation for mesophase formation, especially with respect to the formation of columnar phases from calamitic molecules. If groups such as rigid aromatic cores, lipophilic chains, alkyl chains, and perfluoroalkyl chains are combined in a single molecule, the incompatible segments separate into microdomains resulting in translation organization of the molecules to form smectic and/or columnar phases. Another aspect of the chemistry of liquid crystals, described in the invited talk by

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On the European Conference on Liquid Crystals ECLC99

25–30 April 1999, Hersonissos, Crete, Greece

K. Akagi (Tsukuba), was the use of chiral liquid crystals as solvents or mediating phases for asymmetric synthesis. This long-sought-after goal seems to have been achieved in the catalytic synthesis of helical fibrils of polyacetylenes prepared in a chiral nematic solvent. The helicity of the polyacetylene chains was found to depend on the pitch sense of the nematic solvent. Another use of liquid crystals in the pursuit of fundamental research was reported by **C. Garland** (MIT). In this invited talk, the behaviour of liquid crystals on random surfaces such as silica aerogels was described. Careful calorimetric studies have revealed two regimes of behaviour, depending on the density of the aerosols, which have stimulated new theoretical work. The invited talk by **Helmut Brand** (Bayreuth) brought some much needed order to the categorization of the plethora of ferro-, ferri- and antiferro- electric phases formed in tilted smectic phases. Consideration of symmetry identifies a number of possible phase types, which help to understand recent experimental observations on ferroelectric phases formed from achiral and banana-shaped molecules.

During the Conference, tribute was paid to Professor Pier Luigi Nordio, who tragically died in October 1998. Professor Nordio (Padova, Italy) was a member of the Scientific Committee of Conference, and his research and scientific wisdom was widely respected throughout Europe and the rest of the world. To honour the memory of Professor Nordio, a special lecture was given by one of his recent

students and research collaborators from his Department at the University of Padova, Dr Antonino Polimeno.

Some of the topics introduced by the invited talks, and many others, were explored in a further 50 oral presentations and more than 300 posters. One tradition of the European conferences is the absence of parallel sessions, and this allows delegates to be exposed to developments in areas outside their own specialities. It is this cross-fertilization between areas that often leads to the most significant research advances. At the end of the Conference Professor George Gray had the unenviable task of summarizing the scientific content of the meeting, and assessing its impact. In his remarks, Professor Gray observed that no fundamental breakthroughs had been exposed at the meeting, but special mention was made of the invited talks by Tschierke and Brand. From the contributed talks, the new X-ray technique reported by P. Barois was identified as being of special importance. This method analyses the polarization of resonant X-ray scattering from free-standing films, and seems to have considerable promise in the structural studies of smectic films, especially those with superlattices such as chiral and ferroelectric SmC phases. Another contributed talk that was highlighted was by Lagerwall (Göteborg), who presented convincing evidence that the 'thresholdless antiferroelectricity' recently observed could be explained as field-induced switching of twisted SmC* layers.

During the conference, an open forum on organizational issues of ECLCs was held, co-chaired by Professor Martin Copic (Chairman ECLC 95, Bovec), Professor Roman Dabrowski (Chairman ECLC 97, Zakopane) and Professor Demetri Photinos (Chairman ECLC 99, Crete). The following points were agreed upon:

1. The ECLCs will continue to be held on a biannual basis during the winter/spring period.
2. The conferences will be organized by European scientists. The participation of

scientists from non-European countries must always be encouraged.

3. Future organizers must try to maintain the single-session format for oral presentations.
4. The International Advisory Board of the ECLCs has a maximum of 10 members and is formed by the chairpersons of the last eight conferences in the series (counting the ECLC99 as the fifth in the series), the chairperson of the last ILCC, and a

representative to be appointed by the ILCS. Accordingly, the IAB of the ECLC in the year 2001 will have seven members.

5. The Scientific Committee of the ECLCs is appointed by the organizers.

As part of the Conference programme, the 308 delegates were able to visit the Minoan Palace at Knossos, and to see something of the impressive relics and artifacts in the

museum of Heraklion. In spite of the overwhelming historical tradition of Crete, the Conference logo looked to the future, and introduced the concept of dolphinic molecules—*asymmetric bananas with motility*. Mention must also be made of the efficiency of the Organizing Committee, which ensured the outstanding success of the ECLC99. The next meeting in the series will be held at Halle, Germany in 2001.

A milestone in the progress of liquid crystal science was the NATO Advanced Study Institute on the Molecular Physics of Liquid Crystals, which was held in Cambridge, UK in the summer of 1977. The meeting was initiated and jointly chaired by George Gray and Geoffrey Luckhurst. Twenty-two years on, and another meeting on the Molecular Physics of Liquid Crystals, directed by Claudio Zannoni (Bologna) and Tim Sluckin (Southampton), but held in celebration of the 60th birthday of Geoffrey Luckhurst. The venue chosen was the medieval town of Erice, perched at 750m on a peak of the western mountains of Sicily. Since 1963, Erice has been home to many International Schools in areas of natural sciences, and this meeting was one of a series on liquid crystals. The participants were former students, past and present research collaborators and scientific colleagues of Geoffrey Luckhurst, who had come from Europe, Asia and North America to mark this special occasion.

The scientific themes of the meeting were set through seven keynote lectures, which spanned the molecular physics and chemistry of liquid crystals. Introducing the scientific sessions was a keynote lecture from George Gray (UK), who, by looking back, suggested outstanding research ideas for the future in the area of liquid crystal materials. The great success of molecular design in producing mesogens with particular phase behaviour was exposed by Klaus Praefcke (Berlin, Germany) in his keynote lecture on 'Mesogens made to measure'. The importance of physical techniques in establishing the structure and properties of mesophases is paramount, and the many contributions of Geoffrey Luckhurst to magnetic resonance studies of liquid crystals is well known. It was very appropriate that a keynote lecture on the application of NMR to liquid crystals should be given by

MEETING REPORT

Molecular Physics of Liquid Crystals: Recollections and Perspectives

A Meeting to celebrate the 60th Birthday of Geoffrey R. Luckhurst

6–9 May 1999, International Centre for Scientific Culture, Ettore Majorana, Erice, Sicily

a long-standing colleague and collaborator, Jim Emsley (Southampton, UK). Another area to which Geoffrey Luckhurst has made many contributions is computer simulation. One of his former PhD students, Claudio Zannoni (Bologna, Italy), traced the impressive record of the Gay-Berne potential in describing a wide

variety of liquid crystal phase types and properties. The behaviour of liquid crystals at surfaces has always been a subject of great interest and importance, and Tim Sluckin (Southampton, UK), gave an insight into what we know and what we still don't understand about interfacial effects. Not only has NMR been of immense value in probing static or equilibrium properties of liquid crystals, modern techniques of dynamic NMR are proving to be a direct route to flow and viscous behaviour. Assis Martins (Lisbon, Portugal) gave a keynote lecture on this topic which, as with the other keynote topics, was developed in other contributed talks and posters. The importance of hydrodynamic interactions in block copolymer microphase separation was the subject of the final keynote lecture given by another former student and colleague from Southampton, Dominic Tildesley (Unilever, UK). The concluding remarks delivered by Geoffrey Luckhurst espoused recollections and provided the opportunity for a characteristically robust presentation of his latest exciting research. The breadth and depth of the topics, which had all benefited in some measure from the scientific contributions of Geoffrey Luckhurst, confirmed the substantial influence that he has had on the development of liquid crystal science over the past 30 years.



Geoffrey Luckhurst and George Gray (centre) and other participants at the meeting to celebrate the 60th birthday of Professor Luckhurst. The course directors, Claudio Zannoni (standing) and Tim Sluckin (sitting) can be seen centre left.