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## Liquid Crystals Today

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### 10th School of Physics and Applications of Liquid Crystals and Single Crystals, Zakopane, Poland, 12-17 October 1992

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# Meeting Reports

## 10th School of Physics and Applications of Liquid Crystals and Single Crystals, Zakopane, Poland, 12-17 October 1992.

Conference report from the organiser, Józef Zmija, Institute of Technical Physics WAT, 00908 Warsaw, Poland.

This traditional biennial meeting of scientists working in chemistry, physics, technology and applications of liquid crystals and single crystals was organised by the Institute of Technical Physics WAT, Warsaw and supported by the Committee of Scientific Research (KBN), by the International Society for Optical Engineering (SPIE) and by the Committee of Crystallography

Polish Academy of Sciences. The Conference was held in Zakopane, the Tatra mountains Polish resort.

The programme included overview lectures and also oral and poster presentations of original results. Approximately 140 participants attended the Conference from Poland, Russia, Italy, UK, Belgium, Ukraine, Belorussia and Lithuania.

J A Janik (Kraków, Poland) delivered the main lecture about the first "liquid-crystalline" Nobel prize which went to P G de Gennes in 1991. Some studies on the synthesis and properties of new liquid-crystalline materials were reported. R Dabrowski (Warsaw, Poland) presented new materials for STN displays containing boroxanes, and poster presentations included new materials and metal-organic compounds.

Physical properties of liquid crystals were discussed in some interesting contributions. A S Sonin (Moscow, Russia) presented an overview of ordering and viscous-elastic properties of lyotropic liquid crystals. F Simoni (Napoli, Italy) reported on the optical phase shift induced by PDLC. J Jazdyn (Poznan, Poland) delivered a wide overview of the dielectric properties of liquid crystals. A Adamczyk (Warsaw, Poland) discussed possibilities for computer modelling fundamental structures and defects in liquid crystals. Diamagnetic properties and elastic constants in isothiocyanobenzenes were reported by Z Raszewski (Warsaw, Poland). An overview of x-ray investigations in liquid crystals by the freely suspended film method was given by J Przedmojski (Warsaw, Poland). E L Wood (Exeter, UK) described the electrooptical response of a thin



Photo courtesy of Andrzej Makowski, Warsaw, Poland.

liquid crystal layer in the pre-transitional regime, and G V Klimusheva (Kiev, Ukraine) reported on the properties of dynamic holography gratings in chiral liquid crystals.

The most interesting theoretical presentation, among others, was the theory of ferro-electric liquid crystals as a micropolar medium, presented by Cz Rymarz (Warsaw, Poland). Numerous contributions were devoted to LCD applications. This included the status of flat screens (Zielinski and Zmija, Warsaw Poland); PDLC properties and applications (Zmija, Klosowicz and Raszewski, Warsaw Poland); liquid crystalline optical devices (Nowinowski-Kruszelnicki, Warsaw Poland); and LCD for laptop computers (A Smirnov, Minsk Belorussia). There were also some "exotic" subjects. For example an application of cholesteric liquid crystals in allergy tests (Zuber et al, Warsaw Poland) and some molecular aspects of gamma radiation effects on cholesterol derivatives (Klosowicz and Zmija, Warsaw Poland).

A variety of problems were also discussed in the solid state part of the School. M A Herman (Warsaw, Poland) delivered a lecture about superconductor superlattices, their crystallisation and applications. A Rogalski (Warsaw, Poland) presented possibilities for introducing new ternary alloy systems for infrared detectors e.g. InAsSb and HgZnTe, better than conventional HgCdTe. The effect of organic dopants on growth kinetics and some properties of crystals grown from aqueous solutions was presented by V A Kuznetov, (Moscow, Russia). Superlattices and quantum wells for infrared optoelectronics were reported by F F Siao (Kiev,

Ukraine), and some new semiconductor materials and their properties were presented by SW Svechnikov (Kiev, Ukraine). Despite the fact that the School sessions stretched from 9.00 am to 9.00 pm, participants found time to join in many social events such as an excursion to the mountains. Foreign participants visited the former Polish capital, Kraków. Before the Conference began there were also visits to the laboratories of the Military Technical Academy, in which the physical and chemical properties of liquid crystals are investigated. The contributions presented during the School will be published in a separate SPIE issue No 1845, and selected papers will be published in MCLC. ■

### Scientific Notes

(cont. from p 6)

substitute for this visual experience. Without it, even photographs of known phases can look similar. Additionally, both mesophases and crystalline phases can show mosaic textures and they can look similar. The trained eye can differentiate between crystals and meso-phases to some degree on how the phases grows — a really slow or fast one means the phase is crystalline. Microscopy is extremely useful in differentiating mesophases from crystalline phases when used in conjunction with DSC but visual experience is necessary to make the correct assignments.

My goal here is to convince the reader of the need to eliminate the known possibilities before concluding that a liquid crystalline phase is present; not that exceptions to what I have said cannot occur. ■