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Obituary

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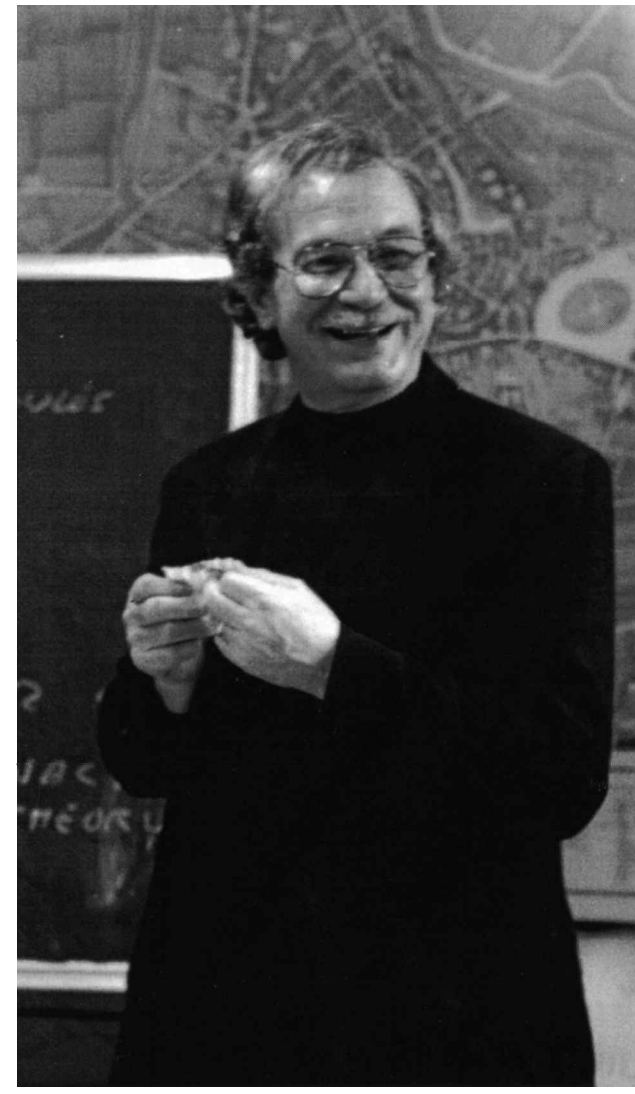
Obituary

Professor Pier Luigi Nordio (1936–1998)

Professor Pier Luigi Nordio died, tragically, on Tuesday, 20th October 1998. All of us who had the privilege of knowing him could not fail to be impressed not only by his considerable intellect but also by his warmth and humanity. He will undoubtedly be sorely missed.

He was born in Padova on 18th May 1936 and was educated at the University of Padova. It was here in 1961 that his research as a theoretical chemist began with Professor Giovanni Giacometti, developing strong and lasting interests in ESR spectroscopy. He was appointed as a Reader at the University of Bologna until 1964. He then spent two years with Professor Harden McConnell at Stanford University where he first learnt something of the fascination of liquid crystals. He returned to the Department of Physical Chemistry in Padova in 1966 to continue his ESR investigations, although it was not until 1971 that the first of a sparkling stream of papers dealing with liquid crystals appeared. They combined his interests in molecular dynamics with those in anisotropic systems, and this combination resulted in a powerful and seminal theory of rotational diffusion in uniaxial liquid crystals. Pier Luigi's impressive breadth of knowledge allowed this theory to be applied to a wide range of experimental studies including dielectric relaxation, NMR spectroscopy and neutron scattering. During this important period for molecular dynamics in anisotropic phases he also developed a major statistical mechanical theory for nematics composed of biaxial molecules. His deep interest in orientational and translational molecular dynamics in liquid crystals continued and led to a series of papers analysing the problem at a characteristically sophisticated level. His fascination with molecular dynamics extended to liquid crystals built of flexible molecules and he laid the foundations for our understanding of conformational dynamics and their influence on rotational motion.

In 1992 Pier Luigi's attention turned again to the static behaviour of liquid crystals when, with considerable insight, he developed the surface tensor model to represent the shape anisotropy of mesogenic molecules. This has proved to be an invaluable tool and was used to good effect in developing a theory of liquid crystal dimers where the constituent molecules adopt conformations with quite different shapes. He also appreciated that the odd-even behaviour of liquid crystal dimers could be used to provide a searching test of the Flory rotational isomeric state approximation for alkanes. His interest in



the intriguing transitional properties of such dimers also led him to develop a generic model which provided a clear understanding of their behaviour.

Some of his most recent work was concerned with the helical twisting power of chiral dopants and the relationship with their molecular structure. Again drawing on ideas from hydrodynamics in an especially creative and elegant manner he was led to the development of a chirality tensor calculated from the molecular surface. This, when combined with the orientational ordering tensor, gave a chirality order parameter which is directly proportional to the helical twisting power. The model works remarkably well and allows us to understand,

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really for the first time, the influence of the molecular structure of chiral dopants on their ability to induce chiral phases. It also provides a unique route to the general assessment of molecular chirality.

Just three weeks before his untimely death he was enthusiastically discussing a new model for roto translational diffusion in smectic C phases, paying no heed to the terrible illness which was so soon to overcome him.

Professor Pier Luigi Nordio leaves a rich legacy in his pioneering contributions to our understanding of the physical behaviour of liquid crystals. His work will, however, continue for he created around him in the Department of Physical Chemistry a group of talented scientists who share his interests and ideals. His influence extends far beyond his beloved Padova for he has established a network of scientists under the auspices of the European Community who share his vision for the future of science.

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