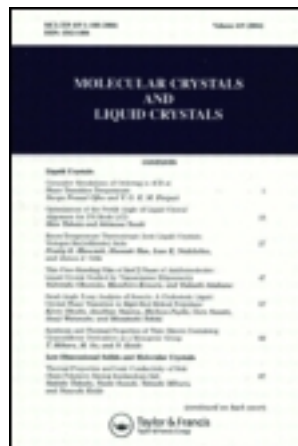


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GUEST EDITOR'S FOREWORD

Photochromism is the reversible change of a single chemical species between two states having different absorption spectra; the change in at least one direction is induced by electromagnetic radiation. This reversible change of color suggests many practical applications in optical filters, including ophthalmic lenses, information storage, and toys and decorations. The molecular structural changes responsible for the phenomenon can serve as signalling means in applications to molecular biochemistry. The interaction between a photochromic molecule and the host medium can permit the external control of both.

Photochromism is maturing from a phenomenon to a science and a technology. Most earlier publications and symposia presentations were by synthetic organic dyestuff chemists, merely describing the preparation and photochromic properties of a new compound or class. More recent presentations were by physical, polymer, and biological chemists studying the structure and photochemical mechanisms of a few selected compounds in detail. The present symposium and contemporary publications include more papers by engineers describing the development of a use or tangible end item incorporating a photochromic element.

Photochromism is a *dynamic, visual* phenomenon; it is difficult to describe a changing color in words, and still photographs give little feel for the observations. Two lectures in the symposium used videotape movies to demonstrate the photochromic in action. One showed the operation of a 3-D optical memory, and the other showed the visualization of flow in rotating and flowing fluids. Video movies have a great advantage in being able to expand or compress the real-time behavior of very fast or very slow changes. In addition to "live" video showing the dynamic photochromic behavior in real applications, video animation could, for example, display in detail the molecular structural changes and the concomitant color changes in solutions and polymer films. Changes of the conformations of photochromic biopolymers and other supramolecular photoeffects could be exhibited. Undoubtedly, video presentations will appear more often in future meetings and publications. *Molecular Crystals and Liquid Crystals* publishes videos in its CD-ROM edition.

Activity in both basic research and applications is world-wide. This Second Symposium was attended by 120 persons from 16 countries, including 18 from France and 14 from Russia, with only 35 from the host country USA. Of the attendees, 42 were from industrial firms. Five plenary and 15 invited lectures, 16 oral contributions, and 47 posters were presented. This volume contains most of these, but unfortunately it is not complete; several participants did not provide manuscripts of their presentations.