

## Editorial

# Photoresponsive Polymer Materials

During the past 20 years or so, the *photochemistry of polymers* has become a field of central importance not only in polymer science and technology but also in photochemistry. The applications of light and its interactions with polymers has grown enormously from what were at one time esoteric basic research specialities and scientific curiosities into modern-day device products that occupy almost every aspect of our life. This special thematic issue of the journal ventures into one small area of this now vast field. Polymer materials in different phases which can undergo slow or facile responses to changes in light properties whether it is wavelength or intensity, this is one such field. Within this field is the development of highly specialised products often of a complex nature. These are liquid crystalline and/or photochromic and dendritic materials. In this special issue, it is hoped to provide the reader in photochemistry with an insight into the wonders of such molecules. Shibaev and co-workers provide us with one such view into the optical behaviour of photochromic cholesteric LC polymer materials. Here isomerisation of photochromic groups along the polymer chains can result in variations in the supramolecular helical structure and hence optical properties of the polymer offering photoreversible colour data recording systems for use in a new generation of videodiscs. Of a more specialised interest is a contribution by Dietz and co-workers on new photochromic polymers generating polymethine radicals for use in reversible magnetic devices. In the process

of developing polarised light emitting devices for back-light displays, Oriol and co-workers have developed novel luminescent polymers with fluorene crosslinker groups. Cinnamates have been around for a while but here Serrano and co-workers have developed low molecular weight LC cinnamates for photoswitchable devices. One major development in recent years in organic chemistry is the fascinating chemistry surrounding dendritic molecules—especially those of a polymeric nature. Here a variety of properties can be attained where one such structural type based on binaphthyl-chiral dendrimers is covered by the work of Pu. These molecules can exhibit interesting and valuable electroluminescent properties. Lastly, dendritic caged molecules are covered by Iwamura and Watanabe with fascinating bioactivities just to give a bio-flavour to this issue. Clearly, the areas and topics covered here in this special issue not only provide the reader with a brief insight into this important developing field but hopefully will also give the reader a strong appreciation and flavour of what is now an extremely important technological field and not just one of scientific curiosity.

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