

Preface

At the Boston ACS Fall meeting (August 1998), a two-day “Azobenzene-containing materials” symposium took place. There were 24 oral presentations and 17 posters, the speakers and presenters came from ten countries. This was the first attempt to bring together people working in azobenzene chemistry and physics, and the variety of subjects and interests was a reflection of the amazing versatility of azobenzene compounds.

Azobenzene is a well-known molecule, its photochemical isomerization has been studied for many years. Azobenzene-based dyes are “classical” dyes. Relatively recently, with increasing interest in liquid crystals, azobenzene has been studied as a mesogen, because of its rigid rod-like shape and its propensity to produce various calamitic phases. Even in nonlinear optical materials, the use of donor-acceptor-substituted azobenzenes as the rigid dipoles which can be aligned to create second harmonic generation and associated effects was preferred by many research groups. However, there is much more to azobenzene-based materials, and a review by Kumar and Neckers in 1989 [Chem. Rev. 89, 1915 (1989)] summarized some of the opportunities offered by incorporating azobenzene into polymer structures, either in the main chain or as side chains. The changes in shape accompanied by multiple changes in a variety of physical properties suddenly opened up a huge area of possible applications. But this was still not the end of it. Mono- and multilayer behavior (and isomerization changes), the photoinduced motion (accompanied by dichroism and birefringence), and – very recently – the possibility of massive material displacement well below the glass transition temperature (surface relief gratings inscription), open yet newer avenues of research and applications (especially photonic applications).

Is this all there is to azobenzene-based materials? Anyone who has worked in the area for a few years will certainly answer in the negative. Azobenzene is an unusual “regular” molecule with fascinating possibilities and endless surprises. We are lucky to be able to witness the stream of beautiful discoveries happening in our laboratories and all over the world. We are also lucky to be able to know each other and become friends and work together and exchange information. We are all looking forward to the next planned meeting at the Pacificchem conference in Hawaii December 2000. We know that, as the Boston meeting, that one too will be full of novelty and excitement.

This volume contains just a few of the papers presented at the ACS Boston meeting, offering an overview of the areas covered and I hope it will help people understand why are we so fascinated by the subject and maybe it will attract even more researchers to the area. We know that anyone involved will have a lot of fun!

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