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Foreword

Z. V. Vardeny & L. J. Rothberg

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Foreword

Organic device physics has flourished recently following the demonstration of organic light-emitting diodes, electrooptic modulators, photodetectors, thin-film transistors and xerographic charge transport layers. The Second International Topical Conference on Optical Probes of Conjugated Polymers and Fullerenes was held in Salt Lake City, Utah from February 15 to 19, 1994 to address the basic physics and chemistry underlying these applications and others. The following volumes are proceedings of the meeting and cover a wide variety of polymer and fullerene photophysics. We are extremely gratified by the quality and scope of work which is published herein.

The discussions subsumed a rich variety of materials including degenerate and nondegenerate ground state conjugated polymers, silicon and metal halide based polymers, model oligomeric systems and both crystalline and amorphous fullerenes. One of the most exciting developments represented is the convergence and overlap of fullerene and conjugated polymer research, resulting in the fabrication and study of hybrid C_{60} /polymer systems and devices. Among the main issues were the nature of the fundamental excitations and whether the materials are best described as disordered molecular aggregates or band-like semiconductors. In addition, considerable attention was devoted to the yield and fate of the various photoexcitations and the implications for electroluminescent, photoconductive and nonlinear optical devices. An impressive array of techniques was used to study these organic systems providing a quite detailed body of information which we hope will help to synthesize a coherent picture of their behavior. Standard laboratory techniques such as absorption, and photoluminescence and Raman scattering were supplemented by nonlinear optical measurements, photoconductivity and creative new uses of spin resonance in conjunction with the above. A broad scope of theoretical techniques was also brought to bear on the nature and binding energies of the various excitations and the nonlinear optical behavior of the organics. We therefore feel this compendium is an excellent "snapshot" of the present state of our understanding and breadth of knowledge. In light of the rapid pace of progress both in materials and device characterization and development, we anticipate that this area will remain vital and continue to grow. It is our hope that these proceedings will help to familiarize a larger community with the state of this fascinating field and to help nucleate work which will further our understanding.

Z.V. Vardeny and L.J. Rothberg