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Preface

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PREFACE

The Fourth International Conference on Molecule-Based Magnets convened October 16–21, 1994 in Salt Lake City, Utah. This international conference focused upon several key aspects that directly relate to the design, preparation, and physical study of molecule/polymer based magnets and high spin molecule/polymer systems. This international conference was the successor to the Symposium on the Chemistry and Physics of Molecular Based Magnetic Materials held in Tokyo, Japan in 1992,¹ the NATO Advanced Research Workshop held at Il Ciocco, Italy in 1990,² and a symposium at the American Chemical Society meeting in Dallas, Texas in 1989.³ The Fourth International Conference was generously sponsored by the United States National Science Foundation, the Department of Chemistry of The University of Utah, Gordon and Breach Science Publishers, Inc., LakeShore Cryotronics, Inc., Quantum Design, and Oxford Instruments.

As has become customary in this interdisciplinary field, participants came from a wide range of disciplines including inorganic, organic, organometallic, and physical chemists as well as experimental and theoretical condensed matter physicists. The 145 participants represented a wide range of countries from Asia, Europe and North America. There were 54 oral presentations and over 60 posters. Ninety-two papers are published in these proceedings.

Materials studied comprised three categories: (1) all organic with spins residing on moieties made up only of first row elements and all bridges comprised of first row elements; (2) organic/metallic with spins both on first row moieties and on molecules containing spins in d orbitals, with the spin contribution of both systems essential for formation of the magnetic state; and (3) organic-bridged metallic with spins only in moieties containing d orbitals and the interaction between selected spins relying upon spinless bridges containing first row elements. The manuscripts in these proceedings are organized according to these three classes.

Several important advances have been made since the previous third international conference held in Tokyo. Among them are the advent of a second room temperature molecule based magnet, a recognition of the key roles of disorder and magnetic frustration for many molecule based magnets, and expanded interest in new materials by chemistry entering the field. Important progress has been made in the past two years. The field indeed is now a thriving branch of interdisciplinary science.

The success of this international meeting was due to the assistance of the International Organizing Committee. We also are deeply appreciative of timely extra help provided by Erik Brandon, Wayne E. Buschmann, Durrell Rittenberg, and Jie Zhang. Very special thanks are extended to Jodi Badham for her exceptional efforts in organizing all of the key details of the meeting including the publication of these proceedings.

Joel S. Miller
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¹ Proceedings of the Symposium on the *Chemistry and Physics of Molecular Based Magnetic Materials*, (Eds. H. Iwamura and J. S. Miller), *Mol. Cryst. Liq. Cryst.* **232/233** (1993).

² Proceedings of the Conference on *Molecular Magnetic Materials: NATO ARW Molecular Magnetic Materials, E 198*, (Eds. O. Kahn, D. Gatteschi, J. S. Miller, F. Palacio), Kluwer Academic Publishers (London 1991).

³ Proceedings of the Conference on *Ferromagnetic and High Spin Molecular Based Materials*, (Eds. J. S. Miller and D. A. Dougherty), *Mol. Cryst. Liq. Cryst.* **189** (1993).