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## Molecular Crystals and Liquid Crystals Science and Technology. Section A. Molecular Crystals and Liquid Crystals

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### Guest Editor'S Preface

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## GUEST EDITOR'S PREFACE

The Fifth International Conference on Molecule-Based Magnets (ICMM'96) was held from July 15 to 20, 1996 in Osaka, Japan at The Senri Life Science (SLS) Center. ICMM'96 succeeded the Fourth International Conference on Molecule-Based Magnets held in Salt Lake City, Utah, USA in 1994 [1], the Symposium on the Chemistry and Physics of Molecular Based Magnetic Materials in Tokyo, Japan in 1992 [2], the NATO Advanced Research Workshop in Il Ciocco, Italy in 1990 [3], and a symposium at the American Chemical Society meeting in Dallas, Texas, USA in 1989 [4].

ICMM'96 began with a welcome mixer at the conference site, the SLS Center, on the afternoon of Monday, July 15. The scientific program convened from Tuesday, July 16 until Saturday, July 20, with an impressive array of invited speakers, and talks selected from the submitted papers. The science of molecule-based magnetism had seen widely increasing and important advances in many aspects both from the experimental and theoretical sides during the nearly two years since our last conference in Salt Lake City. Thus, ICMM'96 was more broadly based than earlier meetings. It was a productive and exciting interdisciplinary forum for discussions of new aspects of molecular spin science and novel functionality molecular magnetic materials.

Reflecting the many aspects of molecule-based magnetism as a rapidly developing interdisciplinary field, participants convened from a wide range of disciplines including organic, organometallic, inorganic, physical, and quantum computational chemistry, as well as experimental solid state and theoretical physics. The 150 participants represented a wide range of countries from Asia, Europe, and North America. The 47 overseas participants came from thirteen countries: China (1), India (1), Japan (103), Korea (1), France (11), Germany (6), Italy (1), Portugal (2), Moldova (1), Russia (3), Spain (5), Switzerland (1), UK (1) and USA (13). There were 103 participants from Japan. There were 54 oral and 102 poster presentations. Among these, 115 papers were refereed during or after the conference and are published in these proceedings. These papers provide a snapshot of this growing area of research.

ICMM'96 concentrated on important aspects that directly relate to the molecular design, preparation, and physical and theoretical study of molecular/polymeric high-spin systems and molecule/polymer-based magnetic materials. It emphasized the discussion of recent experimental and theoretical results of this field in order to develop molecular spin science and to pursue novel concepts, spin-polarized physical phenomena on the semi-macroscopic as well as the macroscopic scale, and supramolecular functionality magnetic materials. The conference covered the following topics: (1) theoretical studies, new concepts, and new approaches; (2) design and synthesis of novel molecules and molecular assemblies/clusters of open-shell

units and components, super high-spin molecules, magneto-optical multifunctionality molecules, high spin polymers or polymeric systems, liquid crystal or liquid polymer systems, and studies of their properties in various aspects; (3) novel magnetic and spin-polarized quantum phenomena such as "single-molecule" magnets which exhibit hysteresis originating in spin quantum tunneling; (4) new experimental methods for magnetic characterization; and (5) potential applications and technological perspectives of molecule-based magnetics. Important advances have been made in each of these areas during the past two years. In particular, molecular spin science and spin manipulation chemistry have emerged which underly novel spin-polarized magnetic phenomena. The synthetic challenges are still of crucial importance for purely organic molecule-based magnetic materials.

ICMM'96 benefited from the generous sponsorship of many organizations. On behalf of all the participants attending the conference, the Organizing and International Advisory Committees thank all those who provided us with financial or material support. The following organizations are acknowledged for their generous assistance.

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Million Card Service Co., Ltd.  
Osaka Shin-Kin Bank  
Osaka Municipal Government, International Relations Department  
Secretariat Division, Office of the Mayor  
City Osaka, Osaka Tourist Association

The success of ICMM'96 was due to the assistance of the International Advisory Committee. We also deeply appreciate the timely help provided

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Koichi Itoh, Chairman, ICM96

Joel S. Miller, International Advisory Committee

Takeji Takui, Secretary General, ICM96

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