

PREFACE

Special Issue on New Horizons for Magnetic Solids Based on Molecules: From High- T_c Magnets to Nanomagnets to Devices

Solid state chemistry is on the threshold of an exciting era that promises to forge strong connections between communities previously considered to be unrelated. Only a few years ago, few but the most imaginative among us could have envisaged the current explosion of research that is at the interfaces of chemistry, physics, and engineering. Such is the current state of modern solid state chemistry. An excellent indicator of the health of solid state chemistry is the steady influx of organic and inorganic chemists who are bringing new perspectives to the field. This wave of “nontraditional” solid state chemistry has set up healthy dialogues between disciplines and allowed important collaborative research to flourish.

This special issue of the *Journal of Solid State Chemistry*, entitled “New Horizons for Magnetic Solids Based on Molecules: From High- T_c Magnets to Nanomagnets to Devices,” is a sign of the changing face of solid state chemistry. The authors, who hail from chemistry and physics departments around the world, write about such diverse topics as high-spin organic molecules, giant magnetic clusters, high temperature magnets, magnetic bistability, and superconducting magnetic materials. The common thread that runs through these subjects is the quest for new solids based on molecules that exhibit unusual magnetic behavior. While the synthetic approaches described in this issue differ from the traditional methods of high-temperature solid state chemistry, the underpinning of the research is the same, viz., a desire to access new materials with properties that can be understood in terms of structure and bonding. This pervasive theme will continue to inspire and challenge us as we tackle new venues in materials chemistry research.

As guest editor of this issue, I also extend my thanks to the many colleagues whose research in magnetism inspired me to showcase this forefront area of science. One of the key persons, sadly, is no longer with us. Professor Olivier Kahn, a passionate spokesperson for the field, passed away suddenly in December of 1999. Olivier’s research accomplishments, coupled with his natural talent for presenting the results to general scientific audiences, contributed enormously to the visibility of magnetism research over the last decade. He was an ardent supporter of building bridges between research areas and often spoke about the common interests of the fields of coordination, supramolecular, and solid state chemistry. Like Olivier, I firmly believe that these fields share common scientific ground and that we have much to learn from each other. Olivier’s body of work in molecular magnetism reflected this evolutionary style and is a model for the field as it continues to develop. It was a privilege for me to know

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Olivier and to gain insight from him into the fascinating world of molecule-based magnetism. In honor of his pivotal role in the field and his unbridled enthusiasm for all things “magnetic,” I dedicate this special issue to Olivier Kahn. May we continue in his tradition of beautiful structures and intriguing magnetic properties.

Kim R. Dunbar
Guest Editor