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## Preface

# Finite and Infinite Polygonal Assemblies 223rd ACS National Meeting Orlando, FL, USA, April 7–11, 2003

It is both a distinct pleasure and great privilege that I introduce the work described in this issue of POLYHEDRON. My co-organizers, Peter Stang and Kim Dunbar, and I want to express our appreciation to all of the presenters at the *Finite and Infinite Polygonal Assemblies* symposium that was part of the 223rd National Meeting of the American Chemical Society held in Orlando in 2002. It was our vision to bring together a group of researchers that was international in scope, broad in expertise and integrated in methodology. Of the dozen articles presented here from that meeting, work from five different countries – Canada, the United Kingdom, Germany, Spain and the United States – is represented. The geometrical nature of these materials was emphasized by title of the symposium, but the remarkable chemistry, not only in the preparation of the materials, but the chemistry that they exhibit, and the wide range of characterization techniques employed made for a wonderfully stimulating exchange of ideas.

Kim's remarks that opened the symposium focused on the main benefit of this gathering; present at the meeting were researchers from each of the "traditional" chemistry disciplines: inorganic, organic, physical, and analytical, and throughout the two days, the integration and interdependence of these were highlighted. Indeed, the unique and interesting chemical systems that were discussed and that are presented here truly require an *interdisciplinary* approach. Furthermore, important connections to both biology (cooperative self-assembly via predominantly non-covalent bonding) and materials science (cooperative electronic/magnetic phenomena, porosity, optical behavior) were discussed and debated. Bringing together people who approach this field from a variety of backgrounds and who lead the advances in a variety of ways was a great asset to the meeting and planted many seeds for further research.

Many of the talks dealt with non-covalent interactions, and Sessler's review of hydrogen bonding motifs in pyrrole-based building blocks leads off this issue. Another major focal point was the use of transition metal cations in combination with bridging organic molecules to prepare a variety of crystalline coordination assemblies. They are presented here in order of increasing dimensionality, beginning with the finite (isolated) molecular species of Saalfrank, Villar and Zheng. The infinite assemblies span the range from the one-dimensional chains prepared by Dunbar and Keller, to the sheet structures of Lin, zur Loye and Thompson, to the three-dimensional zeolitic analog of Navarro. The issue concludes with two manuscripts describing the preparation of films made from different square motifs with potentially useful properties. Talham's metal cyanide films prepared at the water–air interface show interesting magnetic behavior, and Hupp's micropatterning technique allows construction of highly ordered porphyrin thin films for microsensing applications. Truly these are incredibly varied materials!

Finally, we would like to express our deep appreciation to the ACS Division of Inorganic Chemistry for sponsoring the symposium, and to Elsevier for support of the symposium and for the publication of this dedicated special issue. Special thanks also to the Petroleum Research Fund for generous compensation of travel expenses for several of the international speakers.

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