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## Supramolecular Chemistry

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### XIIIth International Symposium on Supramolecular Chemistry, University of Notre Dame, SouthBend, IN, July 25-30, 2004: Preface

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## XIIIth International Symposium on Supramolecular Chemistry, University of Notre Dame, South Bend, IN, July 25–30, 2004

### Preface

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It is our great pleasure and privilege to introduce the works featured in this special issue of *Supramolecular Chemistry*. This collection of reviews, communications, and full papers represent some of the highlights from the XIIIth International Symposium on Supramolecular Chemistry (ISSC-13) that was held at the University of Notre Dame in South Bend, Indiana, USA, July 25–30, 2004.

Thanks to the outstanding efforts of Professor Bradley Smith and his research crew, approximately 350 researchers converged on this beautiful Midwest campus to discuss the latest developments at the frontiers of the 'chemistry beyond the molecule'. The nine plenary lectures, 40 invited talks, and more than 200 posters covered a remarkable breadth of subjects, ranging from enzymes to pollution control, self-assembly to combinatorial chemistry, and solid-state chemistry to nanotechnology. These exciting advances demonstrate that supramolecular chemistry continues to live up to—and thrive on—its interdisciplinary nature and approach.

This ISSC issue provides a comprehensive cross-section of the symposium. Insights into the fundamentals of noncovalent bonds—a topic at the heart of the field—are provided by Mecozi [1] with a focus on fluorine...fluorine forces. Advances and applications in the area of crystal engineering are provided by Nangia [2] Shimizu [3], Lauher [4], Lindoy [5] and MacGillivray [6], who demonstrate how solid-state structures can be designed with a degree of precision that rivals molecular chemists' control of the covalent bond. Miyake [7], Purrello [8] and Reinhoudt [9] outline the latest developments on the incorporation of chirality into supramolecular structures, while Jolliffe [10]

and Gazit [11] describe the design of complex, bio-inspired frameworks using peptide-based assemblies. Functional host-guest systems involving calixarenes and cyclodextrins are described by Rudkevich [12] and Thompson [13], and novel molecular logic devices are introduced by Kikuchi [14] and Langford [15]. Synthetic ion channels are covered by Gin [16] and Matile [17], and new concepts in ion sensing are provided by Hayashita [18]. Finally, several exciting applications of supramolecular principles to the field of nanotechnology are reported, such as the design and self-assembly of functionalized nanoparticles by Fitzmaurice [19], Rotello [20], Scrimin [21] and Wei [22] and the templated synthesis of polymeric nanostructures by Shinkai [23].

As the end of ISSC-13 drew to a close, we were left with an appreciation of the rapid evolution of supramolecular chemistry, from its origins in host-guest systems based on crown ethers and cryptands to the complex systems featured in this issue. As you read the works within these pages we hope that you will agree with us, and will be enticed to look forward to future meetings that make up the ISSC series.

Leonard R. MacGillivray, University of Iowa  
Alexander Wei, Purdue University

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