Special Issue Editor's Foreword

This special thematic issue of Kemija u Industriji *features Accounts of current research on topics in supramolecular chemistry. The term "supramolecular" was introduced by Jean-Marie Lehn in 1978 to describe molecular aggregates, generated via spontaneous self-assembly, which are held together by noncovalent bonding interactions. The ensuing efforts to gain fundamental insight into the factors that contribute to molecular recognition and lead to the formation of host-guest complexes gave birth to a highly interdisciplinary field that encompasses, inter alia, organic and biochemistry as well as biology, physics, mathematics, materials science, and environmental science. The importance of the field of supramolecular chemistry was underscored by the 1987 Nobel Prize in Chemistry, which was awarded to Jean-Marie Lehn, Charles J. Pedersen, and Donald J. Cram for their pioneering efforts.*

This thematic issue contains four Accounts, one of which emphasizes biological-medical applications of supramolecular chemistry and two of which focus upon environmental applications. The fourth contribution focuses upon an application of a mass spectrometric method to study host-metal cation complexes in solution.

Herein, M. Žinić and coworkers report the results of their studies of noncovalent interactions of 4,9-diazapyrenium derivatives, which function as nucleic acid intercalators. Their results provide new insight into the relative importance of various contributing stereoelectronic factors that lead to molecular recognition in systems of medical and biological interest.

D. M. Rudkevich has utilized suitably functionalized calix[4]arenes as receptors for selective complexation of oxides of nitrogen ("NO_x"). In particular, his approach permits visual sensing of NO_2, a ubiquitous and deadly atmospheric contaminant. Subsequent chemical utilization of calix[4]arene·NO_2 complexes also is discussed.

B. A. Moyer and coworkers describe new liquid extraction systems for selective complexation, separation, and transport of ionic guests. Their Account emphasizes the application of extraction methods for environmental cleanup and waste treatement.

The fourth Account, which reports the results of collaborative studies between American and Croatian laboratories, focuses upon the use of electrospray ionization mass spectrometry (ESI-MS) as a method to evaluate metal-binding selectivites of macrocyclic hosts in solution. By utilizing this technique, complexation studies can be performed on solutions that contain a single host molecule in the presence of several metal cations, thereby permitting rapid screening of ligand binding selectivities.

I am delighted to have been asked by the Journal Editor, Dr. Danko Škare, to assemble this special issue of Kemija u Industriji; the task proved to be a labor of love. In closing, I am hopeful that members of the scientific community will find the individual contributions to be interesting and useful.

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