

Preface

Supramolecular chemistry, as the readers of these monographs likely appreciate with enthusiasm, involves the fascinating and almost infinite world of molecular interactions that extend beyond the limits of simple covalent bonds. Understanding these interactions and exploiting them in new ways continues to define the essence of the field. Not surprisingly, the challenges and opportunities associated with these goals are continuing to attract increasing numbers of ever more talented researchers into the area, while fueling its nearly exponential growth as a venue for intellectual discovery and useful, real-world-relevant contribution. This is particularly true in the area of anion recognition chemistry. Here, growth is being driven by an increasing appreciation for the importance of noncovalent anion–molecule interactions in biology as well as by a tangible sense that anion recognition chemistry has a beneficial role to play in the areas of physiology, medicine, synthetic chemistry, materials development, analyte sensing, and waste remediation. Progress is also being abetted by the fact that basic principles that allow for controlled anion recognition are becoming increasingly well codified. As a result, promises of practical application are starting to drive the field even though it remains animated in large measure by its inherent aesthetic appeal. The goal of this monograph is to provide a concise overview of supramolecular anion chemistry with a focus on the chemistry of synthetic anion receptor design. The hope is to enunciate the guiding principles of anion binding while highlighting the prospects for ultimate practical utility. Towards this end, this book is divided into eight main chapters. These chapters are designed to introduce the most important research themes currently animating the field of anion recognition chemistry and to provide an entry point into the relevant literature. These eight chapters are prefaced by an introductory chapter that is intended to highlight in an anecdotal fashion, the importance of anions in everyday life and the critical role anion recognition chemistry plays in the biological world. As part of this introduction, the anion recognition field is traced from an historical perspective. The hope here is to provide the reader with a quick overview of where the field has been, where it stands now, and where it might be going. This same overview is also intended to introduce the readers to many of the more common anion recognition motifs that have emerged as “key players” in both the synthetic and biological anion recognition worlds.

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