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BOOK REVIEWS

Mass Spectrometry and Gas-Phase Chemistry of Non-Covalent Complexes. By Christoph A. Schalley and Andreas Springer (both at Freie Universität Berlin, Germany). John Wiley & Sons, Inc.: Hoboken, NJ. 2009. xvi + 572 pp. $125. ISBN 978-0-470-13115-2.

The book represents the most recent addition to Wiley's popular series on Mass Spectrometry (MS). This highly successful series includes a wide range of topical books that cover proteomics, drug development, and inorganic MS among other subjects, as well as textbook-type books like *Fundamentals of Contemporary Mass Spectrometry* by Dass.

The present contribution is aimed at bridging the gap between scientists in gas-phase chemistry and those in solution chemistry, who often approach the same question from different sides. It does a very good job of laying out what effect the solvent, or lack thereof, will have on the specific types of noncovalent interactions. Potential errors in using MS to monitor solution processes, e.g., intensities versus solution concentrations and nonspecific aggregations, are discussed. The book is an excellent source for chemists whose interests are in gas-phase chemistry and who want to become familiar with numerous solution-based techniques involving mass spectrometry. Coming from the other side, many non-MS scientists will welcome this book as a tool for educating themselves on where and how MS can be used to monitor noncovalent interactions in the most efficient way.

A very nice and perhaps unique feature of the book is the extensive use of tutorial vignettes—18 of them are scattered through the book. These tutorials give the reader a concise yet thorough (2−5 pages) introduction to a specific experimental MS technique, such as ion mobility MS or neutralization-reionization MS, or a particular chemical topic, like the history of DNA or interaction of DNA with cisplatin. Other tutorials deal with subjects that are not directly related to noncovalent complexes, such as fragmentation of peptides or oligonucleotides, but are needed to understand the material in pertinent chapters.

With its multiple examples of crown ethers, helicates, and other host−guest systems sprinkled over the contents, the book may be a little heavy on "traditional" supramolecular chemistry. However, there is plenty of material for biochemists, with three chapters dedicated to noncovalent complexes of proteins/peptides, oligonucleotides, and carbohydrates. Discussion of energetics of binding, both in the gas phase and in solution, also has a prominent place in this book.

In summary, this is an excellent book that is very well written and truly is a pleasure to read. Whether you are a gas-phase chemist trying to see how your measurements can be related to the solution phase, or a biochemist looking for a mass spectrometry-based technique for studying noncovalent interactions, you will not be disappointed.

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