Book & Media Reviews

edited by
Cheryl Baldwin Frech
University of Central Oklahoma
Edmond, OK 73034-5209

Principles of Molecular Photochemistry—An Introduction

by Nicholas J. Turro, V. Ramamurthy, and J. C. Scaiano

University Science Books: Sausalito, CA, 2009. 495 pp.
ISBN 978-1891389573 (paper). $82.50.

reviewed by Jack K. Steehler

Do you want to really learn modern spectroscopy? Do you want to focus on organic photochemistry? Do you need to understand concepts and principles more than quantum mechanical theory? If you answered each of these questions in the affirmative, then *Principles of Modern Photochemistry—An Introduction* by Turro, Ramamurthy, and Scaiano is a wonderful resource and primer for you.

Nicholas Turro (Columbia University) has been the primary author of multiple versions of organic photochemistry texts over the last 30+ years. These texts collectively are well known as the best learning aids for new practitioners in this field. This 2009 version clearly presents all of the conceptual background needed to really understand organic photochemical processes. Seven different chapters cover basics such as energy level structures in molecules, the wide variety of radiative and nonradiative transitions between energy levels, energy and electron transfer, and the theory of organic photochemistry.

The presentation style is deeply conceptual. Basic concepts are presented then combined in increasingly complex ways, always focusing on understanding processes and molecules. Anyone who has looked at Jablonski energy level diagrams in detail knows the blizzard of confusing processes that can occur. Turro et al. present basics like spin−orbit coupling and the Franck−Condon principle at length, with full and exceptionally clear explanations of the many contributing factors. More complex situations such as twisted intramolecular charge−transfer (TICT) states or triplet−triplet annihilation are also clearly presented, with solid detail, yet with complete focus on conceptual understanding.

The amazing thing about this book is its ability to present complex spectroscopy in detail but with truly minimal mathematics. The 64-page "theory of photochemistry" chapter has only three numerical equations! Those seeking detailed quantum mechanical derivations of spectroscopy should look elsewhere... the focus here is on understanding concepts.

While conceptual, this text is not low level. Its stated audience is those students who have completed organic chemistry and a year of physics. That seems slightly optimistic, yet the book is clearly accessible to upper-level chemistry majors in an advanced organic chemistry or spectroscopy course, or to graduate students. Practicing spectroscopists will also find it a continually useful resource. Inorganic spectroscopists may be disappointed to note the absence of inorganic spectroscopy examples, but the primer on photochemical processes remains highly relevant.

The primary competitor to this text would be Turro, Ramamurthy, and Scaiano's own *Modern Molecular Photochemistry of Organic Molecules* (ISBN 978-1891389252), long the bible of organic photochemistry and available in a new 2010 edition. That longer work (14 chapters versus 7 chapters in the book reviewed here) begins with the same content, but adds a chapter on mechanisms and five chapters on specific classes of organic photoreactions. In comparison, *Principles of Modern Photochemistry—An Introduction* reviewed here is advertised as the conceptual primer (almost 500 pages makes it a rather detailed primer), while the longer work adds specific reaction examples and details. Choose either one...their clarity will serve you well.

Jack K. Steehler teaches in the Department of Chemistry, Roanoke College, Salem, VA 24153; jsteehler@roanoke.edu.

DOI: 10.1021/ed100868v
Published on Web 10/06/2010

Bioinorganic Chemistry: A Practical Course

by Nils Metzler-Nolte and Ulrich Schatzschneider

Walter de Gruyter: New York, NY, 2009. 138 pp.
ISBN 978-3110209549 (paperback). $63.

reviewed by Richard S. Herrick

This delightful book breaks new ground as it is the first lab manual devoted entirely to experiments in bioinorganic chemistry. Bioinorganic chemistry is an interdisciplinary subject and has been well covered by many excellent textbooks used in courses at the undergraduate or graduate level. However, there is a need for experimental training for students wishing to enter this discipline. This slim volume, based on experiments designed for a lab-based course the authors have taught over a period of 10 years, meets this need and should be welcomed by faculty hoping to teach their students the practical skills of bioinorganic chemistry.

In this book you won't find the traditional experiments, such as preparations of tetraphenylporphyrin, cisplatin, or copper(II) glycinate. Instead, the authors have created a project-based book with a series of completely new experiments that encompass a diverse range of topics relevant to modern bioinorganic chemistry. Syntheses include the preparations of ligands, coordination compounds, organometallic compounds, peptides, and peptide conjugates. Students also have the opportunity to learn how to covalently modify proteins. A wide variety of qualitative and analytical measurements are introduced, including assays using proteins or cleavage of DNA, physical and spectroscopic methods including UV−vis spectroscopy, and cyclic voltammetry.

Each of the eight chapters is organized around a particular theme and begins with a one-paragraph summary followed by

