### Orbital Interactions in Chemistry, 2nd Edition

Thomas A. Albright, Jeremy K. Burdett, Myung-Hwan Whangbo

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### DESCRIPTION

Explains the underlying structure that unites all disciplines in chemistry

Now in its second edition, this book explores organic, organometallic, inorganic, solid state, and materials chemistry, demonstrating how common molecular orbital situations arise throughout the whole chemical spectrum. The authors explore the relationships that enable readers to grasp the theory that underlies and connects traditional fields of study within chemistry, thereby providing a conceptual framework with which to think about chemical structure and reactivity problems.

Orbital Interactions in Chemistry begins by developing models and reviewing molecular orbital theory. Next, the book explores orbitals in the organic-main group as well as in solids. Lastly, the book examines orbital interaction patterns that occur in inorganic-organometallic fields as well as cluster chemistry, surface chemistry, and magnetism in solids.

This Second Edition has been thoroughly revised and updated with new discoveries and computational tools since the publication of the first edition more than twenty-five years ago. Among the new content, readers will find:

- Two new chapters dedicated to surface science and magnetic properties
- Additional examples of quantum calculations, focusing on inorganic and organometallic chemistry
- Expanded treatment of group theory
- New results from photoelectron spectroscopy
Each section ends with a set of problems, enabling readers to test their grasp of new concepts as they progress through the text. Solutions are available on the book's ftp site.

Orbital Interactions in Chemistry is written for both researchers and students in organic, inorganic, solid state, materials, and computational chemistry. All readers will discover the underlying structure that unites all disciplines in chemistry.

ABOUT THE AUTHOR

THOMAS A. ALBRIGHT, PhD, is Professor Emeritus in the Department of Chemistry at the University of Houston. He was a Camille and Henry Dreyfus Teacher-Scholar and an Alfred P. Sloan Research Fellow. He has been interested in exploring reaction dynamics in organometallic chemistry.

The late JEREMY K. BURDETT, PhD, was Professor and Chair of the Chemistry Department at the University of Chicago. Dr. Burdett was awarded the Tilden Prize and Meldola Medal by the Royal Society of Chemistry. He was also a Camille and Henry Dreyfus Teacher-Scholar and a Fellow of the John Guggenheim Memorial Foundation and Alfred P. Sloan Foundation.

MYUNG-HWAN WHANGBO, PhD, is Distinguished Professor in the Chemistry Department of North Carolina State University. He has been awarded the Camille and Henry Dreyfus Fellowship, the Alexander von Humboldt Research Award to Senior Scientists, the Ho-Am Prize in Science, and Docteur Honoris Causa from Université de Nantes.

NEW TO EDITION

- Chapter on new concepts in solid state chemistry.
- Old examples replaced with newer advances in field.
- More detailed information on trends in the periodical table.
- Expanded information on the mechanics of group theory.
- New chapter on metals.
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