

World Scientific User Manual



1. Main Page



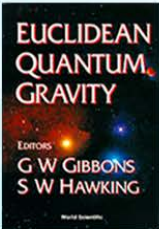
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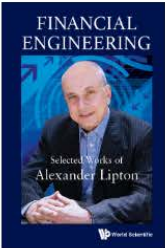
World Scientific Remembers Its Late Author Stephen Hawking

World Scientific is saddened to hear of the passing of our author, Stephen Hawking, on 14 March 2018. Prof Hawking is best known for his work on black holes and relativity, and had gained fame worldwide for publishing several popular science books.



NEW TITLES

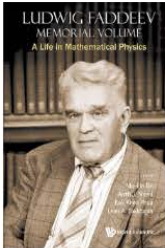
새로 출간된 타이틀



Financial Engineering
Selected Works of Alexander Lipton
by Alexander Lipton



Vibration-Based Techniques for Damage Detection and Localization in Engineering Structures
edited by Ali S Nobari & M H Ferri Aliabadi



Ludwig Faddeev Memorial Volume
A Life in Mathematical Physics
edited by Mo-Lin Ge, Antti J Niemi, Kok Khoo Phua & Leon A Takhtajan

More »

PRESS RELEASES

For the latest research breakthroughs and discoveries published in our books and journal articles.

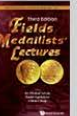
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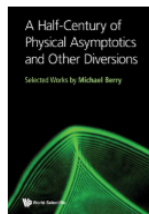


Exclusive Publisher
of Nobel Prize, Wolf Prize and Fields Medalists' Lectures

1. Main Page

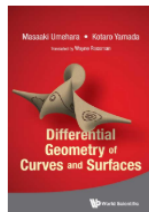
1

NEW REVIEWS



A Half-Century of Physical Asymptotics and Other Diversions Selected Works by Michael Berry
by Michael Berry
"Comments made on the philosophy and conduct of science are valuable and have been influenced strongly by academic contacts at the University of Bristol, and indeed worldwide; The variety of papers and their intended readerships make much of this volume appropriate and enjoyable for general readers, as well as for specialists."

Contemporary Physics



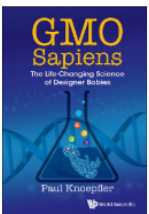
Differential Geometry of Curves and Surfaces
by Masaaki Umehara & Kotaro Yamada
translated by Wayne Rossman

"In a class populated by students who already have some exposure to the concept of a manifold, the presence of chapter 3 in this text may make for an unusual and interesting course. The primary function of this book will be as a text for a more conventional course in the classical theory of curves and surfaces."

MAA Reviews

2

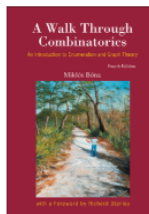
BESTSELLERS



An Introduction to Black Holes, Information and the String Theory Revolution
The Holographic Universe
by Leonard Susskind & James Lindesay



Marketing for Competitiveness: Asia to the World
In the Age of Digital Consumers
by Philip Kotler, Hermawan Kartajaya & Den Huan Hooi



A Walk Through Combinatorics
An Introduction to Enumeration and Graph Theory
4th Edition
by Miklós Bóna

More »

1. 새로 등록된 리뷰
2. 베스트셀러 타이틀
3. 주요 원문

3

FEATURED ARTICLES

Early examples of topological concepts in physics

C. N. Yang

Vol. 33, No. 22, 19 Jul 2018

CALCULATION OF TAKEOFF AND LANDING PERFORMANCE UNDER DIFFERENT ENVIRONMENTS

YAJUAN ZHU, JIANGFENG WANG, YONGLIANG CHEN and YIZHAO WU

Vol. 42, 21 Jun 2016

DIGITAL TRANSFORMATION OF BUSINESS MODELS — BEST PRACTICE, ENABLERS, AND ROADMAP

DANIEL SCHALLMO, CHRISTOPHER A. WILLIAMS and LUKE BOARDMAN

Vol. 21, No. 08, 11 Dec 2017

Central Bank Currency Swaps and Their Implications to the International Financial Reform

Xu Mingqi

Vol. 02, No. 01, 14 Apr 2016

ANALYSING UBER IN SOCIAL MEDIA — DISRUPTIVE TECHNOLOGY OR INSTITUTIONAL DISRUPTION?

CHRISTOFER LAURELL and CHRISTIAN SANDSTRÖM

Vol. 20, No. 05, 15 Jun 2016

Review of the Synthetic Techniques and Applications of the Quantum Dots/Graphene Composites

Yong Duan, Tianjian Zeng, Tao Sun, Ling Tong, Anran Chen, Jin Zhang, Rongfei Wang, Chong Wang and Yu Yang

Vol. 13, No. 05, 30 May 2018

POLICY INSIGHTS FROM THE EMF 32 STUDY ON U.S. CARBON TAX SCENARIOS

ALEXANDER R. BARRON, ALLEN A. FAWCETT, MARC A. C. HAFSTEAD, JAMES R. MCFARLAND and ADELE C. MORRIS

Vol. 09, No. 01, 21 Mar 2018

Predicting Model and Algorithm in RNA Folding Structure Including Pseudoknots

Zhendong Liu, Daming Zhu and Qionghai Dai

Vol. 32, No. 10, 20 Jun 2018

2-1. Browse – by Subject

World Scientific
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Subject Journals Books E-Pre

1 All Subjects ☒

Asian Studies
Business & Management
Chemistry
Computer Science
Economics & Finance
Engineering / Acoustics
Environmental Science
Life Sciences / Biology
Materials Science
Mathematics
Medicine
Nanotechnology & Nanoscience
Nonlinear Science, Chaos & Dynamical Systems

2 Publication Type

Books 12548
Book Series 394
Journals 173

3 Publication Date

Last Year 601
Last 6 Months 279
Last 3 Months 148
Last Month 35

4 Subjects

Architecture / Building Management 59
Asian Studies 939
Business & Management 924
Chemistry 1205
Computer Science 1490
MORE (14)

5 Book types

Textbook 1570

RESULTS: 1 - 20 of 12721

5 PER PAGE: 20 50 100 SORT: ALPHABETICALLY

Book **The (1+1)-Nonlinear Universe of the Parabolic Map and Combinatorics**
By (author): Mar...
Sep 2

Book **The (Pre-)Dawning of Functional Specialization in Physics**
By (author): Terrance J Quinn (Middle Tennessee State University, USA)
May 2017

Book **The "Thermodynamic" Universe**
Exploring the Limits of Physics
By (author): B G Sidharth (International Institute of Applicable Mathematics & Information Sciences, India)
May 2008

Book **1,1'-Binaphthyl-Based Chiral Materials**
Our Journey
By (author): Pu Lin (University of Virginia, USA)
Aug 2009

Financial Engineering
Selected Works of Alexander Lipton
by Alexander Lipton

- 모든 주제별 선택 시
- 1. 출판 종류: 책, 책 시리즈, 저널
- 2. 출판 연도: 작년, 6개월/3개월/한 달 전
- 3. 세부 주제: 건축/건축 경영, 아시아 연구 등
- 4. 책 종류: 교재
- 5. 결과 나열 방법: 한 페이지 당 결과 수, 정렬 방법

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All Subjects 
 Asian Studies
 Business & Management
Chemistry
 Computer Science

Chemistry

1 Browse by subdiscipline

Analytical Chemistry	Physical Chemistry	Computational Chemistry	Environmental / Atmospheric Chemistry
General Chemistry	Organic Chemistry	Inorganic Chemistry	Biochemistry
» view more			



E-CATALOGUES



TEXTBOOKS



ANNUAL CATALOGUE



BESTSELLERS

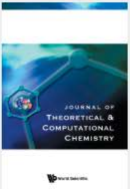


NEW TITLES

2 Journals [» See all](#)



Journal of Porphyrins and Phthalocyanines (JPP)



Journal of Theoretical and Computational Chemistry (JTCC)



Molecular Frontiers Journal (MFJ)



Functional Materials Letters

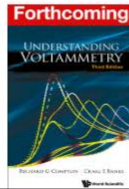
3 New Titles [» See all](#)



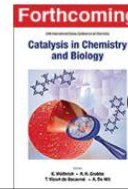
Forthcoming



Forthcoming

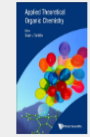


Forthcoming



Forthcoming

4 New Reviews [» See all](#)



Applied Theoretical Organic Chemistry
 edited by Dean J Tantillo
"The chapters are each interesting in their own way, the coverage of the field is superb, and so is the underlying expertise. This book will be very, very useful to the organic community as quantum and computational chemistry fulfil their promise of becoming true partners in exploring synthesis and mechanism in organic chemistry."



Atmospheric Chemistry
 From the Surface to the Stratosphere
 by Grant Ritchie
"This book is one of those that is likely to be a useful addition to many bookshelves ... colour figures throughout, greatly aids the clarity of the diagrams and the optimum positioning of colour pictures ... Each chapter has a good selection of essay-type questions and numerical problems, both at the level likely to be encountered in undergraduate final examinations."
 The Observatory Magazine

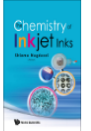
5 Bestsellers [» See all](#)



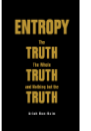
Reminiscences of Ahmed H. Zewail: Photons, Electrons and What Else?
 A Portrait from Close Range. Remembrances of his Group Members and Family
 edited by Abderrazzak Douhal, John Spencer Baskin & Dongping Zhong



Wonders of Water
 The Hydrogen Bond in Action
 by Ivar Olovsson



The Chemistry of Inkjet Inks
 edited by Shlomo Magdassi



Entropy
 The Truth, the Whole Truth, and Nothing But the Truth
 by Arieh Ben-Naim

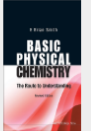
6 Textbooks [» See all](#)



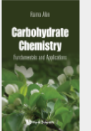
Problems of Instrumental Analytical Chemistry
 A Hands-On Guide
 by JM Andrade-Garda, A Carlosena-Zubietta, MP Gómez-Carracedo, MA Maestro-Saavedra, MC Prieto-Bianco & RM Soto-Ferreiro



Bioanalytical Chemistry
 2nd Edition
 by Andreas Manz, Petra S Dittrich, Nicole Pamme & Dimitri Iossifidis



Basic Physical Chemistry
 The Route to Understanding
 Revised Edition
 by E Brian Smith



Carbohydrate Chemistry
 Fundamentals and Applications
 by Raimo Alén

7 Book Series [» See all](#)

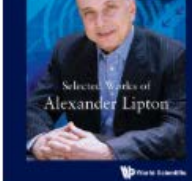


Essential Textbooks in Chemistry
 The Essential Textbooks in Chemistry explores the most important topics in Chemistry that all Physical Sciences students need to know to pass their undergraduate exams (years 1, 2 and 3 of



Catalytic Science Series
 Catalysis is at the forefront of the chemical industry and is essential to many fields in the chemical sciences. This series explores all aspects of catalysis in authored and edited volumes

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- 5. 베스트셀러 타이틀
- 6. 교재
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Financial Engineering
 Selected Works of Alexander Lipton
 by Alexander Lipton


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1

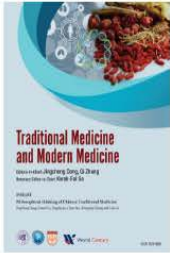
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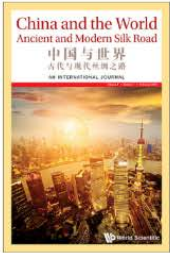
- 저널 항목 선택 시
- 1. 검색창
- 2. 새로 출간된 저널
- 3. 주제 별 브라우징
- 4. 최신 원문

2

New Journals



Traditional Medicine and Modern Medicine (TMMM)



China and the World (CWSR)
Ancient and Modern Silk Road



International Journal of Big Data Mining
Global Warming (IJBDMGW)

3

Browse by Subject

Asian Studies	Business & Management	Chemistry
Economics & Finance	Engineering / Acoustics	Environmental Science
Materials Science	Mathematics	Medicine
Nonlinear Science, Chaos & Dynamical Systems	Physics and Astronomy	Social Sciences

4

LATEST ARTICLES

Analysis of s-wave, p-wave and d-wave holographic superconductors in Hořava–Lifshitz gravity

Kai Lin, Xiao-Mei Kuang, Wei-Liang Qian, Qiyuan Pan and A. B. Pavan

Modern Physics Letters A
Online ready

The structural, elastic and thermodynamic properties of intermetallic phases in Mg–Sn–Si–Ca(Sr) alloys: A first-principles study

Yan Li, Yuhong Zhao, Hua Hou and Xiaomin Yang

International Journal of Modern Physics B
Online ready

Elastic properties of the charge density wave system HoTe₃

M. Saint-Paul, C. Guttin, P. Lejay, O. Leynaud and P. Monceau

International Journal of Modern Physics B
Online ready

tCG torsion pairs

Daniel Bravo and Carlos E. Parra

Journal of Algebra and Its Applications
Online ready

Editorial Note

Reviews in Mathematical Physics
Online ready

Simulation and experimental study of binder droplet infiltration in 3DP technology

Yuanyuan Wang, Pengfei Jia, Weidong Yang, Kai Peng and Sixiang Zhang

Modern Physics Letters B
Online ready

Hydrogen energy-level shifts induced by the atom motion: Crossover from the Lamb shifts to the motion-induced shifts

A. I. Agafonov

Modern Physics Letters B
Online ready

An integrated framework for anomaly detection in big data of medical wireless sensors

Bharti Saneja and Rinkle Rani

Modern Physics Letters B
Online ready

Effects of oxygen partial pressure on the microstructure, electrical and optical properties of the Sn-doped In₂O₃ thin films

Xiaochan Liu, Yukai An, Zhen Lin and Jiwen Liu

Modern Physics Letters B
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Nanotechnology & Nanoscience

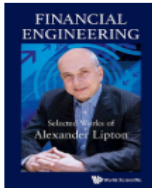
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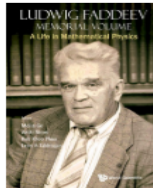
1 **New Titles** » See all



Financial Engineering
Selected Works of Alexander Lipton
by Alexander Lipton



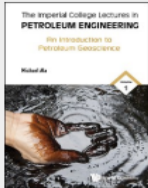
Vibration-Based Techniques for Damage Detection and Localization in Engineering Structures
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Ludwig Faddeev Memorial
A Life in Mathematical Physics
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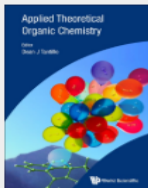
2 **New Reviews**



The Imperial College Lectures in Petroleum Engineering
Volume 1: An Introduction to Petroleum Geoscience
by Michael Ala

"The book achieves its aim of communicating a common set of principles and a structured approach to petroleum geoscience; it also provides a helpful glossary and at the end of each chapter, a useful set of references for those readers wishing to delve into further detail. Good use is made of illustrations from around the world to demonstrate concepts and principles. The book is thus compact and well laid-out, meeting the challenge on containing the key information for ready reference without running to a considerably larger tome."

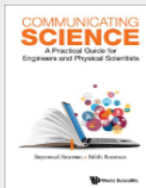
Dr John F Bell
Director Asia Operations
Ophir Energy



Applied Theoretical Organic Chemistry
edited by Dean J Tantillo

"The chapters are each interesting in their own way, the coverage of the field is superb, and so is the underlying expertise. This book will be very, very useful to the organic community as quantum and computational chemistry fulfil their promise of becoming true partners in exploring synthesis and mechanism in organic chemistry."

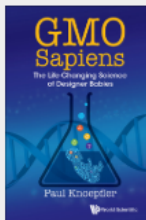
Roald Hoffmann
Cornell University
Nobel Prize Winner in Chemistry 1991



3 **Browse by Subject**

Asian Studies	Business & Management	Chemistry	Computer Science
Economics & Finance	Education	Engineering / Acoustics	Environmental Science
Life Sciences / Biology	Materials Science	Mathematics	Medicine
Nanotechnology & Nanoscience	Nonlinear Science, Chaos & Dynamical Systems	Physics and Astronomy	Popular & General Science
Social Sciences	Chinese Titles		

4 **Bestsellers** » See all



An Introduction to Black Holes, Information and the String Theory Revolution
The Holographic Universe
by Leonard Susskind & James Lindesay



Marketing for Competitiveness: Asia to the World
In the Age of Digital Consumers
by Philip Kotler, Hermawan Kartajaya & Den Huan Hooi



A Walk Through Combinatorics
An Introduction to Enumeration and Graph Theory
4th Edition
by Miklós Bóna



An Introduction to Black Holes, Information and the String Theory Revolution
The Holographic Universe
by Leonard Susskind & James Lindesay

- 책 항목 선택 시
- 1. 새로 출간된 타이틀
- 2. 새로 등록된 리뷰
- 3. 주제별 브라우징
- 4. 베스트셀러 타이틀

3-1. Search – Basic Search

The screenshot shows the World Scientific website header with the logo and navigation links. A red box labeled '1' highlights the search icon in the top right corner. Another red box labeled '2' highlights the 'Advanced Search' link. Below the header, a search bar is shown with a dropdown menu set to 'Anywhere' and a text input field containing the placeholder text 'Enter words / phrases / DOI / ISBN / keywords / authors / etc'. A red box labeled '1' highlights the search bar area, and another red box labeled '2' highlights the 'Advanced Search' link.

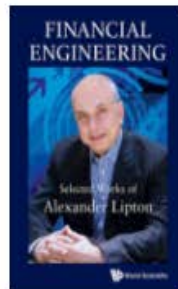
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1 Anywhere Enter words / phrases / DOI / ISBN / keywords / authors / etc 2 Advanced Search

- 간편 검색 시
- 1. 돋보기 아이콘의 검색 버튼을 클릭하여 전체/인용구 중 선택, 단어/구절/DOI/ISBN/키워드/저자 등을 입력, 엔터 및 돋보기 아이콘 클릭
- 2. 고급검색: 보다 복합적인 검색 가능

NEW TITLES



Financial Engineering
Selected Works of Alexander Lipton
by Alexander Lipton



Vibration-Based Techniques for
Damage Detection and Localization
in Engineering Structures
edited by Ali S Nobari & M H Ferri
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3-1. Search – Basic Search

The screenshot shows the World Scientific search interface. On the left is a sidebar with filters for Author, Publication, Keyword, Subjects, and Book types. The main area displays search results for the keyword 'Carbon'. Annotations 1 through 5 highlight specific features: 1. 'Narrow Results' button; 2. 'Articles/Chapters' and 'Books Titles' tabs; 3. 'Follow results' button; 4. 'REFINE SEARCH' button; 5. 'PER PAGE' and 'SORT: RELEVANCE' options. A sample result for 'Stable Carbonium Ions. LXIV: Protonated Carbonic Acid...' is visible.

Author

- Olah, George A. 142
- Kadish, Karl M. 125
- Rao, C N R. 116
- Chan, Kim Seng. 108
- Tan, Jeanne. 108
- MORE (20) ▾

Publication

- Default Book Series. 14754
- Journal of Porphyrins and Phthalocyanines. 1172
- International Journal of Modern Physics B. 1109
- Surface Review and Letters. 798
- Nano. 625
- MORE (20) ▾

Keyword

- Graphene. 249
- Carbon Nanotubes. 230
- Carbon Nanotube. 154
- Porphyrin. 129
- Phthalocyanine. 125
- MORE (20) ▾

Subjects

- Architecture / Building Management. 244
- Asian Studies. 1081
- Business & Management. 1145
- Chemistry. 12007
- Computer Science. 1234
- MORE (14) ▾

Book types

- Textbook. 2152

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Subject ▾ Journals Books E-Products Partner With Us ▾ Open Access

Anywhere ▾ Carbon 🔍 Advanced Search

Narrow Results 1

Articles/Chapters Books Titles 2

Results: 1 - 20 of 30050 Carbon 3

Follow results: α* 📧

REFINE SEARCH ▾ 4

PER PAGE: 20 50 100 5 SORT: RELEVANCE ▾

Chapter No Access

Stable Carbonium Ions. LXIV: Protonated Carbonic Acid (Trihydroxycarbonium Ion) and Protonated Alkyl (Aryl) Carbonates and Hydrogen Carbonates, and Their Cleavage to Protonated Carbonic Acid and Carbonium Ions. The Possible Role of Protonated Carbonic Acid in Biological Carboxylation Processes

George A. Olah and Anthony M. White

Across Conventional Lines | 01 Jan 2003

Preview Abstract ▾

Chapter No Access

Soil Carbon and Climate Change

Publication Type

- Journals and Books. 30050
- Books. 20205
- Journals. 9847

Article Type

- Chapter Item. 18359
- Research Article. 8836
- Back Matter. 1052
- Front Matter. 791
- Review Article
- MORE (13) ▾

Publication Date

- Last Year
- Last 6 Months
- Last 3 Months
- Last Month

■ 검색 결과

1. 출판 종류, 원문 종류, 출판 연도, 저자, 출판물, 키워드, 주제, 책 종류로 결과 필터
2. 원문 및 챕터, 혹은 책 제목에 한하여 검색 결과 나열
3. 검색 결과 저장(개인 계정 필요) 및 RSS 설정
4. 고급 검색, 검색 기록, 검색 저장소를 이용하여 검색 구체화
5. 한 페이지 당 결과 수, 정렬 방법 지정하여 결과 나열 방법 선택

3-2. Search – Advanced Search

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Published in e.g. Journal of Theoretical Biology

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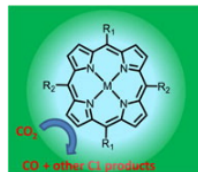
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This review summarizes research on the electrochemical and photochemical reduction of CO₂ using a variety of iron and cobalt porphyrins, phthalocyanines and related complexes. Metalloporphyrins and metallophthalocyanines are visible light absorbers with extremely large extinction coefficients. However, yields of photochemically-generated active catalysts for CO₂ reduction are typically low owing to the requirement of a second photoinduced electron. This requirement is not relevant to the case of electrochemical CO₂ reduction. Recent progress on efficient and stable electrochemical systems includes the use of FeTPP catalysts that have prepositioned phenyl OH groups in their second coordination spheres. This has led to remarkable progress in carrying out coupled proton-electron transfer reactions for CO₂ reduction. Such ground-breaking research has to be continued in order to produce renewable fuels in an economically feasible manner.



Keywords: CO₂ reduction ■ porphyrin ■ phthalocyanine ■ cobalt ■ iron

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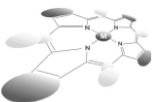
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A review of iron and cobalt porphyrins, phthalocyanines and related complexes for electrochemical and photochemical reduction of carbon dioxide

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Dedicated to Professor Shunichi Fukuzumi on the occasion of his retirement

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Accepted 23 December 2014

ABSTRACT: This review summarizes research on the electrochemical and photochemical reduction of CO₂ using a variety of iron and cobalt porphyrins, phthalocyanines and related complexes. Metalloporphyrins and metallophthalocyanines are visible light absorbers with extremely large extinction coefficients. However, yields of photochemically-generated active catalysts for CO₂ reduction are typically low owing to the requirement of a second photoinduced electron. This requirement is not relevant to the case of electrochemical CO₂ reduction. Recent progress on efficient and stable electrochemical systems includes the use of FeTPP catalysts that have prepositioned phenyl OH groups in their second coordination spheres. This has led to remarkable progress in carrying out coupled proton-electron transfer reactions for CO₂ reduction. Such ground-breaking research has to be continued in order to produce renewable fuels in an economically feasible manner.

KEYWORDS: CO₂ reduction, porphyrin, phthalocyanine, cobalt, iron.

1. INTRODUCTION

The global carbon cycle is a closed system with all fossil fuels currently burned originating from photosynthetic carbon dioxide fixation over millions of years. An imbalance in the rates of consumption vs. natural fixation with increasing human demand for energy leads to two major concerns: the rising concentration of atmospheric CO₂, and the inevitable decline of extractable fossil fuels. The problem of atmospheric concentrations can be alleviated to some extent through CO₂ capture/sequestration technology [1]; however, a conversion/utilization or recycling scheme is perhaps more ideal since the need for energy is also addressed. If the recycling technology is ultimately powered by inexhaustible, although intermittent, solar energy, CO₂ is then viewed as a redox mediator in which diffuse solar energy is stored in the form of chemical bonds by its reduction and electrical energy is obtained by oxidation of the reduced products.

The foremost challenge to CO₂ recycling is its chemically inert nature. Direct electrochemical reduction to CO₂^{•-} (Equation 1) is highly unfavorable due in part to the geometric rearrangement from linear to bent. This difficulty is reflected by the standard potential of -1.90 V vs. NHE [2]. Energy requirements for proton assisted multi-electron reductions at pH 7 (Equations 2-6) are substantially lower; however, catalysts are necessary to mediate the microscopic steps involved in the multi-proton, multi-electron reductions. Transition metal complexes with a variety of accessible oxidations states (including ligand-localized reductions) are well-suited for this task and often provide product selectivity and tunable activity [3-5]. Nevertheless, reduction beyond formic acid or CO remains rare and further developments are needed.

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CO₂ + e⁻ → CO₂^{•-} E^{0'} = -1.90 V (1)
CO₂ + 2H⁺ + 2e⁻ → CO + H₂O E^{0'} = -0.53 V (2)
CO₂ + 2H⁺ + 2e⁻ → HCO₂H E^{0'} = -0.61 V (3)

[†]SPP full member in good standing
*Correspondence to: Gerald F. Manbeck, email: gmanbeck@bnl.gov, Etsuko Fujita, email: fujita@bnl.gov

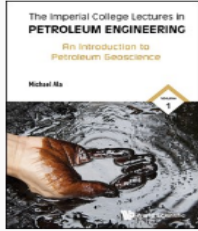
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Chapter 1

Introduction to Geology

1.1. Introduction

Geology is the study of rocks and Earth history. The Earth is a dynamic and ever changing body; earthquakes, volcanoes, moving continents and expanding and contracting oceans are all surface phenomena providing evidence of an active interior. They also provide clues to the internal processes, structure and composition of the Earth.

A unique feature of the Earth is that it has liquid water. Figure 1.1 presents a view of the Earth from space.

1.2. Shape, Internal Structure, and Composition of the Earth

In terms of its shape, the Earth is an oblate sphere; it is relatively

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