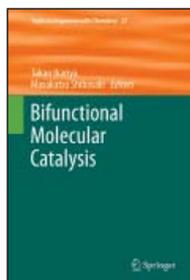


# Publications in Brief

## BOOKS

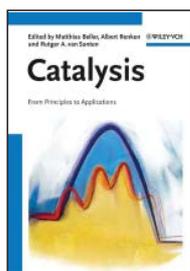
### “Bifunctional Molecular Catalysis”



Edited by T. Ikariya (Department of Applied Chemistry, Graduate School of Science and Engineering, Tokyo Institute of Technology, Japan) and M. Shibasaki (Institute of Microbial Chemistry, Tokyo, Japan), Topics in Organometallic Chemistry, Vol. 37, Springer-Verlag, Berlin, Heidelberg, Germany, 2011, 221 pages, ISBN: 978-3-642-20730-3, £171.00, €203.25, US\$259.00

Bifunctional molecular catalysts contain two or more sites for the activation of electrophiles and nucleophiles, and consequently can promote molecular transformation by effective accumulation and cooperative activation of reacting substrates on the neighbouring active centres in the same molecules. Tuning of the structures of these catalysts, as well as the spatial organisation of the functionality, is required to achieve the best performance. This book highlights the recent advances in bifunctional molecular catalysis with well-designed multimetallic systems, dinuclear and mononuclear transition metal-based molecular catalysts, and Lewis acid catalysts. Iridium, rhodium and ruthenium catalysts are featured and a chapter reviews the use of Shvo's ruthenium catalyst in various hydrogen transfer reactions, as well as discussing the mechanism of the hydrogen transfer.

### “Catalysis: From Principles to Applications”

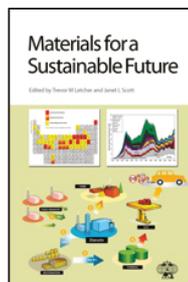


Edited by M. Beller (Universität Rostock, Leibniz-Institut für Katalyse eV, Germany), A. Renken (École Polytechnique Fédérale, Lausanne, Switzerland) and R. A. van Santen (Eindhoven University of Technology, Schuit Institute of Catalysis, The Netherlands), Wiley-VCH Verlag & Co KGaA, Weinheim, Germany, 2012, 664 pages, ISBN: 978-3-527-32349-4, £60.00, €72.00, US\$90.00

This textbook includes chapters that explain the fundamentals of catalysis and introduces new catalytic systems that are becoming of increasing importance. It covers all the essential principles, ranging from catalytic processes at the molecular level to catalytic reactor design and includes several case studies illustrating the importance of catalysts in the

chemical industry. The book gives many examples of pgm catalysts.

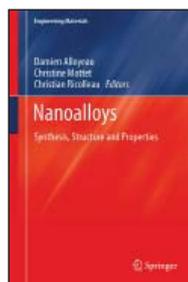
### “Materials for a Sustainable Future”



Edited by T. M. Letcher (Emeritus Professor of Chemistry at the University of KwaZulu-Natal, Durban, South Africa) and J. L. Scott (Doctoral Training Centre in Sustainable Chemical Technologies, University of Bath, UK), Royal Society of Chemistry, Cambridge, UK, 2012, 828 pages, ISBN: 978-1-84973-407-3, £74.99

This book is about the materials in our society and how they relate to sustainability. This includes materials that need to be conserved, renewable materials, pollutants that can be used in new processes and materials designed to optimise the sustainable use of resources. The book includes chapters concerning chemicals and materials that could be used to help create a more sustainable way of life. These include: biomass needed to manufacture plastics; special compounds and membranes for water purification, water splitting, photovoltaic cells, batteries and fuel cells; and special materials for buildings, glass technologies and for storing hydrogen.

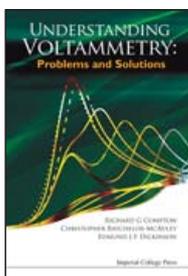
### “Nanoalloys: Synthesis, Structure and Properties”



Edited by D. Alloyeau (Matériaux et Phénomènes Quantiques, Université Paris Diderot, France), C. Mottet (CINaM-CNRS, Marseille, France) and C. Ricolleau (Matériaux et Phénomènes Quantiques, Université Paris Diderot, France), Series: Engineering Materials, Springer-Verlag, London, UK, 2012, 412 pages, ISBN: 978-1-4471-4013-9, £117.00, €139.05, US\$179.00

Bimetallic nanoparticles, also called nanoalloys, have the ability to tune together composition and size for specific purposes. By approaching both their physical and chemical properties, this book addresses the subject from both experimental and theoretical points of view. The three main chapter topics are: growth and structural properties; thermodynamics and electronic structure of nanoalloys; and magnetic, optic and catalytic properties. Many of the nanoalloys have platinum group metals in their composition.

### “Understanding Voltammetry: Problems and Solutions”



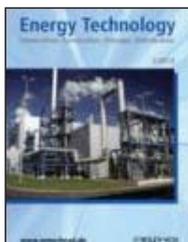
By R. G. Compton, C. Batchelor-McAuley and E. J. F. Dickinson (Physical and Theoretical Chemistry Laboratory, University of Oxford, UK), Imperial College Press, London, UK, 2012, 272 pages, ISBN: 978-1-84816-730-8, £53.00

This book presents problems and worked solutions for a wide range of theoretical and experimental subjects in the field of voltammetry.

The earlier chapters focus on the fundamental theories of thermodynamics, electron transfer and diffusion. Voltammetric experiments and their analysis are then considered, including extensive problems on both macroelectrode and microelectrode voltammetry. Convection, hydrodynamic electrodes, homogeneous kinetics, adsorption and electroanalytical applications are discussed in the later chapters, as well as problems on two rapidly developing fields of voltammetry: weakly supported media and nanoscale electrodes.

## JOURNALS

### Energy Technology



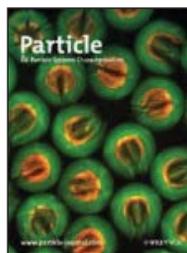
Editor-in-Chief: B. Böck; Wiley-VCH; ISSN: 2194-4288; e-ISSN: 2194-4296

The new Wiley-VCH journal *Energy Technology*, due to launch in 2013, will aim to provide a forum for researchers and engineers from all relevant disciplines concerned with the generation, conversion, storage

and distribution of energy. Articles covering all technical aspects of energy process engineering will be published, including:

- New concepts of energy generation and conversion;
- Design, operation, control and optimisation of processes for energy generation (e.g. carbon capture) and conversion of energy carriers;
- Improvement of existing processes;
- Combination of single components into systems for energy generation;
- Design of systems for energy storage;
- Production processes of fuels, e.g. hydrogen, electricity, petroleum, biobased fuels;
- Concepts and design of devices for energy distribution.

### Particle & Particle Systems Characterization

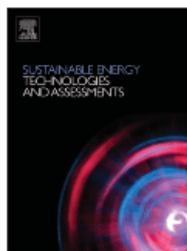


Wiley-VCH; e-ISSN: 1521-4117

The relaunched journal, known as *Particle* for short, has been added to the Wiley-VCH *Advanced Materials* and *Small* family of journals. It opened for submissions in June 2012, and will publish twelve issues in 2013. Topics will include the

synthesis, characterisation and application of particles in a variety of systems and devices. ‘Particles’ broadly refer to colloids, composites, metal and alloy clusters, organic and inorganic materials, polymers, quantum dots, proteins and other molecular biological systems. ‘Particle Systems’ encompass biomedical, catalysis, environmental, micro/nano-electromechanical, micro/nano-fluidic, molecular electronic, photonic, sensing and others. ‘Characterisation’ methods include various microscopy, spectroscopy, electrochemical, diffraction, magnetic and scattering techniques.

### Sustainable Energy Technologies and Assessments



Editor-in-Chief: L. A. Schaefer (Department of Mechanical Engineering, University of Pittsburgh, USA); Elsevier; ISSN: 2213-1388

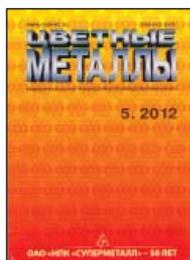
Elsevier will be launching this new journal in early 2013. *Sustainable Energy Technologies and Assessments* will provide comparative analyses of energy generation, storage and conversion

systems, and their economic, environmental and political impact. This journal will encourage papers on technologies for energy generation and/or utilisation with reduced impact on the environment. These include carbon capture and storage, wind, bioenergy, solar/photovoltaic, hydro, geothermal and conventional fuels, along with system analysis, environmental issues, energy harvesting and building design.

### The 50-th Anniversary of the SIC “Supermetal”

*Tsvetnye Metally* (Non-Ferrous Metals), 2012, (5), 25–72

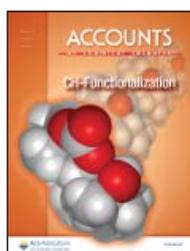
*Tsvetnye Metally* celebrates the history of the SIC “Supermetal”. This includes developments in the production of glass fibre at high temperatures and mechanical loadings. Only platinum and its alloys could sustain these service conditions. In the 1990s, the industrial production of age-hardened platinum and its alloys began. The ‘nonrefining’ processing of



platinum-rich scrap was also developed and implemented commercially. Another important business area was the production of platinum-based catalytic systems for nitric acid production. Articles of interest include: 'The 50-th Anniversary of the SIC "Supermetal"', 'Achievements of the OJSC SIC "Supermetal"

in the Field of Development and Manufacturing of Precious Metals', 'Rational Using of the Platinum Metals in the Production of the Fiberglass', 'Production of the Catalyst and Catchment Systems for Ammonia Conversion, According to the Umicore AG & Co. KG Company's Technology' and 'Small-Sized Designs of the Glass-Melting Devices and Bushings. Technical and Economic Indexes of Application'.

#### Special Issue: C–H Functionalization



*Acc. Chem. Res.*, 2012, **45**, (6), 777–958

With guest editors Michael Doyle (Department of Chemistry & Biochemistry, University of Maryland, USA) and Karen Goldberg (Department of Chemistry, University of Washington, USA), this special issue of *Accounts of Chemical*

*Research* covers C–H functionalisations from the transformation of alkanes to the synthesis of complex molecules. New advances in method development are described. Strategies and successes in selective C–H bond activation and cleavage are presented along with functionalisation by dehydrogenation, insertions or oxidations. Metal carbene chemistry is the basis for recent developments in highly regio- and stereoselective carbenoid insertion reactions. Oxidative transformations that offer directed C–H functionalisation and utilisation of dioxygen also extend C–H functionalisation. Platinum, palladium, rhodium and even iridium are essential to many of the transformations covered in the issue.

#### Special Issue: Electrocatalysis

*ACS Catal.*, 2012, **2**, (5), 701–915

This special issue of *ACS Catalysis* is both timely and to the point. Increasing attention is being paid to electrochemistry and electrocatalysis, driven by their growing importance in energy applications. Many of the electrocatalysts covered are pgm-based. The topical areas included by guest editors Héctor Abruña

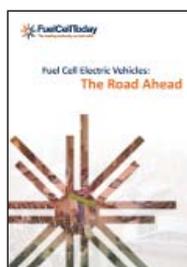


(Department of Chemistry & Chemical Biology, Cornell University, USA) and Thomas Meyer (Department of Chemistry, University of North Carolina, USA) are:

- (a) Fuel cell anodes;
- (b) Fuel cell cathodes;
- (c) Chemically modified surfaces;
- (d) Energy storage, graphene;
- (e) Electrosynthesis;
- (f) Solar fuels;
- (g) Hydrogen.

## ON THE WEB

### Fuel Cell Electric Vehicles: The Road Ahead

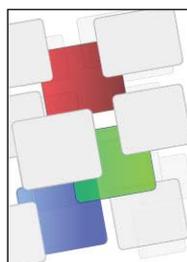


Fuel cell electric vehicles (FCEVs) represent one of the largest future markets for platinum-containing proton exchange membrane fuel cells (PEMFCs). A new Fuel Cell Today report, "Fuel Cell Electric Vehicles: The Road Ahead" examines the need for zero emission transport, the role that fuel cells can play

in this field, their development to date and the major automakers' plans for the commercialisation of FCEVs in the coming years. The report also looks at the build-up of supporting hydrogen infrastructure in key launch markets.

Find this at: <http://www.fuelcelltoday.com/analysis/surveys/2012/fuel-cell-electric-vehicles-the-road-ahead> (Accessed on 19th September 2012)

### OLED eFabricator



The OLED eFabricator, a new eTool designed to help facilitate organic light-emitting diode (OLED) research, is now available from Aldrich Materials Science. With the eFabricator, you can locate high quality materials by setting the desired OLED device performance:

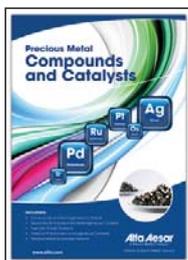
- (a) Color: green, red or blue;
- (b) Maximum luminance;
- (c) Maximum external quantum efficiency (EQE);
- (d) Turn-on voltage.

This tool offers access to an extensive portfolio of small

molecule organic materials and electroluminescent polymers with three main functions: electron transport, hole transport and emission for OLEDs. For example, platinum octaethylporphyrin, bis[2-(4,6-difluorophenyl)pyridinato-C<sup>2</sup>,N](picolinato)-iridium(III), tris[2-phenylpyridinato-C<sup>2</sup>,N]iridium(III) are listed as examples for application in the emissive layer.

Find this at: <http://www.sigmaaldrich.com/materials-science/learning-center/oled-efabricator.html> (Accessed on 19th September 2012)

### Precious Metal Compounds and Catalysts



A new Precious Metal Compounds and Catalysts catalogue is now available from Alfa Aesar. The catalogue lists the range of Johnson Matthey heterogeneous and homogeneous catalysts as well as three catalyst kits: Asymmetric Hydrogenation Ligand/Catalyst Kit, Advanced Coupling Kit and Mini Advanced Coupling Kit.

The 'Introduction to Catalysis and Catalysts' section provides in-depth background on historical aspects, general catalyst information, and the advantages, disadvantages and reaction types associated with supported, unsupported and homogeneous catalysts. The catalogue also offers proprietary Johnson Matthey product lines, such as the HiSPEC™ line of precious metal catalysts for fuel cell research. These consist of single and bimetallic supported and unsupported catalysts, which have been used with success in both anodes and cathodes. Other product lines listed include FibreCat™ Anchored Homogeneous Catalysts and Smopex®, QuadraPure™ and QuadraSil™ Scavenger Systems. These polymer-anchored materials help maintain the accessibility of the catalytic sites for diffusion of the starting materials and products. The Smopex® Precious Metal Scavenger System is one of the most efficient methods for removing metallic impurities in process catalysis.

Find this at: <http://www.alfa.com/en/GN120AJ.pgm?task=display&phd=20120808> (Accessed on 19th September 2012)