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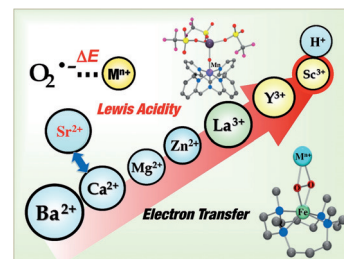


Electron Transfer

S. Fukuzumi,* K. Ohkubo, Y.-M. Lee, W. Nam*

Lewis Acid-Coupled Electron Transfer of Metal–Oxygen Intermediates

Redox-active metal–oxygen species, such as metal–oxo and metal–peroxo complexes, act as key intermediates for the catalytic reduction of dioxygen and the oxidation of water and organic substrates. Redox-inactive metal ions and Brønsted acids that function as Lewis acids play pivotal roles in modulating the redox reactivity of these metal–oxygen intermediates.



Chem. Eur. J.
DOI: 10.1002/chem.201502693

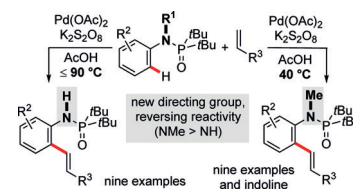


C–H Activation

L.-Y. Jiao, A. V. Ferreira, M. Oestreich*

Phosphinic Amide as Directing Group Enabling Palladium(II)-Catalyzed *ortho* C–H Alkenylation of Anilines without and with Alkylation at the Nitrogen Atom

Mellow Me: A phosphinic amide as a directing group for the *ortho* C–H alkenylation overcomes the pronounced reactivity differences usually seen with secondary (with NH group) and tertiary (with NMe group) anilides. The methyl-substituted anilide is even more reactive than its unsubstituted counterpart (see scheme). The C-7-selective C–H alkenylation of indoline is also demonstrated.



Chem. Asian J.
DOI: 10.1002/asia.201500829

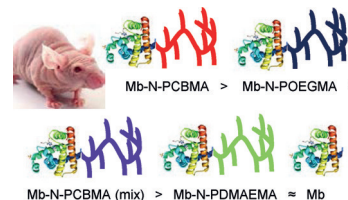


Protein Stability

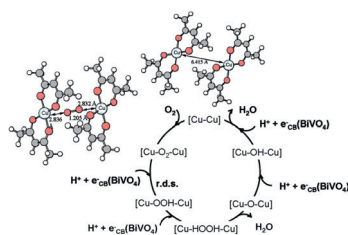
S. Bhattacharjee, W. Liu, W.-H. Wang, I. Weitzhandler, X. Li, Y. Qi, J. Liu, Y. Pang, D. F. Hunt, A. Chilkoti*

Site-Specific Zwitterionic Polymer Conjugates of a Protein Have Long Plasma Circulation

Live action: Mb-N-PCBMA, the site-specific conjugate of a zwitterionic polymer—poly(carboxybetaine methacrylate)—and a model protein, myoglobin shows a longer in vivo plasma half-life than a PEG-like comb polymer conjugate of similar molecular weight. The spacer between the cation and anion plays an important role in controlling the plasma residence time of the conjugate.



ChemBioChem
DOI: 10.1002/cbic.201500439



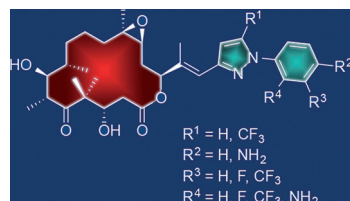
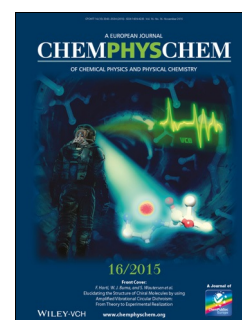
ChemPhysChem
DOI: 10.1002/cphc.201500466

Fuel Cells

H. Kobayashi,* M. Teranishi, S.-i. Naya, H. Tada*

Mechanism of the Multiple-Electron Oxygen Reduction Reaction in the Presence of the Binuclear Cu(acac)₂ Complex

The potential of the electron for the serial oxygen reduction reaction is calculated by DFT in an aqueous solution in the presence and absence of Cu(acac)₂ complex. The study provides interesting information about the rational design of complex–semiconductor hybrid photocatalysts and cathodes for polymer electrolyte membrane fuel cells.



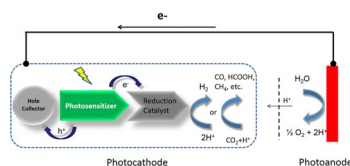
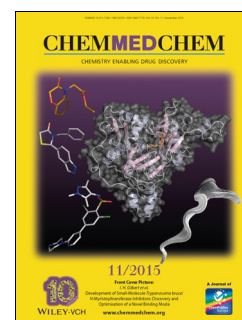
ChemMedChem
DOI: 10.1002/cmdc.201500401

Anticancer Agents

K. C. Nicolaou,* D. Rhoades, Y. Wang, S. Totokotsopoulos, R. Bai, E. Hamel

Synthesis and Biological Evaluation of Novel Epothilone B Side Chain Analogues

Ready for delivery: The design, synthesis and biological evaluation of several new epothilone analogues with regard to their tubulin binding affinities and their capacity to inhibit cancer cell growth are reported. The biological activities of these analogues fall within existing SARs for the epothilone family and will help guide future work toward higher potencies and conjugation with cancer-cell-specific antibodies and other delivery systems for targeted cancer chemotherapy.



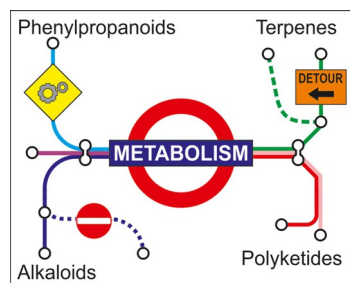
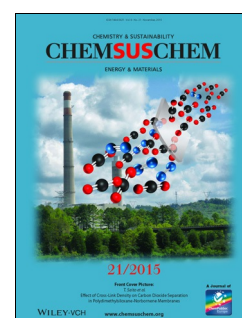
ChemSusChem
DOI: 10.1002/cssc.201500983

Carbon Dioxide Chemistry

H. Tian*

Molecular Catalyst Immobilized Photocathodes for Water/Proton and Carbon Dioxide Reduction

Catching rays: Photocathodes in complete tandem photoelectrochemical solar-fuel production devices have been attracting interest. The immobilization of a molecular catalyst onto a photocathode helps to enhance the interfacial electron/hole-transfer process, and molecular catalysts help to improve the selectivity of the reduction reaction. This Review presents recent progress in molecular catalyst immobilized photocathodes for H₂ generation and CO₂ reduction.



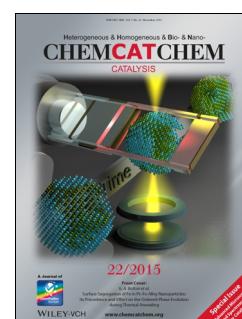
ChemCatChem
DOI: 10.1002/cctc.201500602

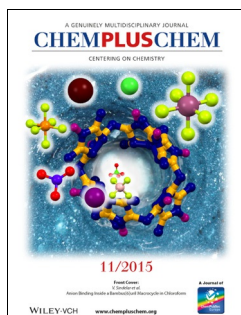
Biosynthesis

S. M. Pearsall, C. N. Rowley, A. Berry*

Advances in Pathway Engineering for Natural Product Biosynthesis

On the right track: Biocatalysis is an attractive alternative to traditional organic chemistry for the synthesis of natural products. In this Review, we highlight recent developments in metabolic pathway engineering and synthetic biology towards the use of whole-cell microbial factories for the synthesis of these useful compounds.



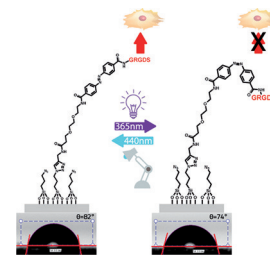


Surface Chemistry

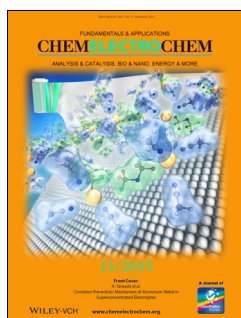
E. Vaselli, C. Fedele, S. Cavalli,* P. A. Netti*

“On–Off” RGD Signaling Using Azobenzene Photoswitch-Modified Surfaces

Let there be light: Switchable light-responsive surfaces were developed by coupling the GRGDS peptide sequence to an azobenzene unit and then clicked to silanized glass substrates (see figure). The “on–off” reversible switch was monitored by contact angle techniques and photocontrolled cell adhesion was tested with human umbilical vein endothelial cells (HUVECs).



ChemPlusChem
DOI: 10.1002/cplu.201500179

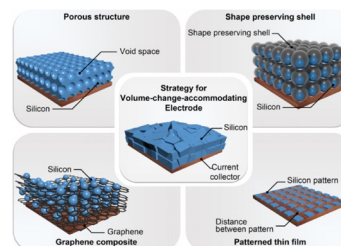


Batteries

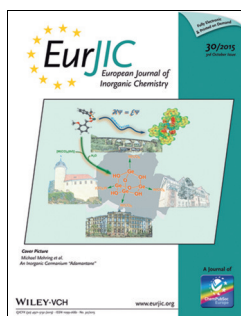
M. Ko, S. Chae, J. Cho*

Challenges in Accommodating Volume Change of Si Anodes for Li-Ion Batteries

Crack of doom: Si anodes suffer a large volume variation during cycling, resulting in mechanical fractures and unstably formed SEI products. Therefore, managing the volume change remains a critical challenge for improving the battery performance to enable practical application of Si anodes in LIBs. This article reviews the challenges for accommodating the volume change of Si anodes and presents perspectives and challenges for future research.



ChemElectroChem
DOI: 10.1002/celec.201500254

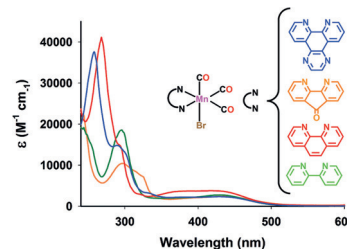


Design of CORMs

J. Jimenez, I. Chakraborty, P. K. Mascharak*

Synthesis and Assessment of CO-Release Capacity of Manganese Carbonyl Complexes Derived from Rigid α -Diimine Ligands of Varied Complexity

The rates of CO photorelease from Mn^I carbonyl complexes based on rigid α -diimine ligands are quite similar to one another despite significant variations in the ligand frameworks.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201500816

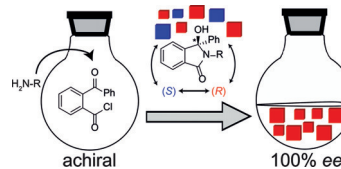


Chiral Resolution

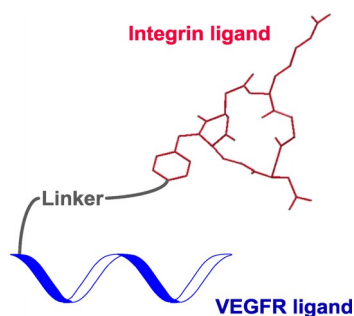
R. R. E. Steendam, M. W. Kulka, H. Meekes, W. J. P. van Enckevort, J. Raap, E. Vlieg,* F. P. J. T. Rutjes*

One-Pot Synthesis, Crystallization and Deracemization of Isoindolinones from Achiral Reactants

The synthesis of three enantiopure isoindolinones from achiral reactants is possible in one pot through solid-state deracemization, which avoids the need for a chiral catalyst and workup procedures.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201501191



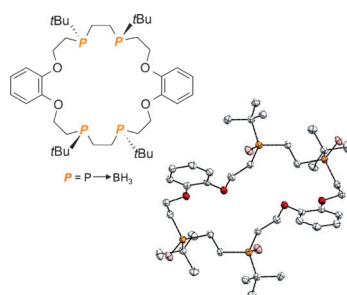
ChemistryOpen
DOI: 10.1002/open.201500062

Drug Design

S. Zanella, M. Mingozi, A. Dal Corso, R. Fanelli, D. Arosio, M. Cosentino, L. Schembri, F. Marino, M. De Zotti, F. Formaggio, L. Pignataro, L. Belvisi, U. Piarulli,* C. Gennari*

Synthesis, Characterization, and Biological Evaluation of a Dual-Action Ligand Targeting $\alpha_v\beta_3$ Integrin and VEGF Receptors

Two are better than one: A dual-action ligand, designed to target both integrin $\alpha_v\beta_3$ and vascular endothelial growth factor receptors (VEGFRs) and possibly block their “crosstalk”, strongly inhibits the VEGF-stimulated morphogenesis in Human Umbilical Vein Endothelial Cells (HUVEC), preventing the formation of new blood vessels.



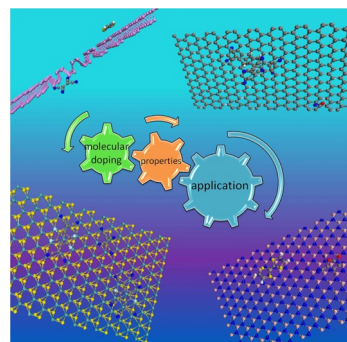
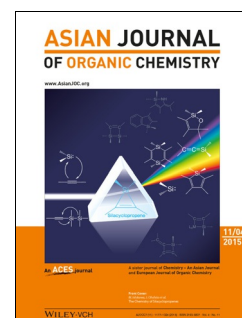
Asian J. Org. Chem.
DOI: 10.1002/ajoc.201500343

Tetraphosphacrowns

R. Kato, Y. Morisaki,* Y. Chujo*

Synthesis of P-Stereogenic Tetraphosphacrowns

Chiral-P: P-Stereogenic tetraphosphacrowns containing four P-stereogenic centers in the ring were synthesized by using a P-stereogenic secondary bisphosphine as a key building block.



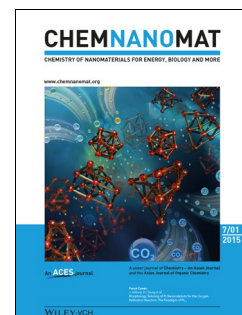
ChemNanoMat
DOI: 10.1002/cnma.201500102

2D Materials

B. Cai, S. Zhang, Z. Yan, H. Zeng*

Noncovalent Molecular Doping of Two-Dimensional Materials

Beneficial doping: This Focus Review highlights recent progress in using noncovalent molecular doping to modulate the electronic, opto-electronic, and chemical properties of 2D materials from both experimental and theoretical perspectives. Compared to covalent functionalization, noncovalent molecular doping better preserves the excellent and unique properties of pristine 2D materials.



ChemViews magazine
DOI: 10.1002/chemv.201500088

Scientific Publishing

A. Meadows, V. Koester

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