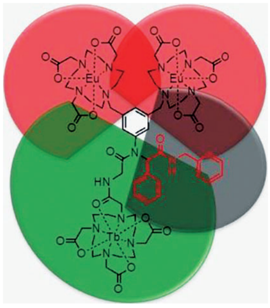
Luminescence

M. Tropiano, O. A. Blackburn, J. A. Tilney, L. R. Hill, M. P. Placidi, R. J. Aarons, D. Sykes, M. W. Jones, A. M. Kenwright, J. S. Snaith, T. J. Sørensen,* S. Faulkner*

Using Remote Substituents to Control Solution Structure and Anion Binding in Lanthanide Complexes

Remote effects: The influence of remote substituents on the conformational space of a lanthanide-containing binding domain is investigated, and the effect on the binding is found to span several orders of magnitude (see figure).



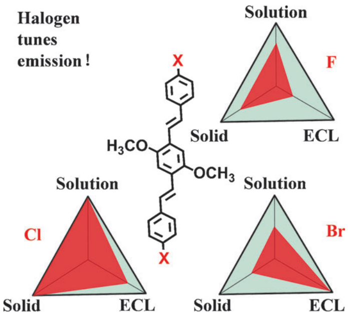
Chem. Eur. J.
DOI: **10.1002/chem.201303183**

Halogenation

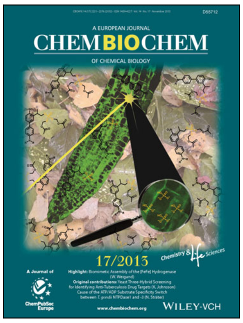
C.-L. Sun, J. Li, H.-W. Geng, H. Li, Y. Ai, Q. Wang, S.-L. Pan,* H.-L. Zhang*

Understanding the Unconventional Effects of Halogenation on the Luminescent Properties of Oligo(Phenylene Vinylene) Molecules

Halo jump: Typically, halogenation decreases the luminescence quantum yield of an organic dye, owing to heavy-atom effects. Herein, appropriate halogenation has a positive impact on the solid-state fluorescence and electrochemiluminescence (ECL) properties of oligo(phenylene vinylene)s (OPVs). The chlorinated OPV exhibits a very high fluorescence quantum yield (91 %), whilst the brominated OPV affords the highest ECL emission intensity.



Chem. Asian J.
DOI: **10.1002/asia.201300732**

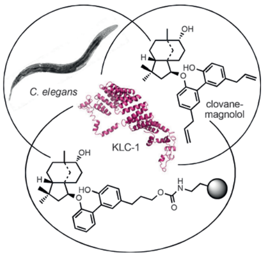


Chemical Genetics

K. Zlotkowski, A. M. Eliasen, A. Mitra, D. Siegel*

Small-Molecule Mechanism of Action Studies in *Caenorhabditis elegans*

Branch line: The mechanism of action of clovanemagnolol, a compound that promotes axonal branching in primary neuronal cultures and in *Caenorhabditis elegans*, was determined by using affinity reagents with soluble *C. elegans* proteome and genetic recapitulation of the observed branching phenotype.



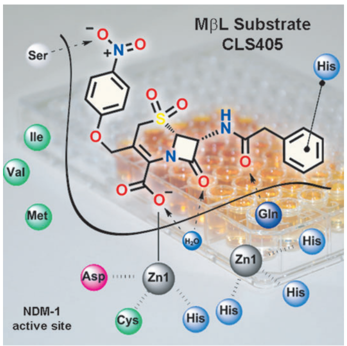
ChemBioChem
DOI: **10.1002/cbic.201300399**

Antibiotics

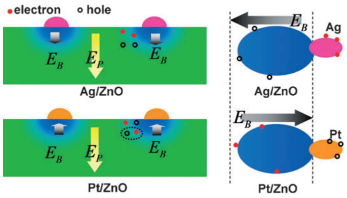
A. Makena, S. S. van Berkel, C. Lejeune, R. J. Owens, A. Verma, R. Salimraj, J. Spencer, J. Brem,* C. J. Schofield*

Chromophore-Linked Substrate (CLS405): Probing Metallo-β-Lactamase Activity and Inhibition

Monitoring MBLs! Resistance to β-lactam antibiotics, mediated by metallo-β-lactamases (MBLs), is an increasing clinical problem. While compounds that target MBLs could be useful antibacterial agents, their identification is hampered by the lack of suitable assay platforms. To this end, CLS405, a chromophore-linked MBL substrate, was developed and its applicability demonstrated by the identification of *N*-hydroxythiazoles as potential inhibitors against a panel of clinically relevant MBLs.



ChemMedChem
DOI: **10.1002/cmdc.201300350**



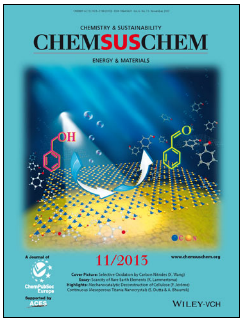
Photocatalysis

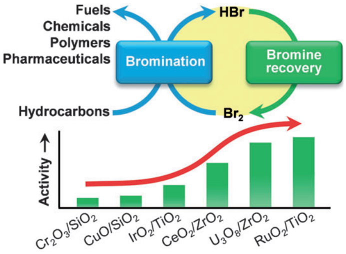
F. Yan, Y. Wang, J. Zhang, Z. Lin, J. Zheng, F. Huang*

Schottky or Ohmic Metal–Semiconductor Contact: Influence on Photocatalytic Efficiency of Ag/ZnO and Pt/ZnO Model Systems

Charge! In the field of photocatalysis, metal-semiconductor heterostructures receive much attention due to efficient charge separation. However, how the charge separation occurs is still an open question. Herein, the mechanisms of photocatalysis by Ag/ZnO, with Ohmic contact, and Pt/ZnO, with Schottky contact, are compared. The charge separation process is found to be strongly influenced by the direction of built-in electric fields within the semiconductor.

ChemSusChem
DOI: **10.1002/cssc.201300818**





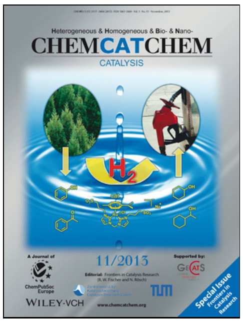
Bromine Recovery

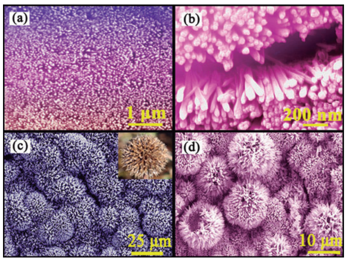
M. Moser, L. Rodríguez-García, A. P. Amrute, J. Pérez-Ramírez*

Catalytic Bromine Recovery: An Enabling Technology for Emerging Alkane Functionalization Processes

Making a quick recovery: The widespread implementation of bromination reactions to manufacture value-added products is contingent upon the development of sustainable and cost-effective means to recycle copious amounts of HBr byproduct. We report families of heterogeneous catalysts for the full recovery of Br_2 through HBr oxidation that display unprecedented low-temperature activity and stability.

ChemCatChem
DOI: **10.1002/cctc.201300609**





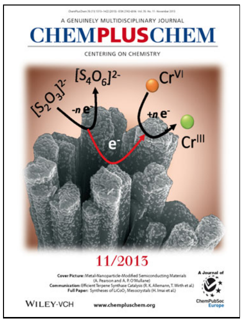
Sensors

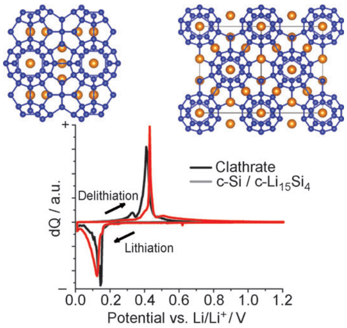
D. Bao, P. Gao,* L. Wang, Y. Wang, Y. Chen,* G. Chen, G. Li,* C. Chang, W. Qin*

ZnO Nanorod Arrays and Hollow Spheres through a Facile Room-Temperature Solution Route and Their Enhanced Ethanol Gas-Sensing Properties

Detecting alcohol: The advantages of a water-in-oil emulsion method and a seed-mediated growth method have been combined in the synthesis of ordered ZnO 1D nanostructures (see SEM images a–d). A large concentration of oxygen vacancies and high surface energy are present on the surface of the nanostructures, which results in their enhanced ethanol gas-sensing properties at a relatively low temperature.

ChemPlusChem
DOI: **10.1002/cplu.201300209**





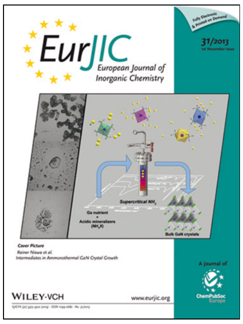
Electrode Materials

N. A. Wagner, R. Raghavan, R. Zhao, Q. Wei, X. Peng, C. K. Chan*

Electrochemical Cycling of Sodium-Filled Silicon Clathrate

Be our guest! Silicon clathrate with sodium guest atoms is studied as a potential anode material for lithium-ion batteries. An electrochemical, structural, and first-principles analysis is conducted to understand the phase changes occurring upon lithium insertion and removal from these cage-like silicon structures.

ChemElectroChem
DOI: **10.1002/celc.201300104**

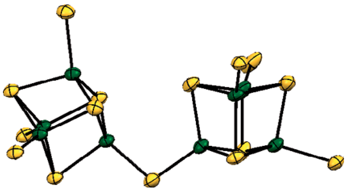


Bioinorganic Chemistry

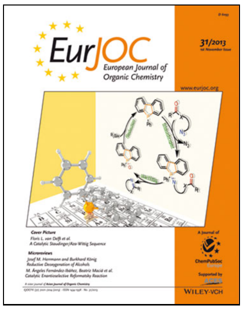
D. L. Gerlach, D. Coucouvanis,* J. Kampf, N. Lehnert*

Isolation and Characterization of Single and Sulfide-Bridged Double [4Fe–4S] Cubane Clusters with 4-Pyridinethiolato Ligands

The syntheses of unique *para*-pyridylthiolate-ligated cuboidal clusters, including two single [4Fe–4S] clusters and a sulfide-bridged double [4Fe–4S] cubane, are described. The properties of these clusters are characterized by ^{1}H NMR, IR and UV/Vis spectroscopy, cyclic voltammetry, and X-ray crystallography.



Eur. J. Inorg. Chem.
DOI: **10.1002/ejic.201300802**

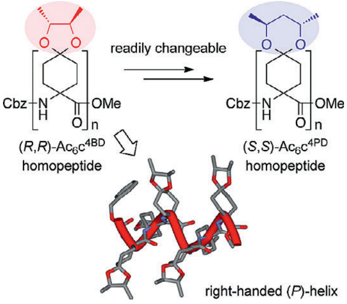


Helical Structures

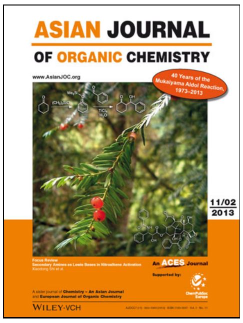
M. Oba,* N. Ishikawa, Y. Demizu, M. Kurihara, H. Suemune, M. Tanaka*

Helical Oligomers with a Changeable Chiral Acetal Moiety

(R,R)-Ac$_6$c^{4BD} homopeptides form helical structures with slight control of the helical screw sense to the right-handed form. The chiral acetal moieties in (R,R)-Ac$_6$c^{4BD} are changeable in the peptide state.



Eur. J. Org. Chem.
DOI: **10.1002/ejoc.201301450**

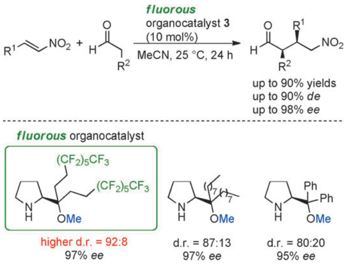


Asymmetric Michael Addition

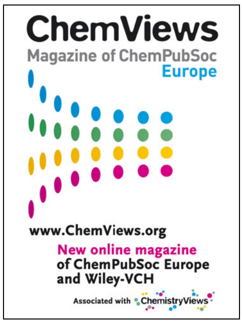
K. Funabiki,* M. Ohta, Y. Sakaida, K. Oida, Y. Kubota, M. Matsui

High Diastereoselectivity Induced by a Fluorous Alkyl Group in the Asymmetric Michael Reaction of Nitroalkenes Catalyzed by a Prolinol Methyl Ether

Fluoro-catalyst a hero: In the asymmetric Michael addition reaction of nitrostyrene with propanal, the diastereoselectivity (*syn*/*anti* = 92:8) with our fluorous prolinol methyl ether catalyst is much higher than that (*syn*/*anti* = 87–80:13–20) with nonfluorinated prolinol methyl ethers, which have two *n*-octyl groups or two phenyl groups in place of perfluorohexylethyl groups.



Asian J. Org. Chem.
DOI: **10.1002/ajoc.201300171**

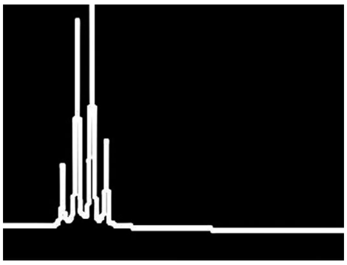


Organic Chemistry

Richard Threlfall

Classic Paper but No New Data

Richard Threlfall comments on how a research article that contained no groundbreaking research when it was first published can still be ranked number one most-read article in the *Journal of Organic Chemistry*. The article in question is "NMR Chemical Shifts of Common Laboratory Solvents as Trace Impurities" and has made the lives of many organic chemists that little bit easier.



ChemViews magazine
DOI: **10.1002/chemv.201300116**