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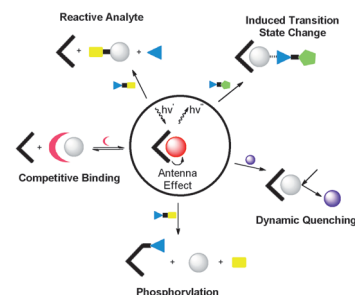


Lanthanide Sensors

G. H. Dennison,* M. R. Johnston*

Mechanistic Insights into the Luminescent Sensing of Organophosphorus Chemical Warfare Agents and Simulants Using Trivalent Lanthanide Complexes

Luminescent sensors: A short overview is presented of the developments in the sensing of organophosphorus chemical warfare agents and simulants based on modulation of trivalent lanthanide ion luminescence. From fundamental complexation studies through to incorporation into more complex systems. The Minireview examines the mechanisms of luminescence quenching reported in the literature providing a foundation on which future sensors could be based.



Chem. Eur. J.
DOI: 10.1002/chem.201406213

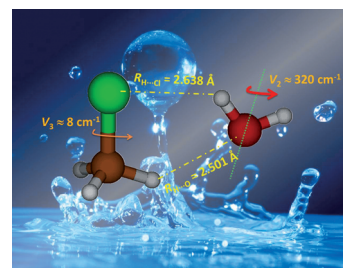


Rotational Spectroscopy

Q. Gou, L. Spada, J. C. Lòpez, J.-U. Grabow, W. Caminati*

Chloromethane–Water Adduct: Rotational Spectrum, Weak Hydrogen Bonds, and Internal Dynamics

Give it a spin: The rotational spectrum of the chloromethane–water adduct displays the nuclear quadrupole hyperfine structure due to the chlorine nucleus and dynamical features due to the large amplitude motions of the two subunits. CH₃Cl and H₂O are linked together by two (C–H...O and O–H...Cl) weak hydrogen bonds, forming a planar 5-membered ring.



Chem. Asian J.
DOI: 10.1002/asia.201500013

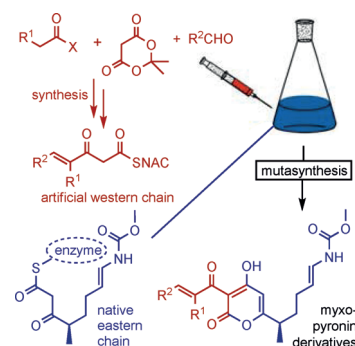


Mutasynthesis

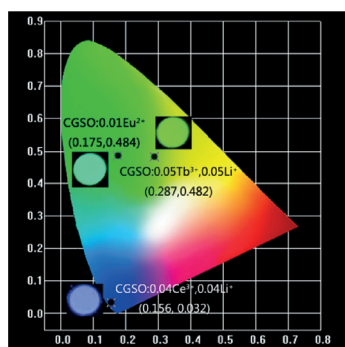
J. H. Sahner, H. Sucipto, S. C. Wenzel, M. Groh, R. W. Hartmann, R. Müller*

Advanced Mutasynthesis Studies on the Natural α -Pyrone Antibiotic Myxopyronin from *Myxococcus fulvus*

Myxing antibiotics: Mutasynthesis experiments were performed in order to explore novel opportunities to derivatize the promising antibiotic myxopyronin. The substrate specificities of the involved biosynthetic enzymes were elucidated and the results reveal several starting points to expand the space of α -pyrone antibiotics.



ChemBioChem
DOI: 10.1002/cbic.201402666



ChemPhysChem

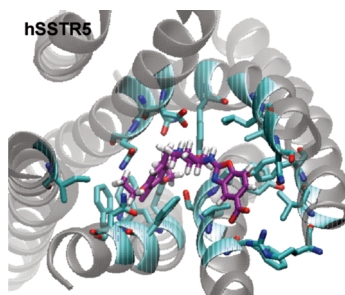
DOI: 10.1002/cphc.201402788

Light-Emitting Diodes

M. Jiao, W. Lv, W. Lü, Q. Zhao, B. Shao, H. You*

Luminescence Properties of $\text{Ca}_2\text{Ga}_2\text{SiO}_7\text{:RE}$ Phosphors for UV White-Light-Emitting Diodes

Lighting up: Eu^{2+} , Ce^{3+} , and Tb^{3+} -doped novel $\text{Ca}_2\text{Ga}_2\text{SiO}_7$ phosphors are presented with detailed structure and luminescence properties. The $\text{Ca}_2\text{Ga}_2\text{SiO}_7\text{:Eu}^{2+}$ and $\text{Ca}_2\text{Ga}_2\text{SiO}_7\text{:Ce}^{3+}$ phosphors might have potential value in serving as UV excited green and blue phosphors for white-light-emitting diodes.



ChemMedChem

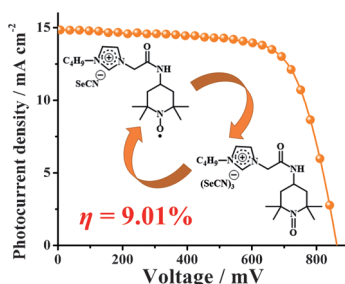
DOI: 10.1002/cmdc.201500023

Computational Chemistry

S. S. Dong, R. Abrol, W. A. Goddard, III*

The Predicted Ensemble of Low-Energy Conformations of Human Somatostatin Receptor Subtype 5 and the Binding of Antagonists

GPCR structure predicted: We predicted 3D structures and a series of small-molecule antagonist binding sites for human somatostatin receptor subtype 5 (hSSTR5), a potential pharmaceutical target for many diseases including diabetes and cancer, with features consistent with experimental findings reported in the literature. A number of mutations were suggested that could validate the predicted binding sites and potentially facilitate drug discovery.



ChemSusChem

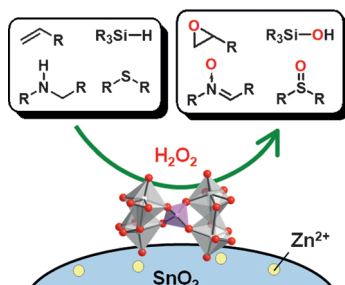
DOI: 10.1002/cssc.201403204

Solar Cells

C.-T. Li, C.-P. Lee, C.-T. Lee, S.-R. Li, S.-S. Sun,* K.-C. Ho*

Iodide-Free Ionic Liquid with Dual Redox Couples for Dye-Sensitized Solar Cells with High Open-Circuit Voltage

Split personality: The ionic-liquid mediator 1-butyl-3-[(2-oxo-2-[(2,2,6,6-tetramethylpiperidin-4-yl)amino]ethyl)-1H-imidazol-3-ium selenocyanate (ITSeCN), possesses dual redox channels of imidazolium-functionalized 2,2,6,6-tetramethylpiperidine *N*-oxyl (TEMPO) and selenocyanate, in which TEMPO and selenocyanate operate as the cationic and anionic redox couples, respectively. A dye-sensitized solar cell coupled with ITSeCN electrolyte and CoSe counter electrode reaches a high efficiency of 9.01 % with high open-circuit voltage.



ChemCatChem

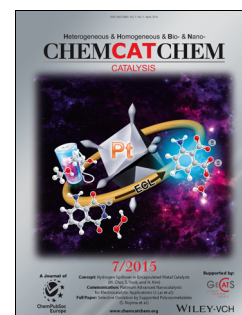
DOI: 10.1002/cctc.201402975

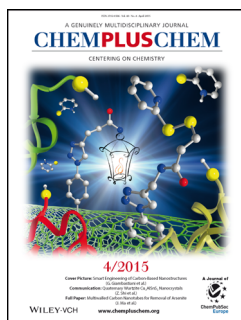
Selective Oxidation

S. Nojima, K. Kamata,* K. Suzuki, K. Yamaguchi, N. Mizuno*

Selective Oxidation with Aqueous Hydrogen Peroxide by $[\text{PO}_4\{\text{WO}(\text{O}_2)_2\}_4]^{3-}$ Supported on Zinc-Modified Tin Dioxide

Unconditional support: The supported phosphorus-containing tetranuclear peroxotungstate (PW4) catalyst $\text{PW}_4\text{-Zn}(0.8)/\text{SnO}_2$ can act as an efficient and reusable heterogeneous catalyst for the selective oxidation of various types of organic substrates such as alkenes, amines, silanes, and sulfides with aqueous H_2O_2 as the terminal oxidant. The catalytic performance of $\text{PW}_4\text{-Zn}(0.8)/\text{SnO}_2$ was much higher than those of the corresponding homogeneous analogue and the previously reported tungstate-based supported catalysts.



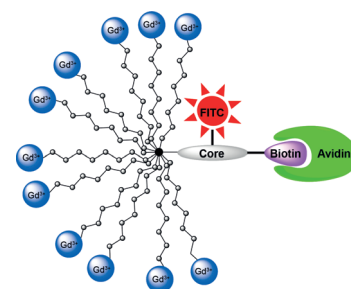


Contrast Agents

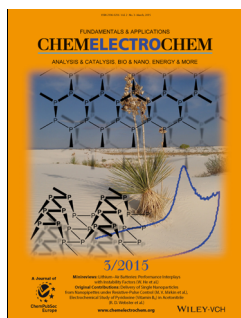
S. Gündüz, A. Power, M. E. Maier, N. K. Logothetis, G. Angelovski*

Synthesis and Characterization of a Biotinylated Multivalent Targeted Contrast Agent

Target and amplify: A nanosized target-specific bimodal and multivalent contrast agent (CA) has been prepared and characterized. This dendrimeric CA bears the ligand biotin and allows dual modal readout by means of magnetic resonance and optical imaging techniques. The demonstrated specific binding to avidin-coated agarose gels and microspheres (see figure) opens new perspectives for high-affinity and high-resolution MRI of various cellular targets.



ChemPlusChem
DOI: 10.1002/cplu.201402329

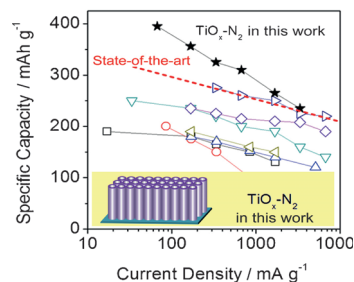


Anodes

L.-Z. Fan,* S.-S. Chi, L.-N. Wang,* W.-L. Song, M. He, L. Gu

Synthesis of TiO_x Nanotubular Arrays with Oxygen Defects as High-Performance Anodes for Lithium-Ion Batteries

Titan power: A facile electrochemical anodization for TiO_x nanotubular arrays of oxygen defects is carried out in a nitrogen atmosphere to fabricate a binder-free anode. The TiO_x nanotubular arrays with reduced impedance and oxygen defects demonstrate record-setting capacities (395, 325, and 235 mAh g^{-1} at 0.2, 1, and 10 C, respectively) for TiO_2 -based anode materials.



ChemElectroChem
DOI: 10.1002/celec.201402331

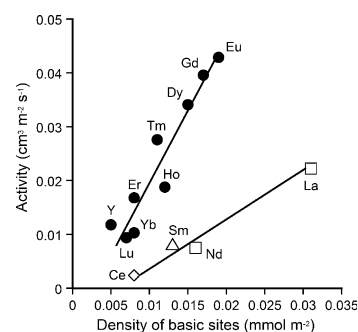


NO Decomposition

S. Tsujimoto, T. Masui, N. Imanaka*

Fundamental Aspects of Rare Earth Oxides Affecting Direct NO Decomposition Catalysis

Among four fundamental factors (crystal structure, lattice parameters, particle morphology, and the density of basic sites), crystal structure is the aspect that most significantly affects direct NO decomposition activities of rare earth oxides (REOs), and the density of basic sites ranks second in importance to crystal structure.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201403061

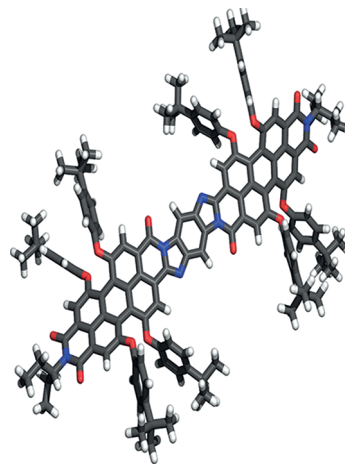


Chromophores

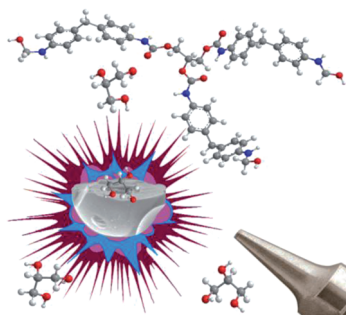
J. Schönambsgruber, A. Hirsch*

Benz-Bisimidazole-Bridged Perylenes – Linearly Expanded Chromophores

We present the synthesis and characterization of a new type of perylene chromophore. Two perylene moieties are combined to form an overall conjugated π system. Parts of the molecule could be protonated and, thereby, the absorption and fluorescence emission spectra shifted bathochromically. The electronic band gap was determined to be 1.33–1.35 eV.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201403561



ChemistryOpen

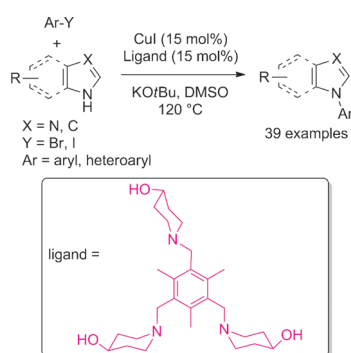
DOI: 10.1002/open.201402107

Chemical Industry

R. Ciriminna, A. Fidalgo, L. M. Ilharco,* M. Pagliaro*

Sol-Gel Microspheres Doped with Glycerol: A Structural Insight in Light of Forthcoming Applications in the Polyurethane Foam Industry

Blasting organosilica microspheres: Porous silica-based microspheres containing glycerol can be curing agents for foams. An easy and scalable sol-gel process was used to make organosilica microspheres doped with glycerol. The structure reveals glycerol is efficiently encapsulated, acts as a template, barely leaches, but is released by depressurization. These microspheres can later be used as high-quality environment-friendly solid curing agents for spray polyurethane foams.



Asian J. Org. Chem.

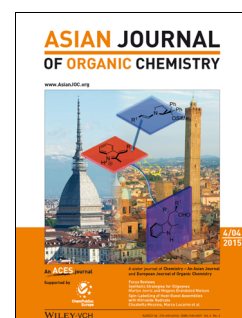
DOI: 10.1002/ajoc.201500062

Ullman reaction

P. H. Patil, J. L. Nallasivam, R. A. Fernandes*

Unimolecular 4-Hydroxypiperidines: New Ligands for Copper-Catalyzed N-Arylation

The Table of Contents text should give readers a short preview of the main theme of the research and results included in the paper to attract their attention into reading the paper in full. The Table of Contents text **should be different from the abstract** and should be no more than 450 characters including spaces. This means your Table of Contents text should be no longer than this block of text. Please add your short Table of Contents text here.



ChemViews magazine

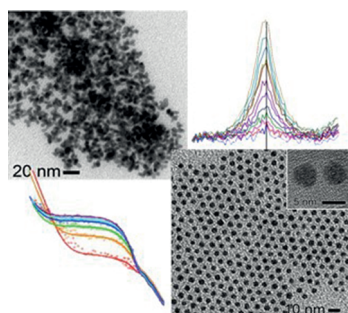
DOI: 10.1002/chemv.201500012

Soft Skills

A. Schiller, D. Mertens

Scientists Need More Advanced Skills

A good scientist is not necessarily a good leader or communicator. Soft skills are of outstanding importance in pursuing a career in public and private research. Since researchers themselves are most familiar with the particular challenges in this environment, courses from scientists for scientists can help especially well with this.



ChemNanoMat

DOI: 10.1002/cnma.201500006

Metallic Nanostructures

N. Ortiz, J. A. Hammons, S. Cheong, S. E. Skrabalak*

Monitoring Ligand-Mediated Growth and Aggregation of Metal Nanoparticles and Nanodendrites by In Situ Synchrotron Scattering Techniques

Looking in real-time at metal nanostructure formation reveals concomitant nucleation, coalescence, and growth processes that are governed by the local ligand environment of the precursor and nanostructure.

