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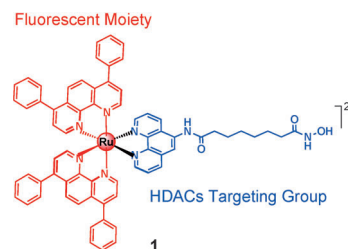


Enzyme Inhibition

R.-R. Ye, Z.-F. Ke, C.-P. Tan,* L. He, L.-N. Ji, Z.-W. Mao*

Histone-Deacetylase-Targeted Fluorescent Ruthenium(II) Polypyridyl Complexes as Potent Anticancer Agents

Bulky luminous hurdles: A series of fluorescent ruthenium(II) polypyridyl complexes targeting histone deacetylases (HDACs) as anti-cancer agents have been designed and synthesized. All of these complexes can inhibit HDAC activity. Mechanistic studies show that complex **1** (see figure) can induce apoptosis through mitochondrial dysfunction and the generation of reactive oxygen species.



Chem. Eur. J.
DOI: 10.1002/chem.201300814

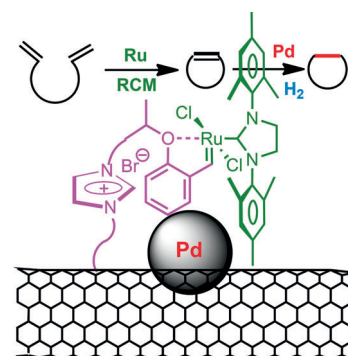


Heterogeneous Catalysis

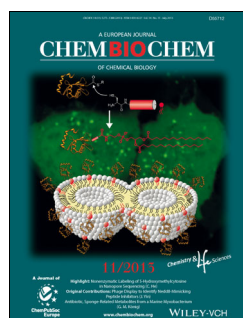
S. Lee, J. Y. Shin, S.-g. Lee*

Imidazolium-Salt-Functionalized Ionic-CNT-Supported Ru–Carbene/Palladium Nanoparticles for Recyclable Tandem Metathesis/Hydrogenation Reactions in Ionic Liquids

NP and tuck: Two different catalysts, a Ru–carbene complex and palladium nanoparticles, were immobilized onto the same imidazolium-salt-functionalized ionic CNTs. These supported dual-function catalysts showed excellent catalytic activity in tandem metathesis/hydrogenation reactions in an ionic liquid and could be recovered and reused four times. RCM = ring-closing metathesis.



Chem. Asian J.
DOI: 10.1002/asia.201300360

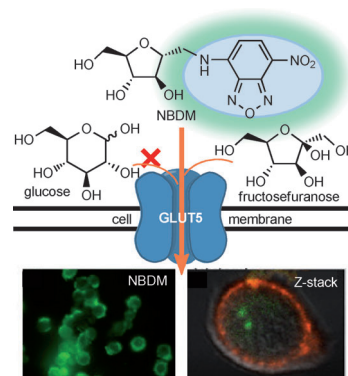


Fluorescent Probes

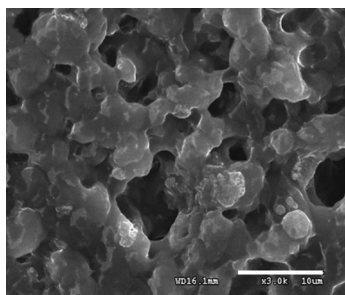
M. Tanasova, M. Plutschack, M. E. Muroski, S. J. Sturla, G. F. Strouse, D. T. McQuade*

Fluorescent THF-Based Fructose Analogue Exhibits Fructose-Dependent Uptake

Differentiating cancer cells: To answer the controversial question, “What role does fructose play in human health?”, the mechanism of fructose transport must be understood. One path to this understanding is the creation of specific probes. This work describes the synthesis and use of a 2,5-anhydro-D-mannitol-based fluorescent probe to target the fructose-specific transporters.



ChemBioChem
DOI: 10.1002/cbic.201300164



ChemPhysChem

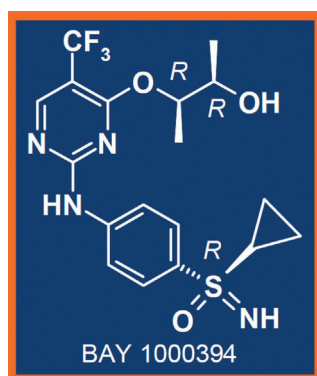
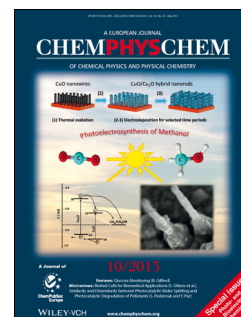
DOI: 10.1002/cphc.201300169

Biosensors

H. D. Jirimali, R. K. Nagarale, J. M. Lee, D. Saravanakumar, W. Shin*

Chitosan-Cross-linked Osmium Polymer Composites as an Efficient Platform for Electrochemical Biosensors

Coated with pores: Dropcoating of randomly cross-linked poly(4-vinylpyridine) osmium bipyridyl and chitosan composites creates a hydrophilic porous (see picture) film on the electrode surface and shows reversible electron-transfer behavior up to 200 mV s⁻¹ owing to the fast mass- and electron-transfer capabilities of the film. Oxidation of glucose by immobilization of glucose oxidase also shows enhanced electrocatalytic performance.



ChemMedChem

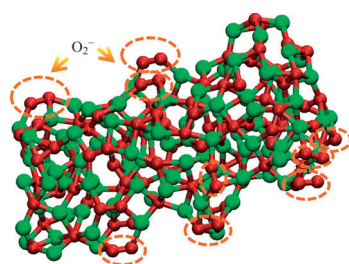
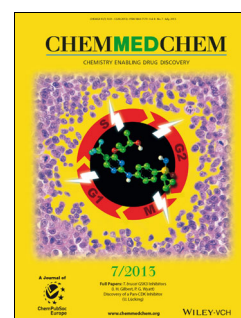
DOI: 10.1002/cmdc.201300096

Anticancer Drug Discovery

U. Lücking,* R. Jautelat, M. Krüger, T. Brumby, P. Lienau, M. Schäfer, H. Briem, J. Schulze, A. Hillisch, A. Reichel, A. M. Wengner, G. Siemeister

The Lab Oddity Prevails: Discovery of Pan-CDK Inhibitor (*R*)-*S*-Cyclopropyl-*S*-(4-[[4-[[[(1*R*,2*R*)-2-hydroxy-1-methylpropyl]oxy]-5-(trifluoromethyl)pyrimidin-2-yl]amino]phenyl)sulfoximine (BAY 1000394) for the Treatment of Cancer

The unconventional proposal to introduce a sulfoximine group into a lead series of aminopyrimidine pan-CDK inhibitors was initially met with much skepticism. However, it was the introduction of the sulfoximine group that finally allowed the project problems to be overcome, culminating in the identification of BAY 1000394, a nanomolar pan-CDK inhibitor that is currently being investigated in phase I clinical trials.



ChemSusChem

DOI: 10.1002/cssc.201300223

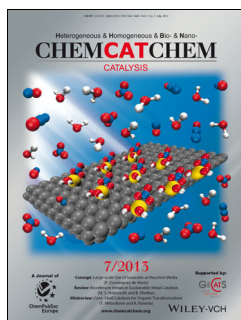
Lithium Batteries

J. Lu, H.-J. Jung, K. C. Lau, Z. Zhang, J. A. Schlueter, P. Du, R. S. Assary, J. Greeley, G. A. Ferguson, H.-H. Wang, J. Hassoun, H. Iddir, J. Zhou, L. Zuin, Y. Hu, Y.-K. Sun,* B. Scrosati, L. A. Curtiss,* K. Amine*

Magnetism in Lithium–Oxygen Discharge Product

In a spin: The major discharge product formed in the lithium–oxygen cell, lithium peroxide, exhibits a magnetic moment. Density functional calculations predict that “superoxide-like” surface oxygen groups with unpaired electrons exist on nanoparticle surfaces, consistent with magnetic measurements of discharged lithium peroxide products. The “superoxide-like” surface oxygen groups with spin can play a role in the reversible formation and decomposition of lithium peroxide as well as electrolyte molecules.



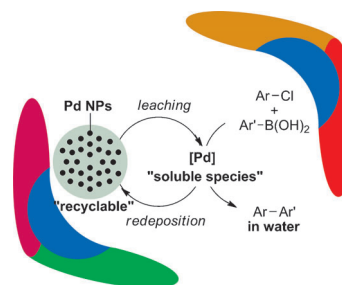


Catalysis in Water

A. Ohtaka,* E. Sakaguchi, T. Yamaguchi, G. Hamasaka, Y. Uozumi, O. Shimomura, R. Nomura

A Recyclable “Boomerang” Linear Polystyrene-Stabilized Pd Nanoparticles for the Suzuki Coupling Reaction of Aryl Chlorides in Water

Boomerang! It keeps coming back! The reversible transfer of Pd species between water (reaction medium) and polystyrene (polymer support) was confirmed for Suzuki coupling reaction of aryl chloride with arylboronic acid in the presence of tetrabutylammonium bromide. No clear change in particle size was observed by TEM after re-stabilization of the Pd species on linear polystyrene.



ChemCatChem
DOI: 10.1002/cctc.201300204

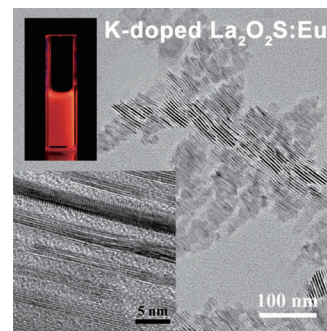


Lanthanide Nanocrystals

T. Zhang, J. Gu, Y. Ding, Y.-W. Zhang,* C.-H. Yan*

Experimental and Theoretical Studies on the Controlled Synthesis of Alkali-Metal-Doped Rare-Earth Oxsulfide Nanocrystals

Making a difference: The doping alkali metal (Li, Na, K) was demonstrated to affect the size, morphology, composition, crystallinity, and luminescence properties of $\text{RE}_2\text{O}_2\text{S}$ (RE = rare earth) ultrathin nanoplates (see figure) synthesized through thermolysis of metal acetylacetonates in hot surfactant in the presence of sublimed sulfur, as confirmed by both controlled experiments and first-principles calculations.



ChemPlusChem
DOI: 10.1002/cplu.201300092

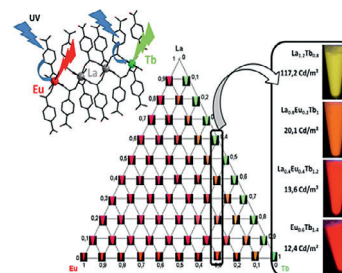


Luminescence Tuning

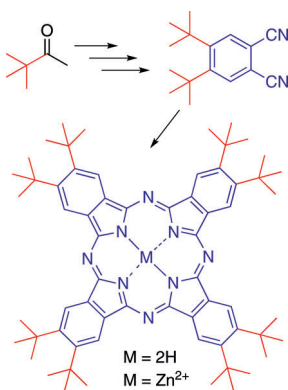
V. Haquin, M. Etienne, C. Daiguebonne, S. Freslon, G. Calvez, K. Bernot, L. Le Pollès,* S. E. Ashbrook, M. R. Mitchell, J.-C. Bünzli,* S. V. Eliseeva, O. Guillou*

Color and Brightness Tuning in Heteronuclear Lanthanide Terephthalate Coordination Polymers

Heteronuclear lanthanide coordination polymers are synthesized and characterized. Solid-state NMR spectroscopy confirms the hypothesis of randomly distributed lanthanide ions. The spectroscopic and colorimetric properties are investigated. The resulting data demonstrates that this series of compounds presents highly tunable luminescence properties.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201300381



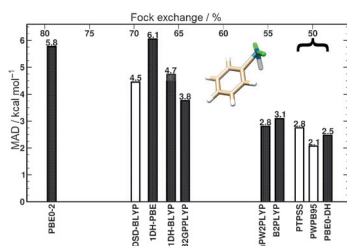
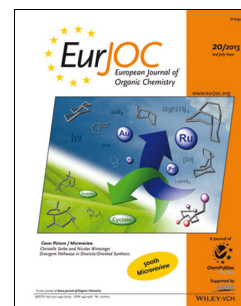
Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201300415

Phthalocyanines

N. R. S. Gobo, T. J. Brocksom, J. Zukerman-Schpector, K. T. de Oliveira*

Synthesis of an Octa-*tert*-butylphthalocyanine: A Low-Aggregating and Photochemically Stable Photosensitizer

The synthesis of a new octa-*tert*-butylphthalocyanine is described. First, the 4,5-di-*tert*-butylphthalonitrile building block was synthesized in a six-step approach, in which the last step is a three reaction domino sequence. Then, this phthalonitrile was cyclotetramerized to furnish a new phthalocyanine dye, which presented no aggregation in solution and good photophysical properties.



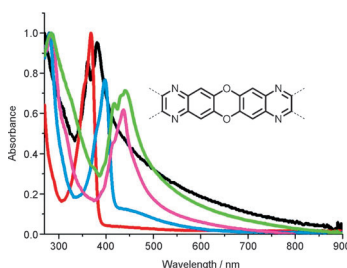
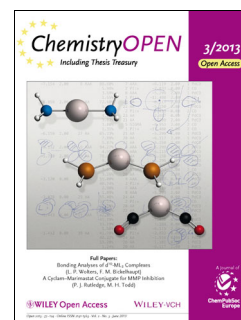
ChemistryOpen
DOI: 10.1002/open.201300012

Density Functional Theory

M. Steinmetz, S. Grimme*

Benchmark Study of the Performance of Density Functional Theory for Bond Activations with (Ni,Pd)-Based Transition-Metal Catalysts

Catch 23: An extensive benchmark for evaluating modern density functionals in transition-metal-catalyzed bond-activation reactions is presented. The study focuses on the class of sophisticated double-hybrid functionals and finds dispersion-corrected PWPB95 and PBE0 as the most robust and well-performing methods.



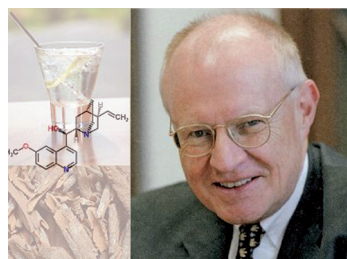
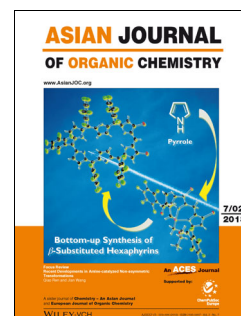
Asian J. Org. Chem.
DOI: 10.1002/ajoc.201300095

Dioxapentacenes

G. Li, G. Long, W. Chen, F. Hu, Y. Chen, Q. Zhang*

A Concise Method for Synthesizing 1,4,8,11-Tetraaza-6,13-dioxapentacene Derivatives

Give me five: A concise method for preparing five tetraazadioxacene derivatives is reported. The as-prepared compounds have interesting photophysical and electrochemical properties. Cyclic voltammetry measurements demonstrate that two of the compounds have less negative reduction potentials, which is inconsistent with the results of DFT calculations, and both might be promising for use as active elements in organic electronics.



ChemViews magazine
DOI: 10.1002/chemv.201300070

Quinine Production

K. Roth and S. Streller

From Pharmacy to the Pub – A Bark Conquers the World: Part 2

Quinine from cinchona bark is used to treat malaria and to make tonic water and Bitter Lemon. The only European producer of quinine, Buchler & Co., Germany, was established in 1858 by Herman Buchler. His great-grandson and current CEO of the firm, Thomas Buchler, discusses how quinine is extracted and the ups and downs of sourcing the bark from geologically or politically unstable areas.

