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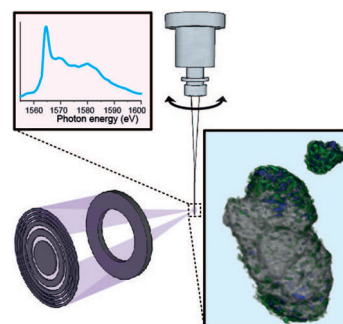


Zeolites

H. E. van der Bij, F. Meirer, S. Kalirai, J. Wang, B. M. Weckhuysen*

Hexane Cracking over Steamed Phosphated Zeolite H-ZSM-5: Promotional Effect on Catalyst Performance and Stability

Application of microscopy, spectroscopy and tomography techniques in the study of phosphated zeolite H-ZSM-5 has revealed that phosphorus-framework aluminum interactions contribute to the hydrothermal stabilization of the zeolite lattice (see figure). Decrease in dimensions of internal framework cavities, due to the presence of phosphates, improves propylene selectivity during *n*-hexane cracking.



Chem. Eur. J.
DOI: 10.1002/chem.201404924

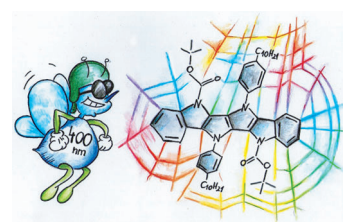


Fluorophores

A. Janiga, M. Krzeszewski, D. T. Gryko*

Diindolo[2,3-*b*:2',3'-*f*]pyrrolo[3,2-*b*]pyrroles as Electron-Rich, Ladder-Type Fluorophores: Synthesis and Optical Properties

Feeling a little blue: Unprecedented heterocycles containing four linearly fused pyrrole moieties are synthesized in three steps from commercially available materials. All these π -expanded pyrrolo[3,2-*b*]pyrroles display blue emission, and the fluorescence quantum yields are typically over 70%. The is located at -4.6 to -5.1 eV.



Chem. Asian J.
DOI: 10.1002/asia.201402925

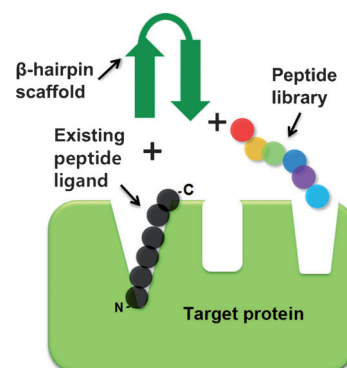


Protein-Targeting Peptides

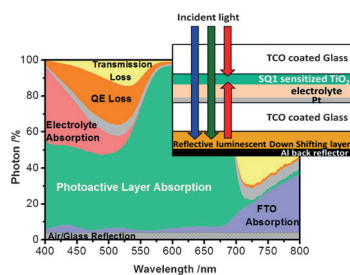
S. Kim, D. Kim, Y. Lee, H. Jeon, B.-H. Lee, S. Jon*

Conversion of Low-Affinity Peptides to High-Affinity Peptide Binders by Using a β -Hairpin Scaffold-Assisted Approach

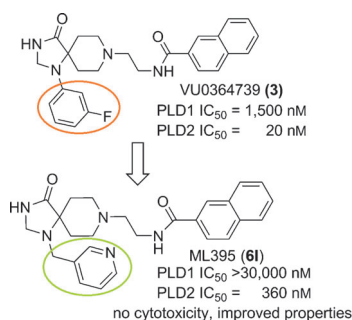
Hetero-dimerization by a scaffold. A robust β -hairpin peptide scaffold enables the generation of high-affinity peptides from parental low-affinity ligands coupled to random amino acids. Improvements of four orders of magnitude were demonstrated for binding to the H1 histone.



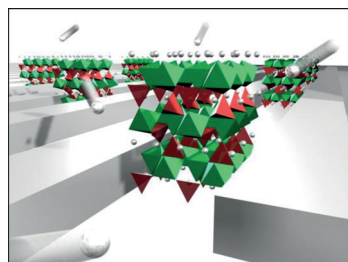
ChemBioChem
DOI: 10.1002/cbic.201402450



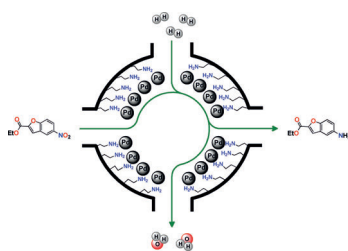
ChemPhysChem
DOI: 10.1002/cphc.201402505



ChemMedChem
DOI: 10.1002/cmdc.201402333



ChemSusChem
DOI: 10.1002/cssc.201402448



ChemCatChem
DOI: 10.1002/cctc.201402488

Solar Cells

Z. Hosseini, E. W.-G. Diau, K. Mehrany, N. Taghavinia*

Assessment of Luminescent Downshifting Layers for the Improvement of Light-Harvesting Efficiency in Dye-Sensitized Solar Cells

On reflection: Luminescent downshifting is a photon management technique that can be used in transmissive (front of the cell) or reflective configurations (back of the cell; see picture, QE = quantum efficiency). Optical loss analysis of the two configurations proves the reflective configuration to be more effective.

Antiviral Agents

M. C. O'Reilly, T. H. Oguin, III, S. A. Scott, P. G. Thomas, C. W. Locuson, R. D. Morrison, J. S. Daniels, H. A. Brown, C. W. Lindsley*

Discovery of a Highly Selective PLD2 Inhibitor (ML395): A New Probe with Improved Physicochemical Properties and Broad-Spectrum Antiviral Activity against Influenza Strains

PLD2, viral killer! Focused optimization efforts led to the development of ML395, a potent ($IC_{50} = 360$ nM) and > 80-fold selective phospholipase D2 (PLD2) inhibitor with improved physicochemical properties, no cytotoxicity, high CNS penetration and a favorable DMPK profile. The PLD2 inhibitors displayed *pan*-anti-influenza activity across various influenza strains (H1N1, H3N2, H5N1, H7N9).

Li-Ion Batteries

S. Choi, T.-H. Kim, J.-I. Lee, J. Kim, H.-K. Song,* S. Park*

General Approach for High-Power Li-Ion Batteries: Multiscale Lithographic Patterning of Electrodes

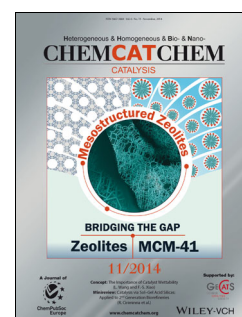
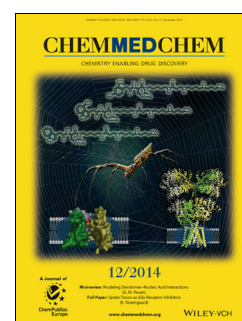
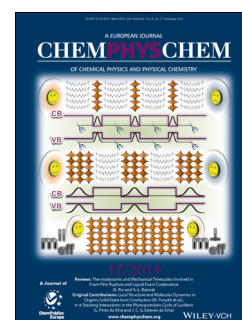
Mix and pack of Patterned Si: $LiFePO_4$ cathode and $Li_4Ti_5O_{12}$ anode materials are combined with multiscale patterned current collectors to make high-performance Li-ion batteries. The patterned Si electrodes show significantly enhanced electrochemical performances, including a high rate capability and highly stable cycling. This simple strategy can be extended to other cathode and anode materials for practical Li-ion battery applications.

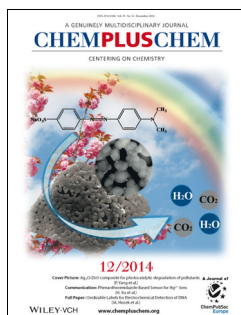
Selective Hydrogenation

O. Verho,* K. P. J. Gustafson, A. Nagendiran, C.-W. Tai, J.-E. Bäckvall*

Mild and Selective Hydrogenation of Nitro Compounds using Palladium Nanoparticles Supported on Amino-Functionalized Mesocellular Foam

Under green-chemistry conditions: The utilization of a heterogeneous catalyst comprised of Pd nanoparticles supported on aminopropyl-functionalized siliceous mesocellular foam (Pd^0 -AmP-MCF) is presented for the selective hydrogenation of a variety of nitro compounds to the corresponding amines under mild conditions. The catalyst exhibits broad substrate scope, high stability, and low metal leaching, and can be easily integrated into a larger scale continuous-flow hydrogenation reactor.



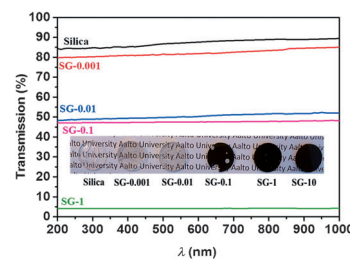


Adsorption

V. K. Singh,* M. E. Cura, X. Liu, L.-S. Johansson, Y. Ge, S.-P. Hannula

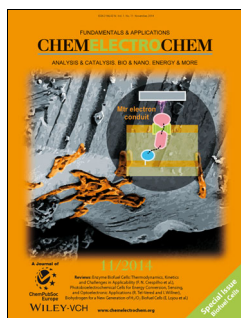
Tuning the Mechanical and Adsorption Properties of Silica with Graphene Oxide

Get set, GO! Silica/graphene oxide (GO) composite powders of various compositions have been synthesized and compacted by spark plasma sintering. The optical and mechanical properties of silica were tuned by varying the GO content (see figure). Improved fracture toughness occurred with increasing amount of GO. Powders were also applied to Cu removal from water; the adsorption properties of silica were improved with a high concentration of GO.



ChemPlusChem

DOI: 10.1002/cplu.201402138

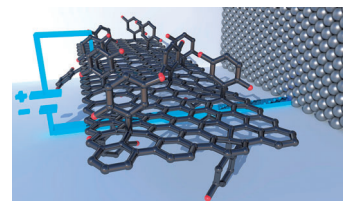


Electrode Materials

K. Pirnat, J. Bitenc, I. Jerman, R. Dominko, B. Genorio*

Redox-Active Functionalized Graphene Nanoribbons as Electrode Material for Li-Ion Batteries

Multipurpose ribbon: Redox-active organic molecules attached to the graphene nanoribbons produce free-standing cathode material for Li-ion batteries with improved electrochemical performance.



ChemElectroChem

DOI: 10.1002/celec.201402234

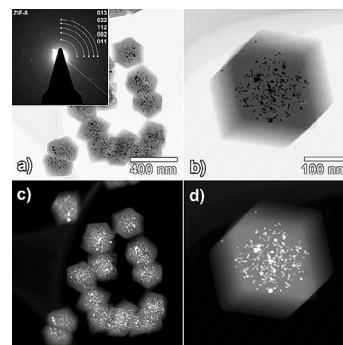


Nanoparticles

C. Rösler, D. Esken, C. Wiktor, H. Kobayashi, T. Yamamoto, S. Matsumura, H. Kitagawa,* R. A. Fischer*

Encapsulation of Bimetallic Nanoparticles into a Metal–Organic Framework: Preparation and Microstructure Characterization of Pd/Au@ZIF-8

The imidazolate-based framework ZIF-8 was loaded with catalytically active mono- and bimetallic nanoparticles (Au, Pd, Pd/Au) by a seed-and-growth concept. Characterization of the synthesized materials was carried out by powder X-ray diffraction, N₂ sorption, and advanced transmission electron microscopy. The catalytic activity towards aerobic alcohol oxidations was studied.



Eur. J. Inorg. Chem.

DOI: 10.1002/ejic.201402409

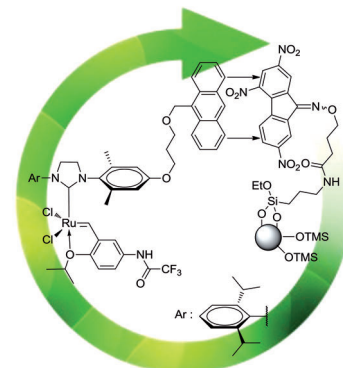


Catalyst Immobilization

H. Nasrallah, A. Pagnoux, D. Didier, C. Magnier, L. Toupet, R. Guillot, C. Crévisy,* M. Mauduit,* E. Schulz*

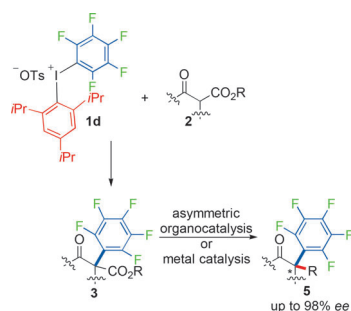
Immobilization of an Anthracene-Tagged Ruthenium Complex on a 2,4,7-Trinitrofluoren-9-one-Grafted Silica: Efficiency and Recyclability in Olefin Metathesis Reactions

An anthracene group is linked to the N-heterocyclic carbene moiety of a M⁷¹-SIPr-type Ru complex. The tagged complex thus obtained is immobilized by charge-transfer interactions to a 2,4,7-trinitrofluoren-9-one-grafted passivated silica. The immobilized complex is an efficient olefin metathesis catalyst and can be reused five times in a multisubstrate olefin metathesis procedure.



Eur. J. Org. Chem.

DOI: 10.1002/ejoc.201403194



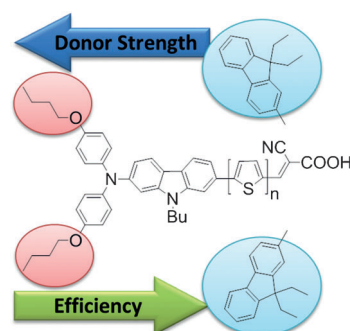
ChemistryOpen
DOI: 10.1002/open.201402045

Enantioselective Synthesis

K. Matsuzaki, K. Okuyama, E. Tokunaga, M. Shiro, N. Shibata*

Sterically Demanding Unsymmetrical Diaryl- λ^3 -iodanes for Electrophilic Pentafluorophenylation and an Approach to α -Pentafluorophenyl Carbonyl Compounds with an All-Carbon Stereocenter

Bulky C_6F_5 ! Sterically demanding unsymmetrical pentafluorophenyl-triisopropylphenyl- λ^3 -iodane **1d** was developed as an effective reagent for the electrophilic pentafluorophenylation of β -keto esters and β -keto amide **2**. The resulting α -pentafluorophenylated compounds **3** with a quaternary carbon center can be converted into α -pentafluorophenyl ketones in high yields and enantioselectivities.



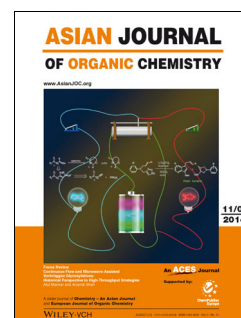
Asian J. Org. Chem.
DOI: 10.1002/ajoc.201402235

Dye-Sensitized Solar Cells

A. Venkateswararao, K. R. Justin Thomas,* C.-P. Lee, K.-C. Ho

Effect of Auxiliary Chromophores on the Optical, Electrochemical, and Photovoltaic Properties of Carbazole-Based Dyes

Organic dyes containing 2-diphenylaminocarbazole donors and auxiliary chromophores at the diphenylamine moiety have been synthesized and characterized. The nature of the chromophores on diphenylamine unit alters the light-harvesting properties and HOMO/LUMO energies of the dyes. A dye with fluorene in the donor unit and thiophene in the π -conjugation pathway is the most efficient and has the highest photocurrent density in the series.



ChemViews magazine
DOI: 10.1002/chemv.201400104

Electrostatic Interactions

K. Lawrence

Non-Invasive Probing of Nanoparticle Electrostatics

In "Behind the Science", *ChemViews Magazine* gives readers a peek behind the scenes of a research article. This time, Kate Lawrence, Associate Editor for *ChemElectroChem*, talks to Richard Compton about his article on non-invasive probing of nanoparticle electrostatics, an issue at the heart of many energy storage and transformation technologies.

