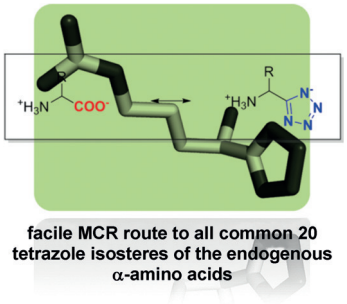
On these pages, we feature a selection of the excellent work that has recently been published in our sister journals. If you are reading these pages on a computer, click on any of the items to read the full article. Otherwise please see the DOIs for easy online access through Wiley Online Library.

Synthetic Methods

T. Zhao, K. Kurpiewska, J. Kalinowska-Tłuścik, E. Herdtweck, A. Dömling*

α-Amino Acid-Isosteric α-Amino Tetrazoles

The good, the bad, and the Ugi: 20 natural proteinogenic and 4 other α-amino acid-isosteric α-amino tetrazoles have been synthesized under benign conditions according to a concise and efficient isocyanide-based multicomponent synthetic route. Several previously unknown ones are firstly synthesized and reported.



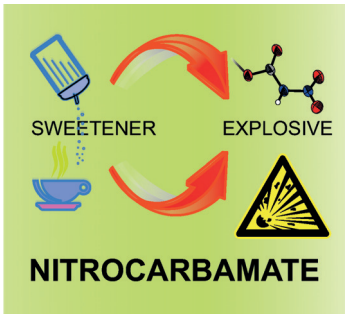
Chem. Eur. J.
DOI: **10.1002/chem.201504520**

Energetic Materials

Q. J. Axthammer, T. M. Klapötke,* B. Krumm

Efficient Synthesis of Primary Nitrocarbamates of Sugar Alcohols: From Food to Energetic Materials

Burst of energy from sugar: The first nitrocarbamates derived from polyalcohols are synthesized and discussed. The precursor sugar alcohols with different chain lengths and acyclic and cyclic structures are easily available from renewable biomass used for food and cosmetic industry. A two-step procedure results in the formation of nitrocarbamate derivatives. Their energetic properties are in the range of the well-known explosive nitrate ester PETN.



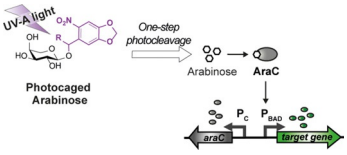
Chem. Asian J.
DOI: **10.1002/asia.201501241**

Optogenetics

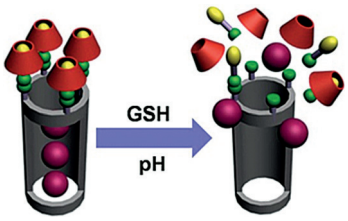
D. Binder, C. Bier, A. Grünberger, D. Drobietz, J. Hage-Hülsmann, G. Wandrey, J. Büchs, D. Kohlheyer, A. Loeschcke, W. Wiechert, K.-E. Jaeger, J. Pietruszka, T. Drepper*

Photocaged Arabinose: A Novel Optogenetic Switch for Rapid and Gradual Control of Microbial Gene Expression

Illuminating expression: Photocaged arabinose represents the first one-step photocleavable bacterial inducer that allows fast, accurate, and homogeneous control of target gene expression. The novel phototrigger is independent of the target gene or secondary cellular reactions and thus suited for synthetic bio(techno)logy and single cell applications.



ChemBioChem
DOI: **10.1002/cbic.201500609**



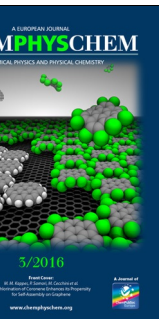
Smart Materials

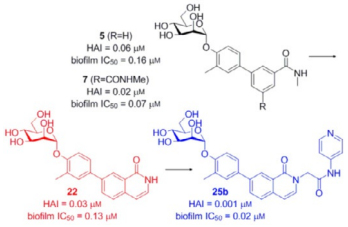
T. Zhou, N. Song, S.-H. Xu, B. Dong, Y.-W. Yang*

Dual-Responsive Mechanized Mesoporous Silica Nanoparticles Based on Sulfonatocalixarene Supramolecular Switches

Dual-responsive calix-valves: Mesoporous silica nanoparticles are surface-functionalized with cleavable disulfide bond-containing alkylammonium stalks that are then covered by water-soluble sulfonatocalixarenes. The smart gated nanomaterials show a clear L-glutathione and pH dual-stimuli responsiveness.

ChemPhysChem
DOI: **10.1002/cphc.201500726**





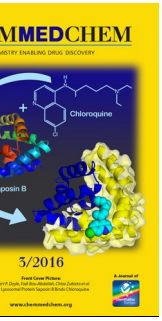
Antibacterial Agents

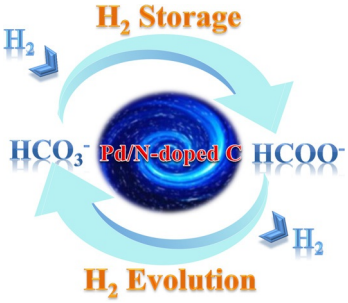
C. Jarvis, Z. Han, V. Kalas, R. Klein, J. S. Pinkner, B. Ford, J. Binkley, C. K. Cusumano, Z. Cusumano, L. Mydock-McGrane, S. J. Hultgren,* J. W. Janetka*

Antivirulence Isoquinolone Mannosides: Optimization of the Biaryl Aglycone for FimH Lectin Binding Affinity and Efficacy in the Treatment of Chronic UTI

Biofilm blockers: Cyclizing the aglycone amide nitrogen of biphenyl mannosides **5** and **7** onto the B-ring generates fused heterocyclic biaryl mannoside **22** with enhanced potency as determined by a bacteria-mediated hemagglutination assay. N-Substitution of **22** on the isoquinolone produced a unique subseries of mannose-based FimH antagonists with improved activity. We discovered pyridyl-substituted mannoside **25 b**, which prevents biofilm formation by uropathogenic *E. coli* with unprecedented potency.

ChemMedChem
DOI: **10.1002/cmdc.201600006**





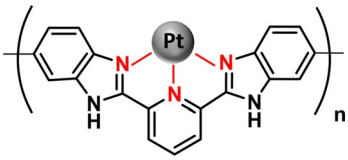
Hydrogen Storage

F. Wang, J. Xu, X. Shao, X. Su, Y. Huang,* T. Zhang*

Palladium on Nitrogen-Doped Mesoporous Carbon: A Bifunctional Catalyst for Formate-Based, Carbon-Neutral Hydrogen Storage

What's in store? A reversible formate-based carbon-neutral hydrogen storage system is developed, based on a newly prepared catalyst. The catalyst comprises palladium nanoparticles supported on nitrogen-doped mesoporous carbon. The doped nitrogen functionalities and the well-dispersed and electron-enriched palladium nanoparticles play a synergistic role in promoting the bicarbonate/formate redox equilibrium.

ChemSusChem
DOI: **10.1002/cssc.201501376**



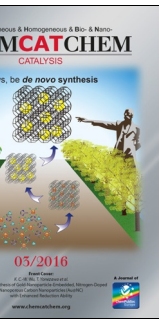
Fuel Cell Catalyst

Z. Yang, T. Fujigaya,* N. Nakashima*

NaOH-Aided Platinum Nanoparticle Size Regulation on Polybenzimidazole-Wrapped Carbon Nanotubes for Use as Non-Humidified Polymer Electrolyte Fuel Cell Catalyst

Basic control: A method to control the size of platinum nanoparticles (Pt-NPs) on poly[2,2′-(2,6-pyridine)-5,5′-bibenzimidazole] (PyPBI)-wrapped pristine multi-walled carbon nanotubes (MWNTs) without changing the loading amount is described. The technique uses increasing concentrations of sodium hydroxide to decrease the Pt-NP size from 3.8 ± 0.4 to 1.7 ± 0.1 nm. The highest oxygen reduction reaction activity and power density occurred when the Pt-NP diameter was 3.1 ± 0.3 nm.

ChemCatChem
DOI: **10.1002/cctc.201501089**

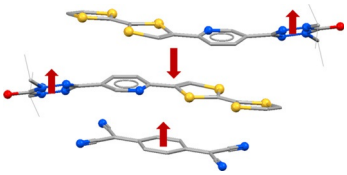


Spintronics

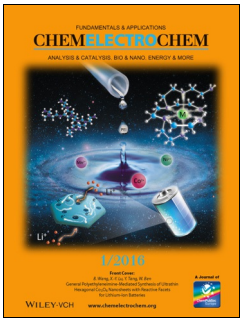
S. Venneri, J. Wilson, J. M. Rawson, M. Pilkington*

Structural, Magnetic and DFT studies on a Charge-Transfer Salt of a Tetrathiafulvalenepyridyl-(1,5-diisopropyl) verdazyl Diradical Cation

Give and take: Studies of the first charge-transfer complex of a tetrathiafulvalene (TTF)–pyridylverdazyl diradical cation reveal the coparallel alignment of verdazyl spins through electron hopping in the mixed-valence diradical cation through antiferromagnetic exchange between the delocalized TTF-based electron and the localized verdazyl $S = {}^1/_2$ spins (see figure).



ChemPlusChem
DOI: **10.1002/cplu.201500309**

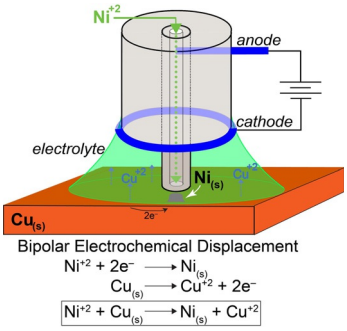


Electrodeposition

T. M. Braun, D. T. Schwartz*

Bipolar Electrochemical Displacement: A New Phenomenon with Implications for Self-Limiting Materials Patterning

BEDs are burning: Bipolar electrochemical displacement takes advantage of the spatially segregated, equal and opposite, nature of bipolar electrochemistry to enable direct-write electrodeposition patterning on a conducting substrate with no electrical connections.



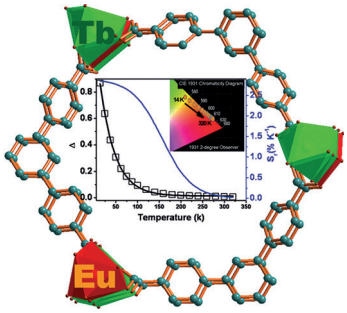
ChemElectroChem
DOI: **10.1002/celc.201500356**

Metal–Organic Frameworks

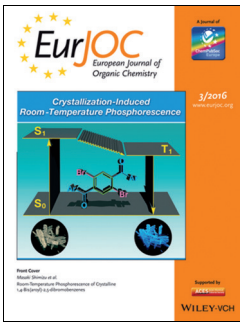
D. Ananias,* C. D. S. Brites, L. D. Carlos, J. Rocha*

Cryogenic Nanothermometer Based on the MIL-103(Tb,Eu) Metal–Organic Framework

Nanoparticles of MIL-103 doped with Tb^{3+} and Eu^{3+} are among the best metal–organic framework luminescent (ratiometric) thermometers functioning in the cryogenic range (< 100 K), with a relative thermal sensitivity of 2.85 % K^{-1} at 14 K. Being also microporous, these lanthanide-bearing MIL-103 nanoparticles are, potentially, an excellent multisensing platform.



Eur. J. Inorg. Chem.
DOI: **10.1002/ejic.201501195**

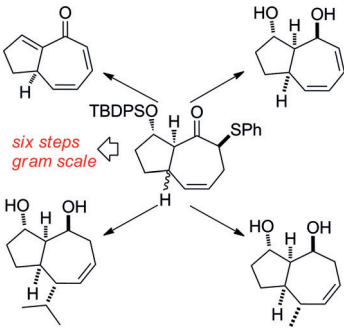


Sesquiterpene Synthesis

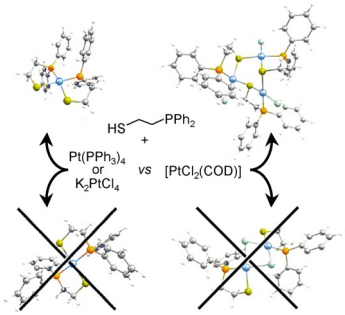
C. Serba, R. Lagoutte, N. Winssinger*

Rapid and Scalable Synthesis of *cis*-Fused Guaiane-Type Sesquiterpenes

A rapid entry into the *cis*-fused bicyclic guaiane framework and elaboration into sesquiterpene-related compounds is reported. The formation of the *cis*-fused bicyclic system benefits from a stereoconvergent sulfoxide elimination.



Eur. J. Org. Chem.
DOI: **10.1002/ejoc.201501277**



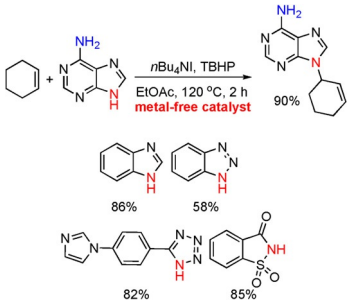
ChemistryOpen
DOI: **10.1002/open.201500136**

Computational Chemistry

J. Duran, A. Polo,* J. Real, J. Benet-Buchholz, M. Solà, A. Poater*

Structural Preferences in Phosphanylthiolato Platinum(II) Complexes

Proving platinum preferences: Transition-metal complexes of heterotopic phosphanylthiolato ligands are useful in various reactions which depend on the stereochemistry of the complexes. Homoleptic platinum(II) complex with 2-(diphenylphosphanyl)ethanethiolato ligand shows preference for the *cis* geometry, while the mixed chlorocomplex shows a sulfur-bridging edge-sharing cyclic trinuclear structure.



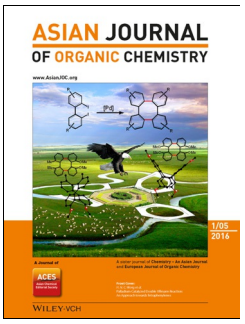
Asian J. Org. Chem.
DOI: **10.1002/ajoc.201500517**

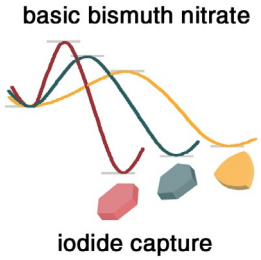
Allylic N-Heterocycles

Y. Lv,* K. Sun, T. Wang, Y. Wu, G. Li, W. Pu, S. Mao

Intermolecular C–N Cross-Coupling Reactions Catalyzed by Tetra-*n*-butylammonium Iodide: Synthesis of Allylic *N*-Heterocycles

'tis I: A practical and simple tetra-*n*-butylammonium iodide (nBu$_4$NI)-catalyzed C–N bond formation for the synthesis of allylic *N*-heterocycles was achieved under metal-free conditions. The reaction is applicable to the coupling of a range of allylic hydrocarbons with biologically active purines, benzimidazoles, benzotriazoles, a tetrazole, and saccharin.





ChemNanoMat
DOI: **10.1002/cnma.201500179**

Water Treatment

C. H. B. Ng, W. Y. Fan*

Shape-Controlled Preparation of Basic Bismuth Nitrate Crystals with High Iodide-Removal Capacities

Basic bismuth nitrate crystals in the form of Reuleaux triangles, hexagons, and deformed hexagon disks were prepared. Studies of the crystals for the removal of iodide revealed high removal capacities, fast capture kinetics, good selectivity, and capture irreversibility, thus showing good promise as agents for radioactive iodine removal.

ChemViews magazine
DOI: **10.1002/chemv.201600002**

Popular Science

M. Müller

Have Fun with Science

Sam Kean is a popular science writer and author of the bestseller "The Disappearing Spoon", which covers every element on the periodic table. In a video interview, he explains how entertaining and full of interesting stories science can be - if you just know where to look and how to tell them.