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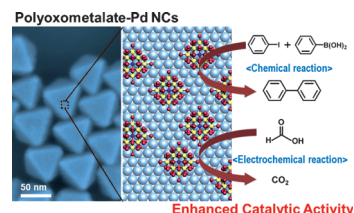


Pd Nanocrystals

D. Kim, J. H. Seog, M. Kim, M. Yang, E. Gillette, S. B. Lee,*
S. W. Han*

Polyoxometalate-Mediated One-Pot Synthesis of Pd Nanocrystals with Controlled Morphologies for Efficient Chemical and Electrochemical Catalysis

Single-crystalline Pd nanocrystals with controlled shapes and sizes were synthesized by a polyoxometalate-mediated one-pot aqueous synthesis method. The prepared Pd nanocrystals exhibited enhanced catalytic properties toward electrochemical and chemical reactions (see figure).



Chem. Eur. J.
DOI: 10.1002/chem.201406400

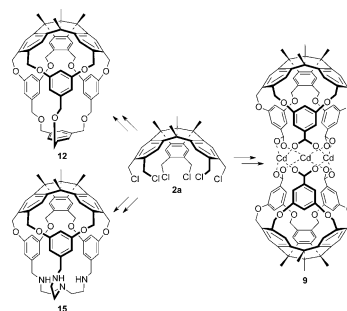


Cage Compounds

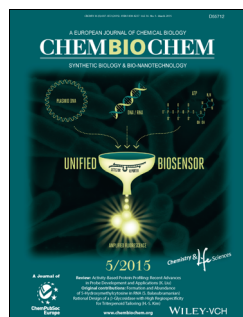
J. Wei, Z.-M. Li, X.-J. Jin, X.-J. Yao, X.-P. Cao,* H.-F. Chow,* D. Kuck*

Versatile Syntheses of Hemi-Cryptophanes and a Metallo-Cryptophane from a Hexa-Functionalized C_{3v} -Symmetrical Tribenzotriquinacene (TBTQ) Derivative

Geometry matters! Three different cage molecules **9**, **12** and **15**, were prepared from the same hexafunctional concave-shape tribenzotriquinacene (TBTQ) derivative **2a** via different types of capping reactions involving various TBTQ-based cavitands. The results demonstrate that the rigid geometry of the TBTQ skeleton renders them highly promising candidates for the construction of extended supramolecular complexes or assemblies.



Chem. Asian J.
DOI: 10.1002/asia.201403438

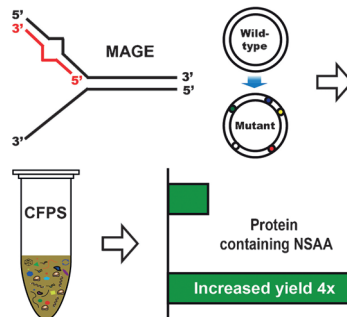


Synthetic Biology

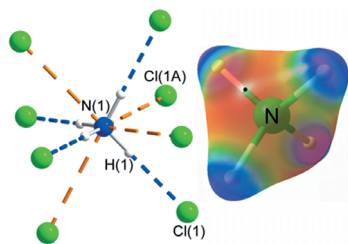
S. H. Hong, Y.-C. Kwon, R. W. Martin, B. J. D. Soye, A. M. de Paz,
K. N. Swonger, I. Ntai, N. L. Kelleher, M. C. Jewett*

Improving Cell-Free Protein Synthesis through Genome Engineering of *Escherichia coli* Lacking Release Factor 1

Cell-free synthetic biology: We have developed a high-yielding, cell-free protein synthesis (CFPS) platform for site-specific incorporation of non-standard amino acids (NSAAs) into proteins. Multiplex automated genome engineering (MAGE) was used to construct RF1-deficient strains with improved performance, thereby opening new avenues for using cell-free synthetic biology for synthetic chemistry.



ChemBioChem
DOI: 10.1002/cbic.201402708



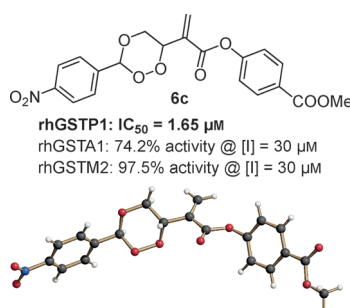
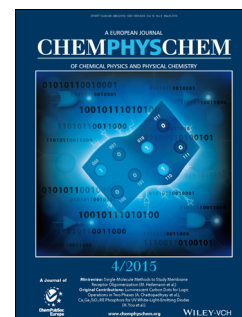
ChemPhysChem
DOI: 10.1002/cphc.201402673

Chemical Binding

Y. V. Nelyubina,* A. A. Korlyukov, K. A. Lyssenko

Experimental Charge Density Evidence for Pnictogen Bonding in a Crystal of Ammonium Chloride

The ties that bind: Chemical binding in crystalline ammonium chloride was studied by using a topological analysis of electron density function derived from high-resolution X-ray diffraction. Supported by periodic quantum chemical calculations, it provided experimental evidence for weak σ -hole bonds ($1.5 \text{ kcal mol}^{-1}$) that involve ammonium cations in a crystal (see figure). This type of supramolecular interaction is even more numerous than now appears.



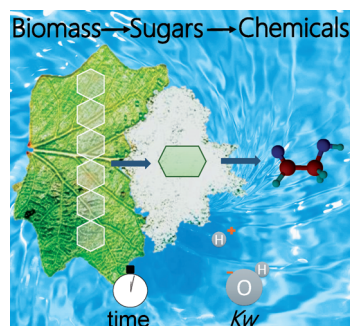
ChemMedChem
DOI: 10.1002/cmdc.201402553

Antitumor Agents

M. Bräutigam, N. Teusch, T. Schenk, M. Sheikh, R. Z. Aricioglu, S. H. Borowski, J.-M. Neudörfl, U. Baumann, A. G. Griesbeck, M. Pietsch*

Selective Inhibitors of Glutathione Transferase P1 with Trioxane Structure as Anticancer Agents

Peroxides in tumor defense: A dozen cyclic peroxides were prepared by singlet oxygen ene reaction. Investigation of these compounds against tumor-relevant glutathione transferase P1 (GSTP1) revealed K_i values in the low micromolar range. Some inhibitors showed high selectivity for GSTP1 over other GST classes. These findings have strong implications for medicinal chemistry strategies to improve the activity of antitumor drugs.



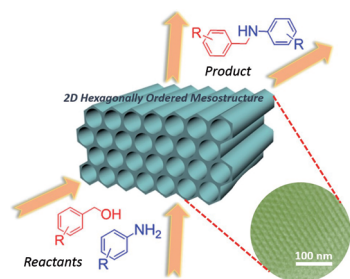
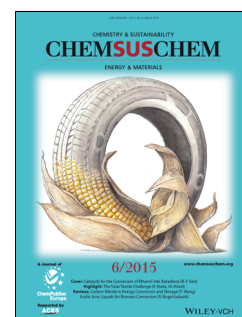
ChemSusChem
DOI: 10.1002/cssc.201403385

Cellulose

D. A. Cantero, M. D. Bermejo, M. J. Cocero*

Governing Chemistry of Cellulose Hydrolysis in Supercritical Water

Just add water: A reaction mechanism for cellulose hydrolysis that can explain the huge selectivity of biomass hydrolysis in supercritical water is presented. The model of the reaction mechanism has been validated by several experiments carried out in a continuous pilot plant capable at various conditions. It was found that the proton and hydroxide anion concentration in the medium due to water dissociation (represented by the ionic product of water, K_w) is the determining factor in the selectivity of the process.



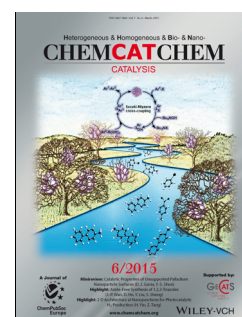
ChemCatChem
DOI: 10.1002/cctc.201402916

Mesoporous Materials

P. Srinivasu,* D. Venkanna, M. L. Kantam, J. Tang, S. K. Bhargava, A. Aldalbahi, K. C.-W. Wu,* Y. Yamauchi*

Ordered Hexagonal Mesoporous Aluminosilicates and their Application in Ligand-Free Synthesis of Secondary Amines

Get hexed! Mesoporous aluminosilicates were successfully synthesized and applied as ligand, base-free heterogeneous catalysts for C–N bond formation between benzyl alcohol and aniline for various N-benzyl secondary amines with excellent activity and selectivity.



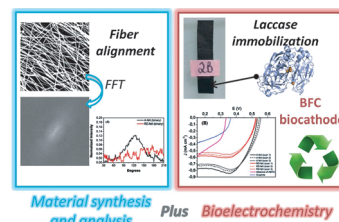


Electrospun Carbon Felts

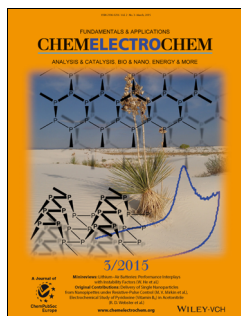
A. Both Engel, A. Cherifi, M. Bechelany, S. Tingry, D. Cornu*

Control of Spatial Organization of Electrospun Fibers in a Carbon Felt for Enhanced Bioelectrode Performance

How does it feel? Electrospun carbon felts were synthesized with either aligned or randomly distributed fibers (see picture). Resistivity measurements were realized to try to establish a normalized procedure for fibrous materials. Felts were modified with the enzyme laccase and tested towards the oxygen reduction reaction, which is typical for the cathode part of a biofuel cell.



ChemPlusChem
DOI: 10.1002/cplu.201402324

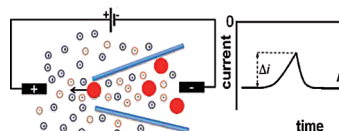


Localized Delivery

Y. Wang, H. Cai, M. V. Mirkin*

Delivery of Single Nanoparticles from Nanopipettes under Resistive-Pulse Control

Accurate delivery: The combination of resistive-pulse technique and scanning ion-conductance microscopy (SICM) can be used for localized delivery of nanoparticles from nanopipettes.



ChemElectroChem
DOI: 10.1002/celec.201402328

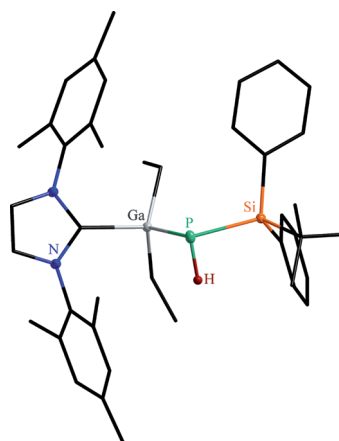


Silylphosphanides of Al, Ga, In

M. Kapitein, C. von Hänisch*

Synthesis, Structures and Thermal Decomposition of Monomeric Aluminium, Gallium and Indium Silylphosphanides

A series of new N-heterocyclic carbene (NHC)-stabilized monomeric metal silylphosphanides of aluminium, gallium and indium were characterized through single-crystal X-ray diffraction and their structural and thermal properties are described.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201402996

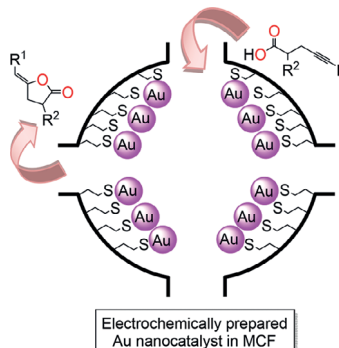


Gold Nanoparticles

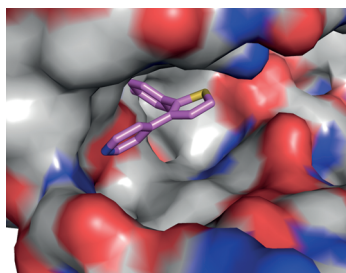
K. Eriksson, O. Verho, L. Nyholm, S. Oscarsson, J.-E. Bäckvall*

Dispersed Gold Nanoparticles Supported in the Pores of Siliceous Mesocellular Foam: A Catalyst for Cycloisomerization of Alkynoic Acids to γ -Alkylidene Lactones

An electrochemical method for generating heterogeneously supported Au^I thiolates that can be reduced to highly active Au nanoparticles by subsequent treatment with NaBH₄ is described. The corresponding Au nanocatalyst was applied in the cycloisomerization of a set of alkynoic acids into the corresponding γ -alkylidene lactones in high yields under mild conditions.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201403664



Drug Design

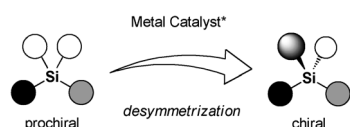
N. B. Vinh, S. M. Devine, L. Munoz, R. M. Ryan, B. H. Wang, H. Krum, D. K. Chalmers, J. S. Simpson, P. J. Scammells*

Design, Synthesis, and Biological Evaluation of Tetra-Substituted Thiophenes as Inhibitors of p38 α MAPK

Dock and design! A library of substituted thiophenes bearing the vicinal 4-fluorophenyl/4-pyridyl rings was designed using computational docking as a visualisation tool. Compounds were synthesised and evaluated as p38 α mitogen-activated protein kinase (MAPK) inhibitors in a fluorescence polarisation binding assay. Several compounds exhibited low micromolar affinity to the active form of p38 α MAPK. Selected analogs were also shown to suppress neonatal rat fibroblast collagen synthesis.



ChemistryOpen
DOI: 10.1002/open.201402076

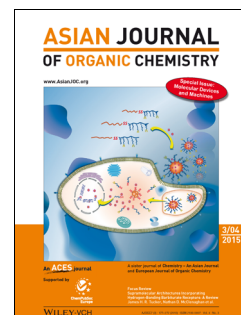


Organosilanes

R. Shintani*

Recent Advances in the Transition-Metal-Catalyzed Enantioselective Synthesis of Silicon-Stereogenic Organosilanes

Silanes in the spotlight: This Focus Review highlights recent advances in the catalytic enantioselective preparation of silicon-stereogenic organosilanes under transition-metal catalysis through desymmetrization of prochiral organosilanes including diorganodihydrosilanes and tetraorganosilanes.



Asian J. Org. Chem.
DOI: 10.1002/ajoc.201500066



Peer Review

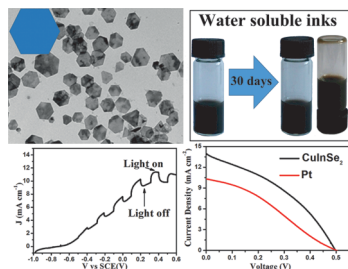
B. Johnson

12 Tips for Referees

Brian Johnson, Managing Editor of *The Chemical Record*, gives a guide for peer-reviewers from the perspective of an editor's seat. It includes advice on when to decline a review invitation, what makes a good referee, and how to write a truly helpful review.



ChemViews magazine
DOI: 10.1002/chemv.201500016

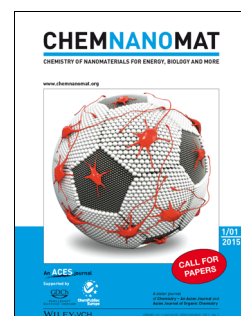


Chalcogenides

Q. Zhu, W. Chen, F. Dai, Y. Yuan, X. Wu, J. Zai,* R. Qi,* X. Qian

Water Soluble CuInSe₂ Nanoplates: Controlled Synthesis, Photoelectric Response and Electrocatalytic Reduction of Polysulfides

Hexagonal CuInSe₂ (CISE) nanoplates that can be dispersed in water have been synthesized by stabilized Se_x²⁻ ions. The pre-reduction of Se powder can control the concentration of Se_x²⁻ ions and plays a key role in the phase and morphologies of CISE. The obtained CISE films show a good photoelectric response and better electrocatalytic activity for the reduction of S_x²⁻ than Pt.



ChemNanoMat
DOI: 10.1002/cnma.201400020