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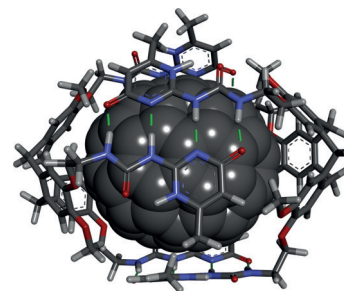


Supramolecular Chemistry

E. Huerta, S. A. Serapian, E. Santos, E. Cequier, C. Bo,*
J. de Mendoza*

Molecular Basis for the Recognition of Higher Fullerenes into Ureidopyrimidinone–Cyclotrimeratrylene Self-Assembled Capsules

Catch a fullerene! Supramolecular dimeric capsules (see figure), based on cyclotrimeratrylene equipped with self-complementary ureidopyrimidinone moieties, show selectivity towards C_{84} and C_{70} over C_{60} . Combining theory and experiment, the molecular basis of such selectivity is explored.



Chem. Eur. J.
DOI: 10.1002/chem.201601690

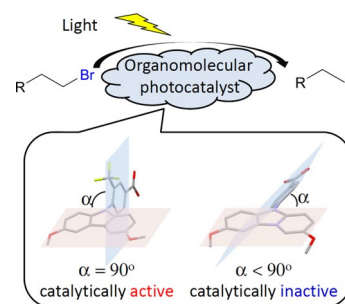


Photocatalysis

R. Matsubara,* T. Shimada, Y. Kobori,* T. Yabuta, T. Osakai,
M. Hayashi

Photoinduced Charge-Transfer State of 4-Carbazoyl-3-(trifluoromethyl)benzoic Acid: Photophysical Property and Application to Reduction of Carbon–Halogen Bonds as a Sensitizer

Being persistent: The photoinduced persistent intramolecular charge-transfer state of 4-carbazoyl-3-(trifluoromethyl)benzoic acid was confirmed. It showed a higher catalytic activity in terms of yield and selectivity in the photochemical reduction of alkyl halides compared to the parent carbazole. The high catalytic activity is rationalized by considering the slower backward single-electron transfer owing to the spatial separation of the donor and acceptor subunits.



Chem. Asian J.
DOI: 10.1002/asia.201600538

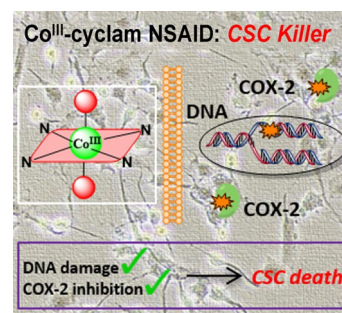


Drug Development

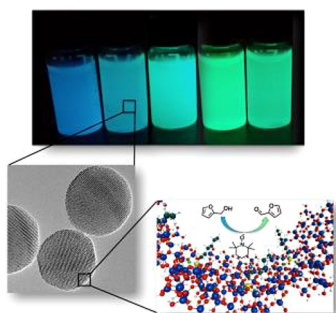
P. B. Cressey, A. Eskandari, P. M. Bruno, C. Lu, M. T. Hemann,
K. Suntharalingam*

The Potent Inhibitory Effect of a Naproxen-Appended Cobalt(III)-Cyclam Complex on Cancer Stem Cells

Cancer stem cells fall for cobalt: We present a cobalt(III)–cyclam complex bearing two naproxen moieties that is capable of potently and selectively killing breast cancer stem cells, both in monolayer and 3D cell cultures. The complex induces its cytotoxic effect by damaging genomic DNA and inhibiting COX-2 activity.



ChemBioChem
DOI: 10.1002/cbic.201600368



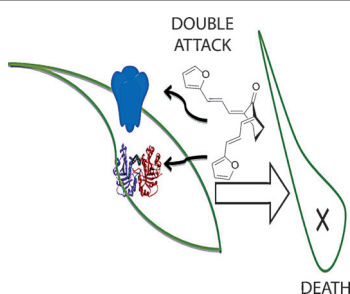
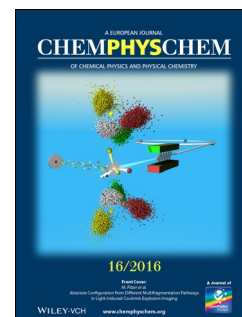
ChemPhysChem
DOI: 10.1002/cphc.201600740

Nano-confined Systems

D. Singappuli-Arachchige, J. S. Manzano, L. M. Sherman, I. I. Slowing*

Polarity Control at Interfaces: Quantifying Pseudo-solvent Effects in Nano-confined Systems

Ground control: Molecules attached to surfaces control the dielectric properties of liquid–solid interfaces and modulate chemical processes in the same way solvents do. Quantitative relationships are established between nature/surface density of organic groups and interface polarities. Binding organic groups to pore surfaces produces low polarity interfaces where reactions requiring hydrophobic media can be performed in bulk water.



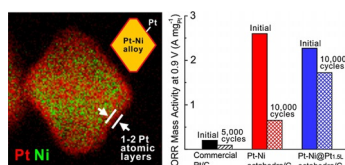
ChemMedChem
DOI: 10.1002/cmdc.201500385

Antiparasite Agents

E. Aguilera, J. Varela, E. Birriel, E. Serna, S. Torres, G. Yaluff, N. V. de Bilbao, B. Aguirre-López, N. Cabrera, S. Díaz Mazariegos, M. T. de Gómez-Puyou, A. Gómez-Puyou, R. Pérez-Montfort, L. Minini, A. Merlino, H. Cerecetto, M. González, G. Alvarez*

Potent and Selective Inhibitors of *Trypanosoma cruzi* Triosephosphate Isomerase with Concomitant Inhibition of Cruzipain: Inhibition of Parasite Growth through Multitarget Activity

Two birds. One stone. Multitarget agents were developed that act against triosephosphate isomerase (TIM) and cruzipain, two key enzymes in *Trypanosoma cruzi*, the causative agent of Chagas disease. The compounds exhibited nanomolar range inhibition of *Tc*TIM and protection profiles in vivo, with the best compound exhibiting an IC_{50} value of 86 nM against *Tc*TIM in an enzymatic assay, and an IC_{50} value of 600 nM against the epimastigote form of *T. cruzi*, Tulahuen 2 strain.



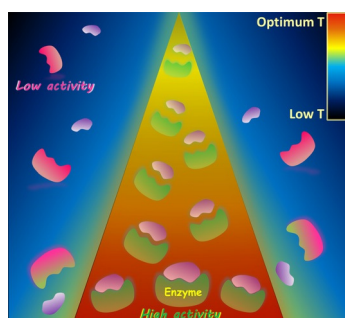
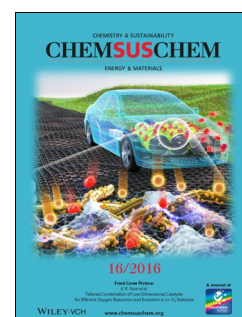
ChemSusChem
DOI: 10.1002/cssc.201600566

Fuel Cells

J. Park, J. Liu, H.-C. Peng, L. Figueroa-Cosme, S. Miao, S.-I. Choi, S. Bao, X. Yang, Y. Xia*

Coating Pt–Ni Octahedra with Ultrathin Pt Shells to Enhance the Durability without Compromising the Activity toward Oxygen Reduction

Skin deep: Conformal Pt shells with a thickness of only 1–2 atomic layers are deposited on Pt–Ni octahedra to obtain core–shell catalysts with both high mass activity and durability toward the oxygen reduction reaction.



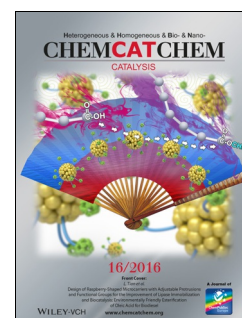
ChemCatChem
DOI: 10.1002/cctc.201600406

Enzymes

Y. Cao, Y. Wang*

Temperature-Mediated Regulation of Enzymatic Activity

Hot or not? Great efforts have been devoted to regulating enzyme catalysis on account of its important usage in biological systems and industrial applications. This concept article aims to demonstrate the possibilities for regulating enzymatic activity by changing the local temperature. Strategies including direct thermal heating or indirect temperature triggers are summarized in this article.



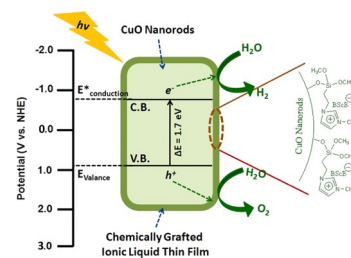


Water Splitting

R. Gusain, N. Singhal, R. Singh, U. Kumar, O. P. Khatri*

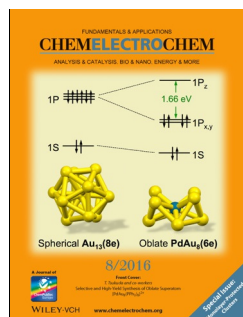
Ionic-Liquid-Functionalized Copper Oxide Nanorods for Photocatalytic Splitting of Water

Splitting without sacrifice: Thin films of imidazolium ionic liquids with bis(salicylato)borate and hexafluorophosphate anions are grafted onto CuO nanorods. The ionic-liquid-functionalized CuO (CuO–IL) nanorods are efficient photocatalysts for the splitting of water under visible-light irradiation (see figure). The CuO–IL nanorods are efficient water-splitting photocatalysts without using any sacrificial agent.



ChemPlusChem

DOI: 10.1002/cplu.201600047

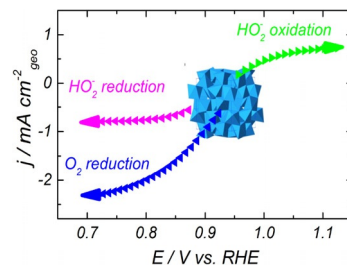


Oxygen Reduction Reaction

A. S. Ryabova, A. Bonnetfont,* P. Zagrebina, T. Poux, R. Paria Sena, J. Hadermann, A. M. Abakumov, G. Kéranguéven, S. Y. Istomin, E. V. Antipov, G. A. Tsirlina, E. R. Savinova

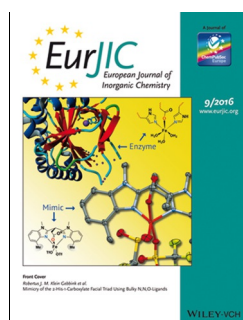
Study of Hydrogen Peroxide Reactions on Manganese Oxides as a Tool To Decode the Oxygen Reduction Reaction Mechanism

At any rate... Study of the electrocatalytic and catalytic reactions of hydrogen peroxide on Mn₂O₃, MnOOH, LaMnO₃, and MnO₂ allows self-consistent microkinetic analysis of the reaction schemes (for the oxygen reduction reaction as well) and discovery of the effect of the crystal structure on the rate constants of the particular steps.



ChemElectroChem

DOI: 10.1002/celec.201600236

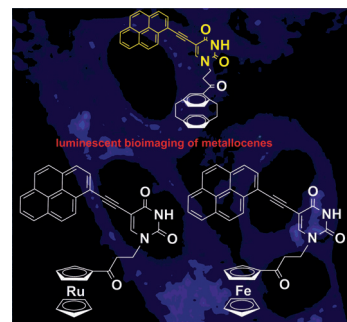


Confocal Microscopy Imaging

J. Skiba, C. Schmidt, P. Lippmann, P. Ensslen, H.-A. Wagenknecht, R. Czerwieniec,* F. Brandl, I. Ott, T. Bernas, B. Krawczyk, D. Szczukocki, K. Kowalski*

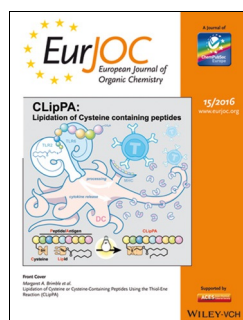
Substitution of Metallocenes with [2.2]Paracyclophane to Enable Confocal Microscopy Imaging in Living Cells

The biodistribution of metallocenyl uracil–pyrenes is investigated through an indirect approach that exploits the structural similarities of metallocenyl and [2.2]paracyclophanyl groups. Confocal microscopy of a [2.2]paracyclophane uracil–pyrene shows its accumulation in the membranes, cytoplasm, and mitochondria. A similar biodistribution pattern is postulated for the metallocenyl congeners.



Eur. J. Inorg. Chem.

DOI: 10.1002/ejic.201600281

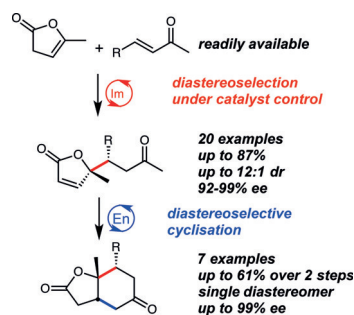


Aminocatalysis

R. Lagoutte, C. Besnard, A. Alexakis*

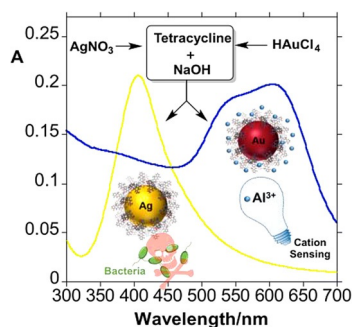
Direct Organocatalysed Double Michael Addition of α -Angela Lactone to Enones

An efficient protocol for the divergent access to γ,γ -disubstituted butenolides and hexahydrobenzofuran-2(3H)-ones is described. The two steps are run under very mild conditions and use readily available catalysts and co-catalysts. A new co-catalyst class is described for the first step.



Eur. J. Org. Chem.

DOI: 10.1002/ejoc.201600707



ChemistryOpen

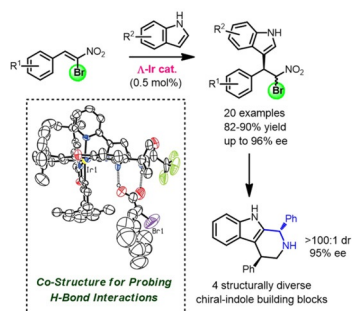
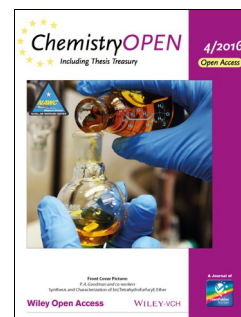
DOI: 10.1002/open.201600016

Nanoparticle Synthesis

J. Djafari, C. Marinho, T. Santos, G. Igrejas, C. Torres, J. L. Capelo, P. Poeta, C. Lodeiro,* J. Fernández-Lodeiro*

New Synthesis of Gold- and Silver-Based Nano-Tetracycline Composites

All that glitters isn't gold: A new synthetic methodology of water-soluble gold and silver nanoparticles (AuNPs@TC and AgNPs@TC), using the antibiotic tetracycline (TC) as co-reducing and stabilizing agent, is reported. Both composites are tested against TC-resistant bacteria, presenting an increasing effect in the case of AgNPs@TC. The sensing towards metal ions is also explored in aqueous solution.



Asian J. Org. Chem.

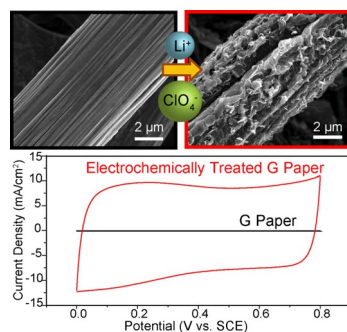
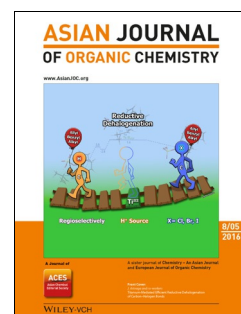
DOI: 10.1002/ajoc.201600288

Asymmetric Catalysis

K. Huang, Q. Ma, X. Shen, L. Gong,* E. Meggers*

Metal-Templated Asymmetric Catalysis: (Z)-1-Bromo-1-Nitrostyrenes as Versatile Substrates for Friedel-Crafts Alkylation of Indoles

An enantioselective Friedel-Crafts alkylation of indoles with α -bromo nitroalkenes has been developed by using a special metal-templated H-bonding complex. The mechanism involving multiple hydrogen-bonding interactions is well established by the co-crystal structure of a simplified iridium catalyst with a structural analog of the nitro substrate.



ChemNanoMat

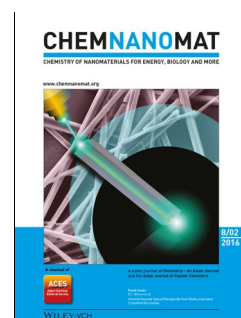
DOI: 10.1002/cnma.201600107

Electrode Materials

T. Liu, C. Zhu, T. Kou, M. A. Worsley, F. Qian, C. Condes, E. B. Duoss, C. M. Spadaccini, Y. Li*

Ion Intercalation Induced Capacitance Improvement for Graphene-Based Supercapacitor Electrodes

Power up: This work reports a facile ion-intercalation method that can considerably enhance the capacitance of graphene-based supercapacitor electrodes at little expense of their excellent rate capability.



ChemViews magazine

DOI: 10.1002/chemv.201600072

Sustainability

C. Goedecke

Using PVC in a Sustainable Way

Polyvinylchloride (PVC) is used to make many everyday objects, such as pipes, window frames, and PVC flooring. Recovery and reuse of PVC are important to minimize its environmental impact and save resources. As one example for such reuse efforts, *ChemViews Magazine* shows how PVC floors are recycled.

