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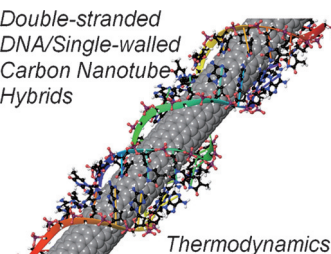
DNA

T. Shiraki, A. Tsuzuki, F. Toshimitsu, N. Nakashima*

Thermodynamics for the Formation of Double-Stranded DNA–Single-Walled Carbon Nanotube Hybrids

Double duty: The thermodynamics have been studied for the formation of double-stranded DNA (ds-DNA)–single-walled carbon nanotube (SWNT) hybrids and exchange reactions of sodium cholate molecules on SWNTs and the ds-DNAs d(A)₂₀–d(T)₂₀ and nuclear factor (NF)-κB decoy have been examined. In particular, d(A)₂₀–d(T)₂₀ shows a drastic change in its thermodynamic parameters around the melting temperature of the ds-DNA oligomer.

Double-stranded
DNA/Single-walled
Carbon Nanotube
Hybrids



Thermodynamics

Chem. Eur. J.
DOI: 10.1002/chem.201504533

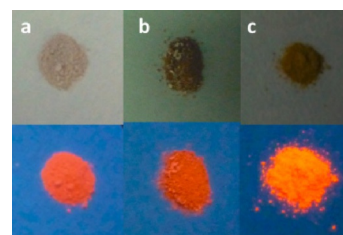


Structure–Activity Relationships

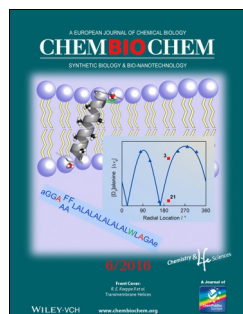
Z. Li, J. Wang, M. Chen, Y. Wang*

Lanthanide Luminescence Improvement by Using a Functional Poly(Ionic Liquid) as Matrix and Co-ligand

Greater glow: Significant luminescence improvement can be observed in hybrid materials through the incorporation of a lanthanide emitting precursor into a functional poly(ionic liquid). The confinement of the lanthanide(III) complexes within the rigid chains of the polymer, together with replacement of coordinated water molecules, are believed cause enhanced optical properties.



Chem. Asian J.
DOI: 10.1002/asia.201501209

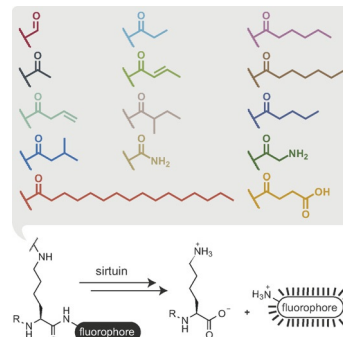


Protein Modifications

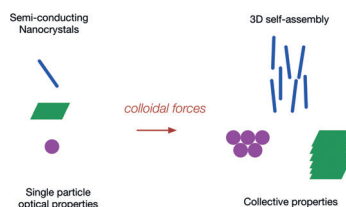
J. Seidel, C. Klockenbusch, D. Schwarzer*

Investigating Deformylase and Deacylase Activity of Mammalian and Bacterial Sirtuins

Restoring lysine: Sirtuins catalyze the removal of enzymatic and non-enzymatic lysine acyl-modifications from proteins. We established a substrate scaffold to analyze sirtuin activity with a broad range of modifications. The sole sirtuin of *B. subtilis*, SrtN, is an efficient lysine-deformylase and can erase a broad range of lysine acyl modifications.



ChemBioChem
DOI: 10.1002/cbic.201500611



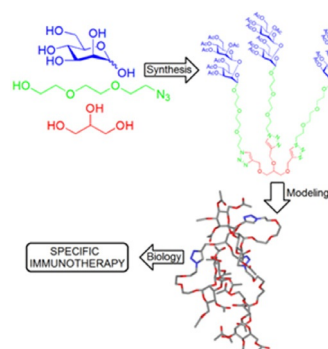
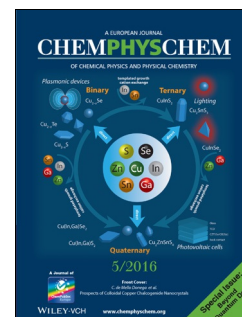
ChemPhysChem
DOI: 10.1002/cphc.201500856

Self-Assembly

B. Abécassis*

Three-Dimensional Self Assembly of Semiconducting Colloidal Nanocrystals: From Fundamental Forces to Collective Optical Properties

Organized nanoparticles: The fundamental interactions that dictate the self-assembly of semiconducting colloidal nanocrystals in apolar solvents are reviewed with a focus on 3D structures and basic shapes (spheres, rods, and platelets). Emergent collective properties and the effect of the self-assembly on the optical properties of the particles are also discussed.



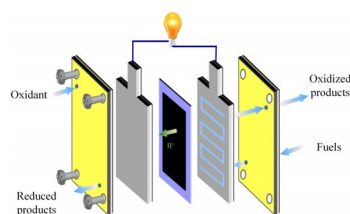
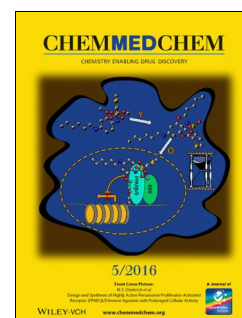
ChemMedChem
DOI: 10.1002/cmdc.201600076

Carbohydrates

J. Rähkila, R. Panchadhayee, A. Ardá, J. Jiménez-Barbero, J. Savolainen, R. Leino*

Acetylated Trivalent Mannobioses: Chemical Modification, Structural Elucidation, and Biological Evaluation

Nothing to sneeze at: Two new acetylated trivalent β -(1 \rightarrow 2)-linked mannobioses were synthesized and screened for biological activity as immunostimulatory adjuvants for potential use in the treatment of severe allergy sufferers. These two compounds, along with another previously prepared analogue, were subjected to meticulous NMR and molecular modeling studies to determine their behavior in solution.



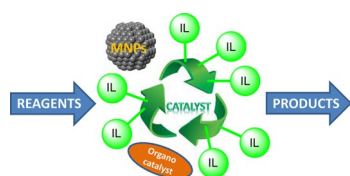
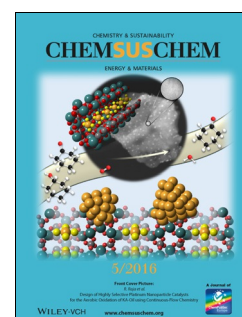
ChemSusChem
DOI: 10.1002/cssc.201501446

Fuel Cells

X. Zhao, J. Y. Zhu*

Efficient Conversion of Lignin to Electricity Using a Novel Direct Biomass Fuel Cell Mediated by Polyoxometalates at Low Temperatures

POMs full of energy! Polyoxometalates (POMs) mediated direct biomass fuel cells (DBFC) are used to directly convert lignin to electricity at low temperatures with high power output and Faradaic efficiency. Continuous operation demonstrated that the fuel cells are promising as a stable electrochemical power sources. Both condensation and depolymerization took place during the POM oxidation of lignin.



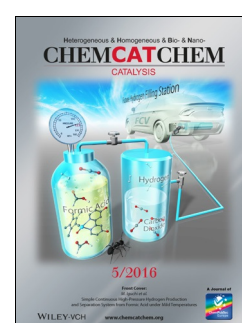
ChemCatChem
DOI: 10.1002/cctc.201501086

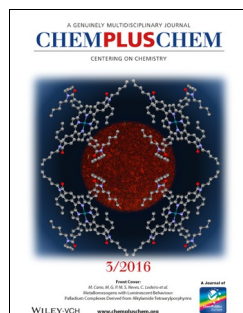
Ionic Liquids

F. Giacalone, M. Gruttadauria*

Covalently Supported Ionic Liquid Phases: An Advanced Class of Recyclable Catalytic Systems

Multitasking catalytic materials: Covalently supported ionic liquid phases (cSILP) are useful catalytic materials for many organic transformations. This Review takes a look at the most recent advances in the synthesis and catalytic applications of cSILP.



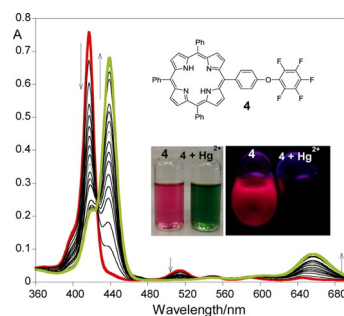


Sensors

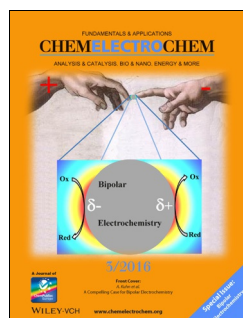
J. I. T. Costa, E. Oliveira,* H. M. Santos, A. C. Tomé,*
M. G. P. M. S. Neves, C. Lodeiro

Study of Multiporphyrin Compounds as Colorimetric Sitting-Atop Metal Complexes: Synthesis and Photophysical Studies

Sensitive subjects: Mono-, di-, tri-, and hexaporphyrin derivatives (see compound **4** in the figure) were synthesized and their sensorial ability towards metal ions was studied. It was found that they showed an increased sensitivity to Hg^{2+} ions. The NMR spectroscopy studies suggest that the interaction with the metal ions occurs with the formation of sitting-atop complexes.



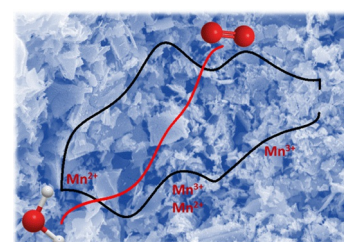
ChemPlusChem
DOI: 10.1002/cplu.201500386



Oxygen Reduction

V. Celorrio, E. Dann, L. Calvillo, D. J. Morgan, S. R. Hall, D. J. Fermin*
Oxygen Reduction at Carbon-Supported Lanthanides: The Role of the B-Site

On site: Detailed electrochemical analysis of carbon-supported lanthanide perovskites reveals that LaMnO_3 is orders of magnitude more active towards four-electron oxygen reduction under alkaline conditions. The origin of the reactivity is linked to changes in the redox state of the Mn^{III} sites.



ChemElectroChem
DOI: 10.1002/celec.201500440

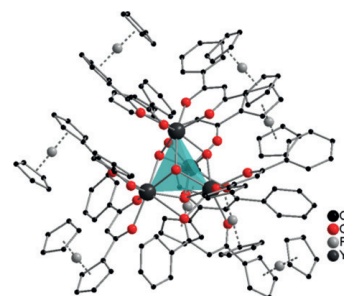


Rare-Earth Clusters

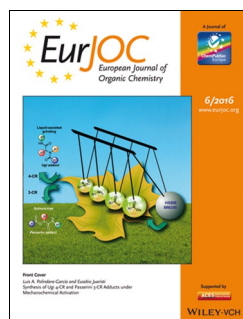
A. T. Wagner, P. W. Roesky*

Rare-Earth Metal Oxo/Hydroxo Clusters – Synthesis, Structures, and Applications

The synthesis and the structures of rare-earth metal oxo/hydroxo clusters are reviewed. The clusters are very robust, which makes them ideal materials for further chemical, physical, and biological studies.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201501281

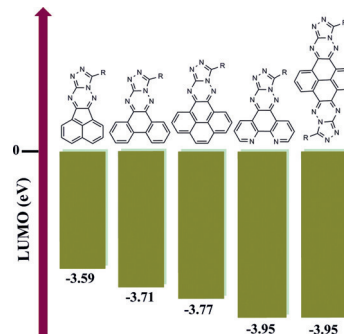


Crystal Packing

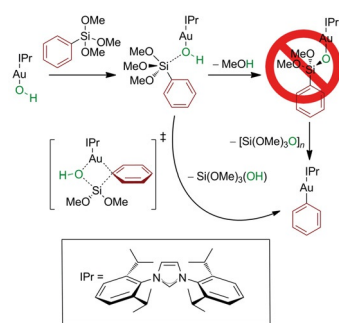
S. Fusco,* C. Maglione, A. Velardo, V. Piccialli, R. Liguori, A. Peluso,
A. Rubino, R. Centore*

N-Rich Fused Heterocyclic Systems: Synthesis, Structure, Optical and Electrochemical Characterization

New N-rich fused heterocyclic systems containing the triazolo-triazine unit were synthesized. The extensive replacement of C–H with N in fused aromatic hydrocarbons induces remarkable changes both at the single molecule and molecular packing level. All compounds show low LUMO energies (down to -3.95 eV) and crystal structures dominated by π -stacking interactions.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201501283



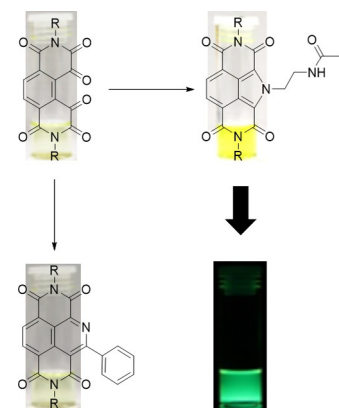
ChemistryOpen
DOI: 10.1002/open.201500172

Computational Chemistry

L. Falivene, D. J. Nelson, S. Dupuy, S. P. Nolan,* A. Poater,* L. Cavallo*

Mechanism of the Transmetalation of Organosilanes to Gold

Studying silanolates: Upon reaction with silanes, the gold(I) complex [Au(OH)(IPr)] allows access to various gold silanolates. These silanolates are key intermediates in a fluoride-free process that results in the net transmetalation of organosilanes to gold. Here, using density functional theory (DFT) calculations, we propose that the gold silanolate is not the active species, but is in fact a resting state during the transmetalation process, as a concerted step is preferred.



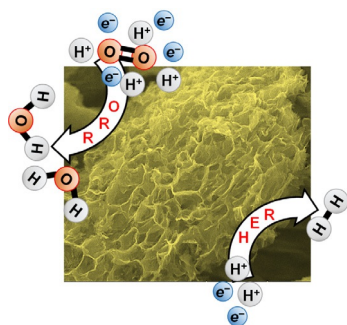
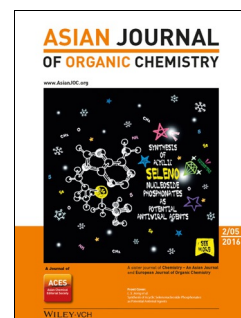
Asian J. Org. Chem.
DOI: 10.1002/ajoc.201600048

Organic Electronics

S. Maniam, S. Sandanayake, E. I. Izgorodina, S. J. Langford*

Unusual Products from Oxidation of Naphthalene Diimides

The way is open: Naphthalene diimides (NDIs) are oxidised under mild conditions using ruthenium(III) chloride and sodium periodate to give unusual 1,4-diones. The resulting dione undergoes different reactions to form heterocyclic compounds.



ChemNanoMat
DOI: 10.1002/cnma.201500189

Electrocatalysts

K. Sakaushi,* K. Uosaki

Highly Efficient Oxygen and Hydrogen Electrocatalytic Activities of Self-Morphogenic Nanoporous Carbon, Nitrogen Architectures

A self-morphogenesis based on simple chemistry was shown to yield nanoporous C,N architectures with high electrocatalytic activities for the oxygen reduction reaction (ORR) and the hydrogen evolution reaction (HER). The C,N-based heteropolymeric network as an intermediate leads to self-morphogenesis of the nanoporous C, N-architectures with controlled N chemical structures, thus high electrocatalytic activities were obtained.



ChemViews magazine
DOI: 10.1002/chemv.201600004

Chemical Societies

S. Albertini, E. Ehmki, S. Felderer, S. Hofer, V. Huber, E. Mairhofer, M. Wieser

Fresh Wind in the Austrian Young Chemists Section

Seven students from the University of Innsbruck, Austria, started to represent the interests of young Austrian chemists in 2013, showing great motivation, creativity, and perseverance. They hope to build a larger national network among young chemists within the Austrian Chemical Society (GÖCH) and to expand their international cooperation with other young chemists' groups.

