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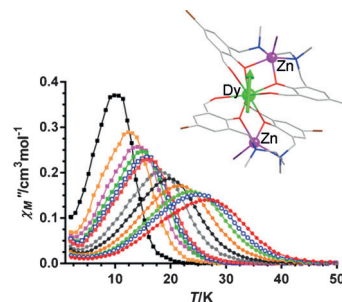


Magnetism

I. Oyarzabal, J. Ruiz, J. M. Seco,* M. Evangelisti, A. Camón, E. Ruiz,* D. Aravena, E. Colacio*

Rational Electrostatic Design of Easy-Axis Magnetic Anisotropy in a $\text{Zn}^{\text{II}}\text{--Dy}^{\text{III}}\text{--Zn}^{\text{II}}$ Single-Molecule Magnet with a High Energy Barrier

Two novel $\text{Zn}\text{--Ln}\text{--Zn}$ complexes ($\text{Ln}^{\text{III}} = \text{Dy}, \text{Er}$) have been prepared, where the Ln^{III} ion exhibits an axially distorted square antiprism LnO_8 coordination sphere. A large energy gap between the ground and first excited doublets of the Dy^{III} ions promotes slow relaxation of the magnetization with a high thermal energy barrier $U_{\text{eff}} = 140 \text{ K}$ (see figure).



Chem. Eur. J.
DOI: 10.1002/chem.201403670

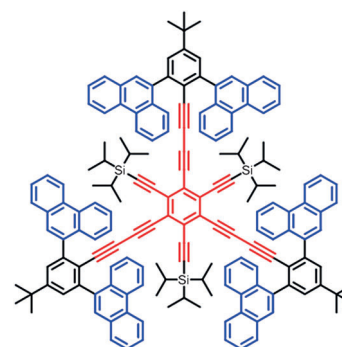


Host–Guest Systems

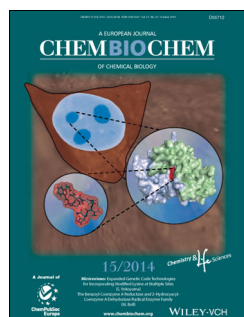
Y. Li, L. Xu, S. L.-F. Chan, Y. Li,* R. Jiang, H. Liu, C.-M. Che

Designed Synthesis of a Highly Conjugated Hexaethynylbenzene-Based Host for Supramolecular Architectures

In our cups: The construction of efficient synthetic functional receptors with tunable cavities is started from hexaethynylbenzene (see figure). Self-organization of guest molecules within these cavities was realized through cooperative noncovalent interactions and precise control over the topology of the interacting species. Electron transfer offers opportunities for tuning the optical and electronic properties of the molecular cup and encapsulated guest.



Chem. Asian J.
DOI: 10.1002/asia.201402500

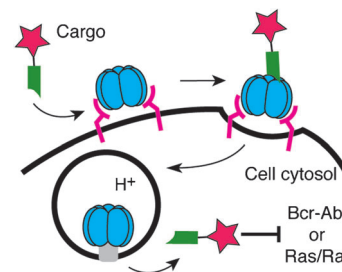


Antibody Mimics

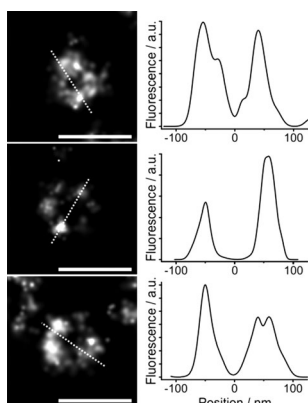
X. Liao, A. E. Rabideau, B. L. Pentelute*

Delivery of Antibody Mimics into Mammalian Cells via Anthrax Toxin Protective Antigen

Delivery of antibody mimics into the cytosol remains challenging. Here we show that protective antigen (PA, a component of anthrax toxin) transports an array of antibody mimics to the cell cytosol. Using a tandem monobody or an affibody delivered into cells by PA, we show that PA can deliver bioactive antibody mimics to disrupt intracellular protein–protein interactions.



ChemBioChem
DOI: 10.1002/cbic.201402290



ChemPhysChem

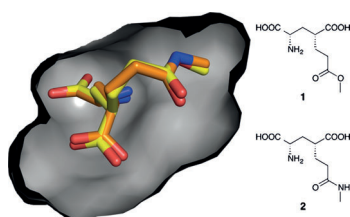
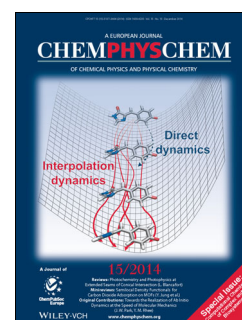
DOI: 10.1002/cphc.201402423

Super-resolution Imaging

C. M. Winterflood,* H. Ewers*

Single-Molecule Localization Microscopy using mCherry

The cherry on top! Single-molecule localization microscopy using standard mCherry is shown with sub-40 nm resolution. The wealth of well-characterized mCherry fusion proteins can be readily revisited by using single-molecule super-resolution microscopy. Super-resolution imaging can be done in a straightforward way eliminating the need for external labeling or the use of high-lighter fluorescent proteins.



ChemMedChem

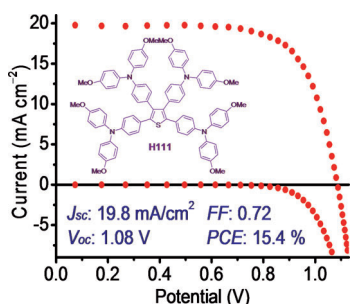
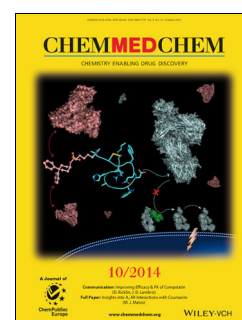
DOI: 10.1002/cmdc.201402204

Drug Design

R. Venskutonytė, A. P. Larsen, K. Frydenvang, M. Gajhede, E. Sagot, Z. Assaf, T. Gefflaut, D. S. Pickering, L. Bunch, J. S. Kastrop*

Molecular Recognition of Two 2,4-syn-Functionalized (S)-Glutamate Analogues by the Kainate Receptor GluK3 Ligand Binding Domain

Feeling receptive: Kainate receptors are the least studied of the ionotropic glutamate receptors, mainly due to the lack of subtype-selective ligands. We present the structures of two 2,4-syn-functionalized (S)-glutamate analogues in the kainate receptor GluK3. These analogues may serve as scaffolds for future ligands reaching unexplored regions of the binding site.



ChemSusChem

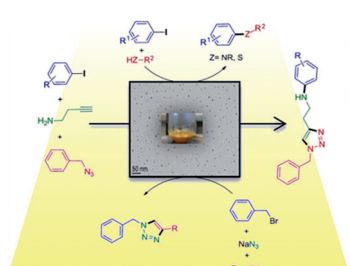
DOI: 10.1002/cssc.201402587

Solar Cells

H. Li, K. Fu, P. P. Boix, L. H. Wong, A. Hagfeldt, M. Grätzel, S. G. Mhaisalkar,* A. C. Grimsdale*

Hole-Transporting Small Molecules Based on Thiophene Cores for High Efficiency Perovskite Solar Cells

Core of the material: Two new electron-rich molecules containing thiophene and bithiophene cores and arylamine side groups are described. When used as the hole-transporting material (HTM) in perovskite-based solar cell devices, good power conversion efficiencies under AM 1.5G solar simulation are obtained.



ChemCatChem

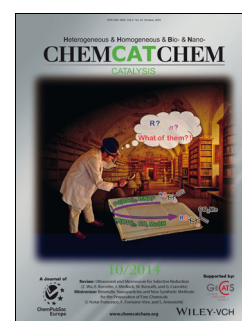
DOI: 10.1002/cctc.201402214

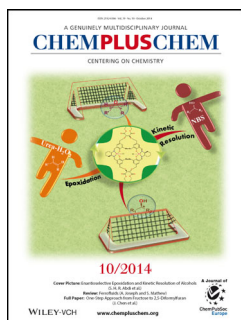
Cross-Coupling

F. Chahdoura, C. Pradel, M. Gómez*

Copper(I) Oxide Nanoparticles in Glycerol: A Convenient Catalyst for Cross-Coupling and Azide–Alkyne Cycloaddition Processes

Cop a look at this! Copper(I) oxide nanoparticles dispersed in neat glycerol are active and highly selective in Cu-catalyzed C–heteroatom couplings and azide–alkyne cycloadditions, which include one-pot multistep processes and allow easy catalyst recycling.



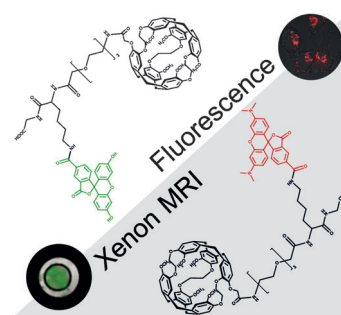


Cage Compounds

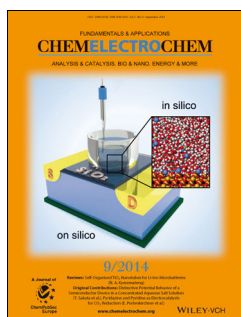
F. Rossella, H. M. Rose, C. Witte, J. Jayapaul, L. Schröder*

Design and Characterization of Two Bifunctional Cryptophane A-Based Host Molecules for Xenon Magnetic Resonance Imaging Applications

Label mates: Bifunctional biosensors for optical imaging and xenon magnetic resonance imaging (MRI) have been designed. Compounds that contain a cryptophane molecule and bear a fluorophore were compared. Both displayed good cellular uptake suitable for cell-labeling studies. These compounds are also flexible building blocks for the synthesis of more complex xenon-MRI biosensors (see figure).



ChemPlusChem
DOI: 10.1002/cplu.201402179

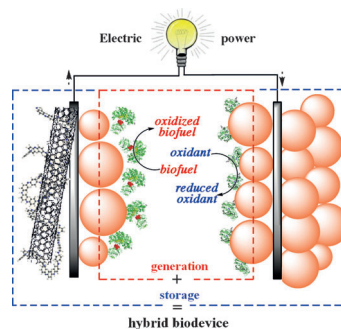


Biodevices

D. Pankratov, Z. Blum, S. Shleev*

Hybrid Electric Power Biodevices

Anyone can hit an uncovered object! This Minireview covers aspects of hybrid electric power devices that use biocatalyst-coupled electrodes and attempts to introduce some classification to this research area. Examples are discussed in the contexts of bio-electrocatalysis, self-charging and charge-storage properties, and their applications. Finally, the history of this research is summarised, which raises the question—have such devices already been unknowingly created?



ChemElectroChem
DOI: 10.1002/celc.201402158

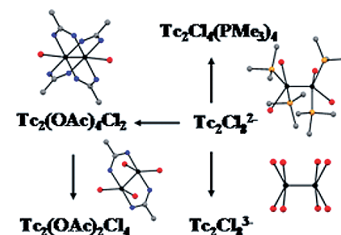


Dinuclear Technetium Complexes

F. Poineau,* P. M. Forster, T. K. Todorova, E. V. Johnstone, W. M. Kerlin, L. Gagliardi, K. R. Czerwinski, A. P. Sattelberger

A Decade of Dinuclear Technetium Complexes with Multiple Metal–Metal Bonds

This review covers the metal–metal bond chemistry of dinuclear technetium complexes published in the period 2005–2014. The preparation, solid-state and electronic structures, and spectroscopic properties of $(n\text{Bu}_4\text{N})_2\text{Tc}_2\text{X}_8$, $\text{Tc}_2(\text{O}_2\text{CCH}_3)_4\text{X}_2$, $\text{Tc}_2(\text{O}_2\text{CCH}_3)_2\text{Cl}_4$, cesium salts of $\text{Tc}_2\text{X}_8^{3-}$, and $\text{Tc}_2\text{X}_4(\text{PMe}_3)_4$ ($\text{X} = \text{Cl}, \text{Br}$) are presented.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201402340

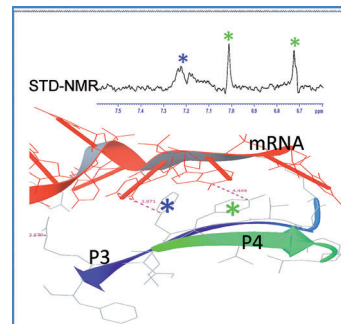


Bioorganic Chemistry

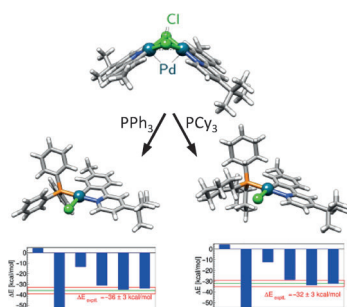
F. Vasile, D. Rossi, S. Collina, D. Potenza*

Diffusion-Ordered Spectroscopy and Saturation Transfer Difference NMR Spectroscopy Studies of Selective Interactions between ELAV Protein Fragments and an mRNA Target

The first diffusion-ordered spectroscopy (DOSY) and saturation transfer difference (STD) NMR spectroscopy studies of RNA fragments and peptides (P1–P4) derived from Embryonic Lethal Abnormal Vision (ELAV) proteins are reported, and insights into the interaction mechanism are presented. The information derived from these results will allow us to design ELAV peptide mimics that can bind to RNA targets.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201403014



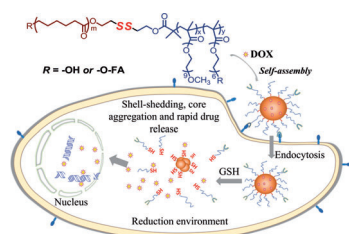
ChemistryOpen
DOI: 10.1002/open.201402017

Thermochemistry

A. Hansen, C. Bannwarth, S. Grimme,* P. Petrović, C. Werlé, J.-P. Djukic*

The Thermochemistry of London Dispersion-Driven Transition Metal Reactions: Getting the 'Right Answer for the Right Reason'

Reliable thermochemistry: This joint experimental and theoretical work focusses on how to make reliable thermochemical predictions for large transition metal complexes stabilized by London dispersion interactions. A comprehensive treatment is presented of dispersion in a real case of coordination chemistry in solution with a thorough focus on the theoretical methodology that is much improved with respect to common practice in the field.



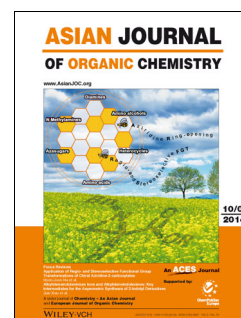
Asian J. Org. Chem.
DOI: 10.1002/ajoc.201402146

Drug Delivery

Y. Zhang, Q. Qu, M. Li, Y. Zhao*

Intracellular Reduction-Responsive Sheddable Copolymer Micelles for Targeted Anticancer Drug Delivery

Reducing gives you more: Intracellular, reduction-responsive, amphiphilic, copolymer micelles with cancer cell specificity are developed in this work. The synthetic process includes ring-opening polymerization and atom-transfer radical polymerization using a double-headed initiator with a disulfide linkage and folic acid. The potential of the copolymer micelles for application as anticancer drug carriers for targeted cancer therapy is promising.



ChemViews magazine
DOI: 10.1002/chemv.201400090

Industrial Chemistry

Anne Deveson

Behavior of Highly Diluted Electrolytes in Strong Electric Fields

In 'Behind the Science', ChemViews Magazine gives readers a peek behind the scenes of a research article. This time, Anne Deveson of Chemistry—A European Journal talks to Rudi van Eldik and Immo Weber about their solution for the corrosion of aluminum heat sinks, which can cause severe fire hazards in long-distance electrical power transmission systems.

