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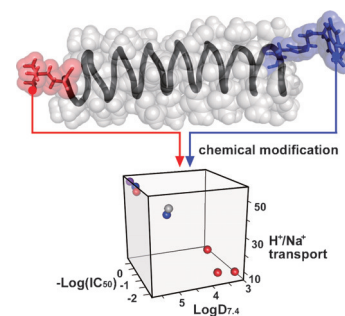


Peptides

A. Hayata, H. Itoh, S. Matsutaka, M. Inoue*

Dual Chemical Modification of a Polytheonamide Mimic: Rational Design and Synthesis of Ion-Channel-Forming 48-mer Peptides with Potent Cytotoxicity

Simpler but potent: Total synthesis and multiple functional analyses of seven new structurally simplified analogues of polytheonamide B, an ion-channel-forming 48-mer peptide, are reported. Structure–activity studies clarified that the bioactivity of the analogues can be rationally controlled by changing their hydrophobicity at residues 1 and 44 (see figure). The most hydrophobic analogue exhibited the highest cytotoxicity, which is almost as potent as that of polytheonamide B.



Chem. Eur. J.
DOI: 10.1002/chem.201504632

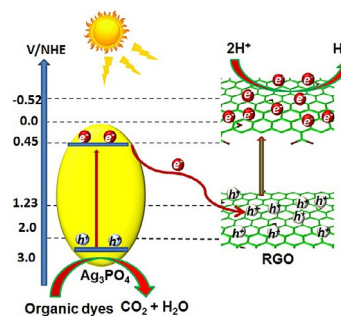


Graphene

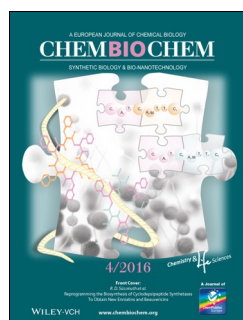
A. Samal, D. P. Das,* K. K. Nanda, B. K. Mishra, J. Das, A. Dash

Reduced Graphene Oxide–Ag₃PO₄ Heterostructure: A Direct Z-Scheme Photocatalyst for Augmented Photoreactivity and Stability

Photo finish: A direct Z-scheme reduced graphene oxide (RGO)–Ag₃PO₄ heterostructure photocatalyst was synthesized by means of a one-pot photoreduction method with an average particle size of approximately 20–25 nm (see figure). The as-synthesized heterostructure not only swiftly mineralized organic textile dyes, but was also able to generate up to 3690 μmol h^{−1} g^{−1} of H₂ with excellent recyclability without co-catalyst.



Chem. Asian J.
DOI: 10.1002/asia.201501286

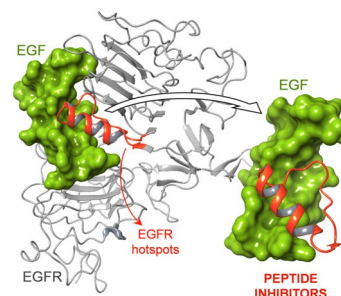


Protein-Protein Interactions

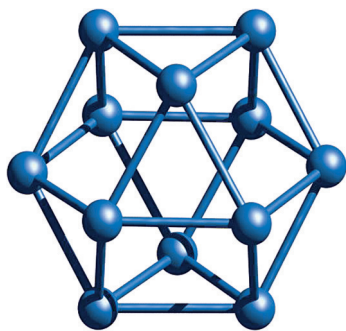
S. Guardiola, M. Díaz-Lobo, J. Seco, J. García, L. Nevola,* E. Giralt*

Peptides Targeting EGF Block the EGF–EGFR Interaction

A novel EGF–EGFR targeting approach: A new class of peptide ligands against EGF has been designed by using computer-aided docking and EGFR hotspot mimicry. Their binding to EGF was studied in detail, and their ability to disrupt the EGF–EGFR interaction was demonstrated in vitro.



ChemBioChem
DOI: 10.1002/cbic.201500525



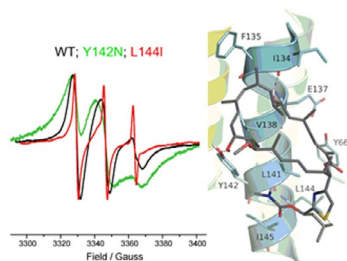
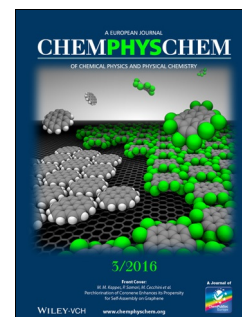
ChemPhysChem
DOI: 10.1002/cphc.201500956

Molecular Symmetry

M. A. Palacios, E. Moreno Pineda, S. Sanz, R. Inglis, M. B. Pitak, S. J. Coles, M. Evangelisti, H. Nojiri, C. Heesing, E. K. Brechin,* J. Schnack,* R. E. P. Winpenny*

Copper Keplerates: High-Symmetry Magnetic Molecules

New copper keplerates are reported, with physical studies indicating that even where very high molecular symmetry is found, the low-temperature physics does not necessarily reflect this symmetry



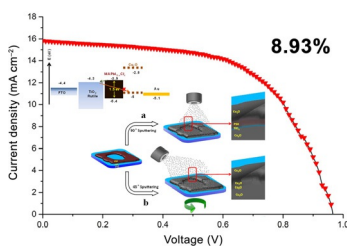
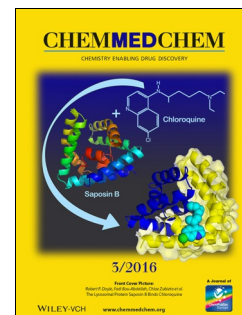
ChemMedChem
DOI: 10.1002/cmdc.201500500

Natural Products

J. P. Gözl, S. Bockelmann, K. Mayer, H.-J. Steinhoff, H. Wiczorek, M. Huss,* J. P. Klare,* D. Menche*

EPR Studies of V-ATPase with Spin-Labeled Inhibitors DCC and Archazolid: Interaction Dynamics with Proton Translocating Subunit c

Near and DEER: Electron paramagnetic resonance (EPR) and double electron–electron resonance (DEER) studies of V-ATPase in complex with spin-labeled inhibitors DCC and archazolid have enabled insight into the noncovalent binding dynamics and analysis of the enzyme's key functional subunit c. These studies also demonstrate the general utility of natural product derived spin labels as innovative tools for chemical biology.



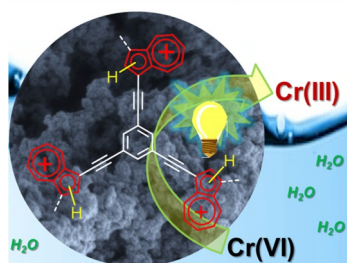
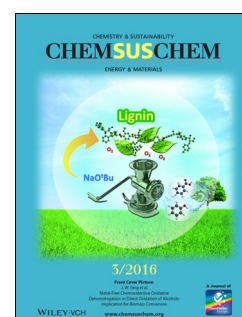
ChemSusChem
DOI: 10.1002/cssc.201501273

Perovskite Solar Cells

B. A. Nejjand, V. Ahmadi,* S. Gharibzadeh, H. R. Shahverdi

Cuprous Oxide as a Potential Low-Cost Hole-Transport Material for Stable Perovskite Solar Cells

New in town: The rotational angular deposition of Cu_2O as a new hole-transport material for perovskite solar cells shows high surface coverage of the perovskite layer for a high rate of charge extraction. The engineered Cu_2O layers show uniform, compact, and crack-free surfaces on the perovskite layer without affecting the perovskite structure. Deposition of Cu_2O on a pinhole-free perovskite layer yields devices with a maximum power conversion efficiency of 8.93%.



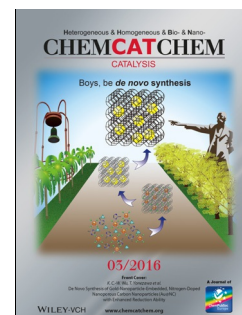
ChemCatChem
DOI: 10.1002/cctc.201501102

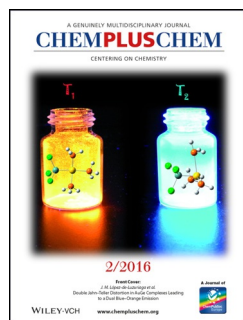
Photocatalysis

S. Ghasimi, K. Landfester, K. A. I. Zhang*

Water Compatible Conjugated Microporous Polyazulene Networks as Visible-Light Photocatalysts in Aqueous Medium

Feeling a little blue: Water-compatible, visible-light-active, conjugated, microporous polyazulene networks are synthesized as highly stable heterogeneous photocatalysts for the photoreduction reaction of Cr^{VI} to Cr^{III} in aqueous medium. This design strategy could offer a clean and cost-effective solution to obtain water-compatible, pure organic, photoactive polymers under sustainable and environmentally friendly conditions.



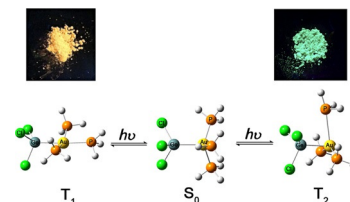


Jahn-Teller Effect

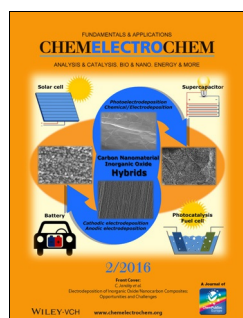
R. V. Bojan, J. M. López-de-Luzuriaga,* M. Monge, M. E. Olmos, R. Echeverría, O. Lehtonen, D. Sundholm

Double Jahn–Teller Distortion in AuGe Complexes Leading to a Dual Blue–Orange Emission

Team colors: The inorganometallic Au^I complexes [Au(GeCl₃)L₃] (L = PMe₃ (1), PMe₂Ph (2), PMePh₂ (3), PPh₃ (4)) have been synthesized. Complexes 3 and 4 display dual phosphorescence in the solid state. Ab initio calculations show that the existence of two different triplet excited states, T₁ and T₂, is related to this phosphorescent behavior. A double Jahn–Teller effect for each triplet-state structure is described.



ChemPlusChem
DOI: 10.1002/cplu.201500337

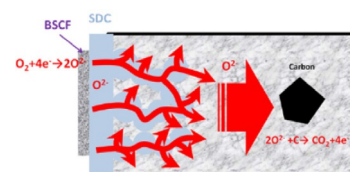


Solid Oxide Fuel Cells

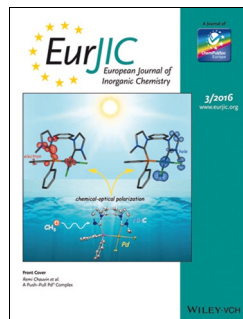
W. Zhou, Y. Jiao, S.-D. Li, Z. Shao*

Anodes for Carbon-Fueled Solid Oxide Fuel Cells

The anode is key: The development of anodes in CF-SOFCs from the perspective of material compositions and microstructures is reviewed. Challenges and research trends based on the fundamental understanding of the materials science and engineering for anode development in CF-SOFCs are discussed.



ChemElectroChem
DOI: 10.1002/celec.201500420

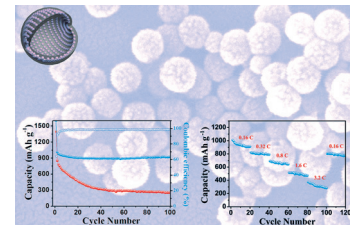


Anode Materials

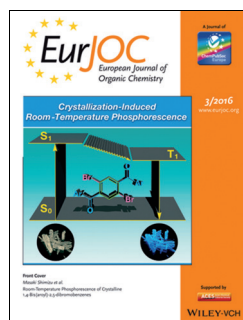
L. Li, L. Zhang, F. Chai,* T. Wang, Z. Li, H. Xie, C. Wang,* Z. Su*

SnO₂@N-Doped Carbon Hollow Nanoclusters for Advanced Lithium-Ion Battery Anodes

A unique functional nanoarchitecture, SnO₂@N-doped carbon hollow nanoclusters, consisting of a large amount of ultrafine small SnO₂ nanoparticles, a hollow interior space, and continuous N-doped carbon shells is fabricated. This material shows highly reversible lithium storage and outstanding cycling performance as an anode material for lithium-ion batteries.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201501307

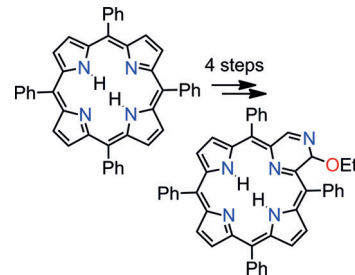


Pyrazine-Based Porphyrinoids

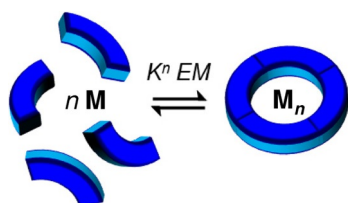
M. L. Head, G. Zarate, C. Brückner*

-Tetraphenylporphyrin by a Nitrogen Atom

The stepwise modification of *meso*-tetraphenylporphyrin to affect the formal replacement of a pyrrolic building block by a pyrazine moiety is described. The optical properties of the resulting pyrazinoporphyrins are porphyrin-like.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201501436



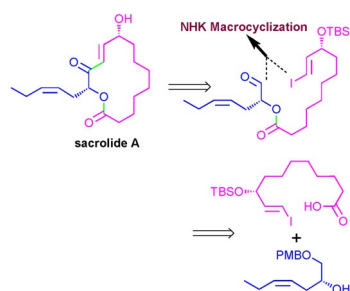
ChemistryOpen
DOI: 10.1002/open.201500171

Supramolecular Chemistry

M. J. Mayoral, N. Bilbao, D. González-Rodríguez*

Hydrogen-Bonded Macrocyclic Supramolecular Systems in Solution and on Surfaces

Mastering supramolecular macrocyclic molecules: Cyclization into closed assemblies is the most common approach to the noncovalent synthesis of discrete supramolecular nanostructures. This review focuses on the noncovalent synthesis of monocyclic hydrogen-bonded systems that are self-assembled from a single molecule with two binding-sites. Several examples are described in which cycles of different sizes, from dimers to hexamers, are studied by diverse solution or surface characterization techniques.



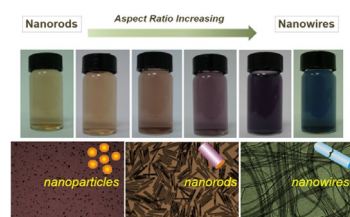
Asian J. Org. Chem.
DOI: 10.1002/ajoc.201500537

Total Synthesis

B. K. Jena, A. V. V. Reddy, D. K. Mohapatra*

Total Synthesis of Sacrolide A by Following a Nozaki-Hiyama-Kishi Macrocyclization Strategy

Sacr' bleu! A highly stereoselective total synthesis of sacrolide A has been achieved in a convergent and efficient manner by utilizing Nozaki-Hiyama-Kishi macrocyclization as the key reaction.



ChemNanoMat
DOI: 10.1002/cnma.201500206

Shape-Controlled Synthesis

J.-W. Liu, J. Xu, W. Hu, J.-L. Yang,* S.-H. Yu*

Systematic Synthesis of Tellurium Nanostructures and Their Optical Properties: From Nanoparticles to Nanorods, Nanowires, and Nanotubes

Tellurium nanostructures: A simple solution-based process has been developed for the synthesis of tellurium nanostructures with tunable shape and sizes, including nanoparticles, nanorods, nanowires, and nanotubes. The size-dependent optical properties are explained based on modeling calculations using the joint density of states (JDOS).



ChemViews magazine
DOI: 10.1002/chemv.201600003

History of Science

ChemViews

300th Birthday: Antonio de Ulloa

This year marks the 300th anniversary of the birth of Antonio de Ulloa, the Spanish scientist, explorer, and naval officer credited with the first scientific description of platinum. Read about his turbulent life on ChemistryViews.org!

