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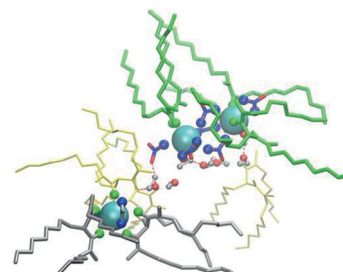


Solvent Extraction

R. J. Ellis,* Y. Meridiano, J. Muller, L. Berthon,* P. Guilbaud,* N. Zorz, M. R. Antonio, T. Demars, T. Zemb

Complexation-Induced Supramolecular Assembly Drives Metal-Ion Extraction

Working at the interface: Combining experiment with theory reveals the role of self-assembly and complexation in metal-ion transfer through the water–oil interface. The coordinating metal salt $\text{Eu}(\text{NO}_3)_3$ was extracted from water into oil by a lipophilic neutral amphiphile (see figure).



Chem. Eur. J.
DOI: 10.1002/chem.201403859

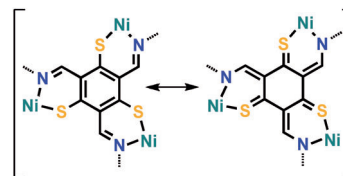


Heteroradialenes

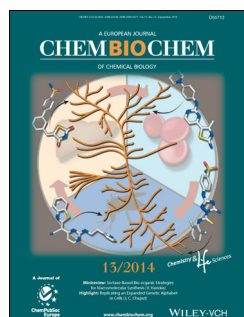
B. Feldscher, A. Stammler, H. Bögge, T. Glaser*

Aromatic Versus Heteroradialene Character in Extended Thiophloroglucinol Ligands and their Trinuclear Nickel(II) Complexes

Trinickel complexes of extended thiophloroglucinol ligands were subjected to detailed analysis and comparisons based on ^1H , ^{13}C , ^{15}N NMR, FTIR, and UV/Vis spectroscopic data as well as structural parameters, which demonstrated that the heteroradialene resonance structure of the ligand prevails over its aromatic counterpart (see picture).



Chem. Asian J.
DOI: 10.1002/asia.201402272

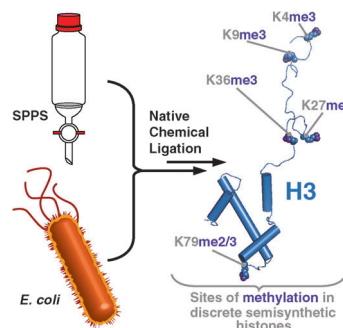


Protein Engineering

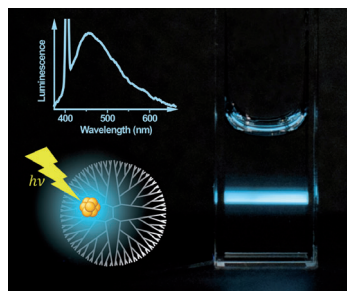
Z. Chen, A. T. Grzybowski, A. J. Ruthenburg*

Traceless Semisynthesis of a Set of Histone 3 Species Bearing Specific Lysine Methylation Marks

Without a trace: Advanced protein-ligation methodologies, optimized protein-engineering strategies, and radical-mediated desulfurization were coupled to generate native-like histone 3, bearing all five of its most studied methyllysines. We demonstrated that these semisynthetic histones, in the context of nucleosomes, are valuable reagents for unbiased binding partner discovery.



ChemBioChem
DOI: 10.1002/cbic.201402313



ChemPhysChem

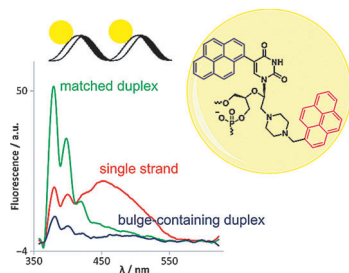
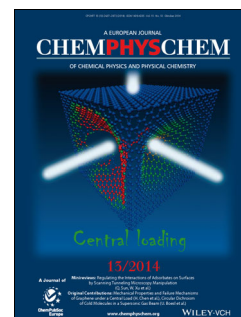
DOI: 10.1002/cphc.201402287

Gold Nanoclusters

J. M. Kim, S. H. Sohn, N. S. Han, S. M. Park, J. Kim,* J. K. Song*

Blue Luminescence of Dendrimer-Encapsulated Gold Nanoclusters

A shining heart of gold: The luminescence of gold nanoclusters that are encapsulated inside hydroxyl-terminated PAMAM dendrimers contains two electronic transitions of Au_8 and Au_{13} . The luminescence of the gold nanoclusters is clearly distinguished from that of the dendrimers.



ChemMedChem

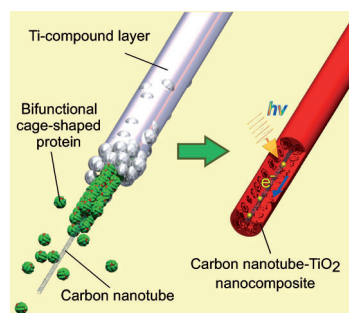
DOI: 10.1002/cmdc.201402185

Oligonucleotides

P. Perliková, M. Ejlersen, N. Langkjær, J. Wengel*

Bis-Pyrene-Modified Unlocked Nucleic Acids: Synthesis, Hybridization Studies, and Fluorescent Properties

Second to none with 2 to 1: We attached two pyrenes to a single unlocked nucleic acid (UNA) monomer, one via a piperazino linker and the other directly to the 5-position of uracil. Fluorescence measurements of an oligonucleotide with two bis-pyrene UNA incorporations are able to clearly distinguish between the single stranded-form and matched and bulge-containing duplex forms.



ChemSusChem

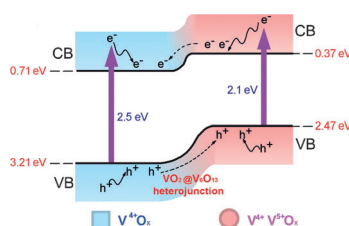
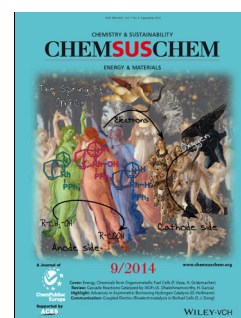
DOI: 10.1002/cssc.201402514

Solar Cells

I. Inoue, K. Watanabe, H. Yamauchi, Y. Ishikawa, H. Yasueda, Y. Uraoka, I. Yamashita*

Biological Construction of Single-Walled Carbon Nanotube Electron Transfer Pathways in Dye-Sensitized Solar Cells

Tube light: A nanocomposite of TiO_2 -coated single-walled carbon nanotube (SWNT) is synthesized by using a cage-shaped protein supramolecule with SWNT-binding and Ti-mineralization bifunctionality. Dye-sensitized solar cells (DSSCs) that use the SWNT- TiO_2 nanocomposite show decreased electrical resistance (by 50%) and improved power conversion efficiency (by 120%) compared to SWNT-free reference DSSCs.



ChemCatChem

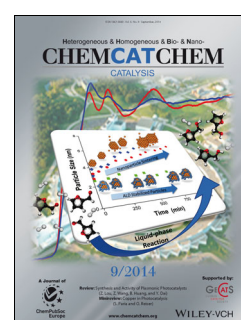
DOI: 10.1002/cctc.201402336

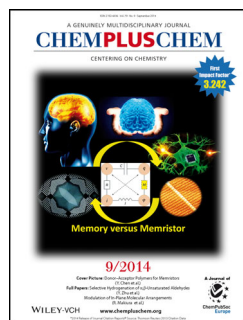
Photocatalysis

B. J. Jiang, X. X. Peng, Y. Qu, H. Wang, C. G. Tian, Q. J. Pan, M. X. Li, W. Zhou, H. G. Fu*

A New Combustion Route to Synthesize Mixed Valence Vanadium Oxide Heterojunction Composites as Visible-Light-Driven Photocatalysts

Let it burn: A new vanadium oxide heterojunction ($VO_2@V_6O_{13}$) is fabricated by using a facile and direct combustion method. The heterojunction photocatalyst demonstrates improved photocatalytic activity and structural stability in the degradation of atrazine pesticide and methylene blue under visible light irradiation. Furthermore, this straightforward method has promising applications in the fabrication of other heterostructure photocatalysts.



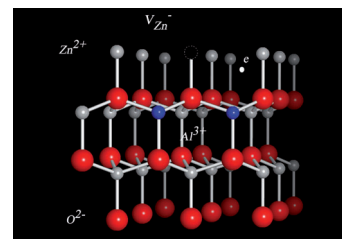


Conducting Materials

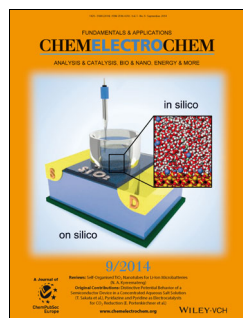
R. Chen, P. Zhu,* L. Deng, T. Zhao, R. Sun,* C. Wong

Effect of Aluminum Doping on the Growth and Optical and Electrical Properties of ZnO Nanorods

Desirable defects: Zinc oxide and aluminum-doped zinc oxide (AZO) nanorods have been synthesized by a solvothermal route. The growth and optoelectronic properties of the nanorods have been studied systematically, and provide insights into the role of defects in AZO materials (see graphic).



ChemPlusChem
DOI: 10.1002/cplu.201300398

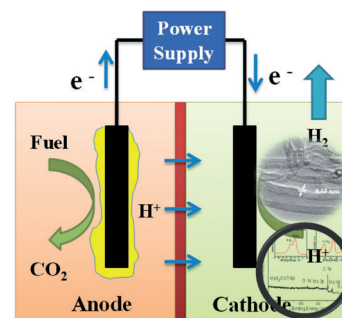


Electrocatalysis

H. Yuan, J. Li, C. Yuan,* Z. He*

Facile Synthesis of MoS₂@CNT as an Effective Catalyst for Hydrogen Production in Microbial Electrolysis Cells

Cheap but functional: MoS₂@CNT is effective for catalyzing hydrogen evolution reactions in microbial electrolysis cells. Although its efficiency is lower than that of platinum-based catalysts, its low cost still makes it competitive.



ChemElectroChem
DOI: 10.1002/celec.201402150

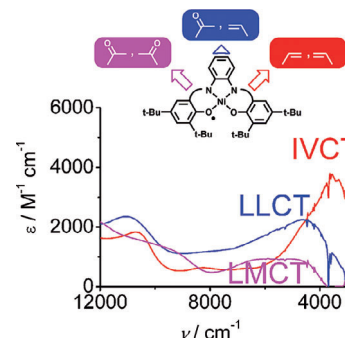


Radical Complexes

L. Lecarme, L. Chiang, C. Philouze, O. Jarjayes, T. Storr,* F. Thomas*

Detailed Geometric and Electronic Structures of a One-Electron-Oxidized Ni Salophen Complex and Its Amido Derivatives

The radical complexes depicted feature a near-IR (NIR) transition. Time-dependent DFT (TD-DFT) calculations reveal that its origin differs and strongly depends on the linker between the central ring and the phenol rings. Depending on the linker, it is an intervalence charge transfer (IVCT) transition, an intraligand charge transfer (LLCT), or acquires ligand-to-metal charge transfer (LMCT) character.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201402265

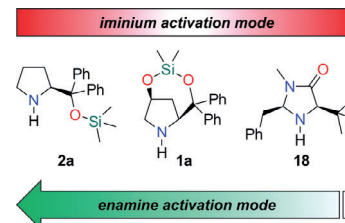


Organocatalysis

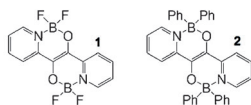
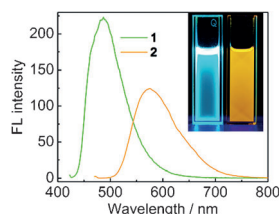
M. Lombardo,* L. Cerisoli, E. Manoni, E. Montroni, A. Quintavalla, C. Trombini

Properties and Reactivity of Conformationally Constrained Bicyclic Diarylprolinol Silyl Ethers as Organocatalysts

Bicyclic silyl ether derivative **1a**, which is easily prepared from *trans*-4-L-hydroxyproline, is much more stable toward protodesilylation than Jørgensen–Hayashi's catalyst **2a**. Despite their structural analogy, **1a** behaves as a very efficient catalyst in iminium chemistry, but is much less active than **2a** in the enamine activation mode. Here, **1a** exhibits a higher or equivalent level of stereocontrol.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201402732



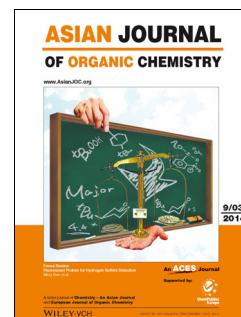
Asian J. Org. Chem.
DOI: 10.1002/ajoc.201402131

Heterochrysenes

H. Zhang, X. Hong, X. Ba,* B. Yu, X. Wen, S. Wang, X. Wang, L. Liu, J. Xiao*

Synthesis, Physical Properties, and Photocurrent Behavior of Strongly Emissive Boron-Chelate Heterochrysenes

Crysene point: A N,O-chelated boron complex **2** and its analogue **1** have been synthesized and characterized. Single crystal analysis of **1** shows that all carbon and nitrogen atoms are almost in a single plane. **1** and **2** emit green and yellow light in dichloromethane, respectively. The photocurrent response of a **1**-single-walled carbon nanotube thin film is steady and reproducible.



ChemViews magazine
DOI: 10.1002/chemv.201400082

Histone Deacetylases

S. Williams

Effect of Various Zinc Binding Groups on Inhibition of HDACs

In "Behind the Science", ChemistryViews.org gives readers a peek behind the scenes of a research article. This time, Scott Williams, editor for ChemMedChem, talks to Professor Christian A. Olsen about his motivation to investigate a series of histone deacetylase (HDAC) inhibitors with zinc binding domains and his ongoing research in epigenetics.

