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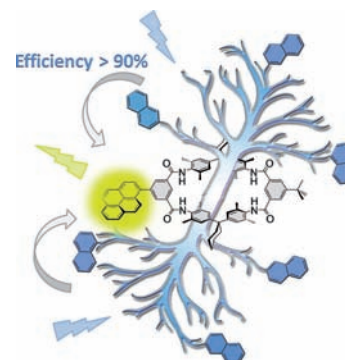


Rotaxanes

M. E. Gallina, B. Baytekin, C. Schalley,* P. Ceroni*

Light-Harvesting in Multichromophoric Rotaxanes

A mechanically interlocked antenna: Two rotaxanes consisting of six naphthyl units appended to the stoppers and a pyrene chromophore attached to the wheel perform as light-harvesting antennae (see figure). Upon excitation of the naphthyl units energy transfer to the pyrene acceptor takes place with an efficiency higher than 90%.



Chem. Eur. J.
DOI: 10.1002/chem.201102981

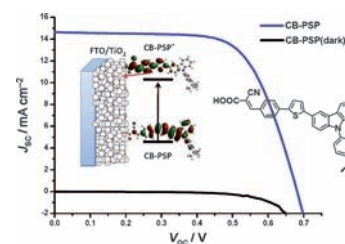


Dye-Sensitized Solar Cells

Y. J. Chang, P.-T. Chou, S.-Y. Lin, M. Watanabe, Z.-Q. Liu, J.-L. Lin, K.-Y. Chen, S.-S. Sun, C.-Y. Liu, T. J. Chow*

High-Performance Organic Materials for Dye-Sensitized Solar Cells: Triarylene-Linked Dyads with a 4-*tert*-Butylphenylamine Donor

Quite materialistic: The dye CB-PSP exhibited J_{sc} (14.63 mA cm^{-2}), V_{oc} (0.685 V), and FF values (0.67), which corresponded to a conversion efficiency of 6.70%. The overall performance was reduced by about 16–18% with addition of chenodeoxycholic acid (CDCA). This result indicated that the presence of *tert*-butylphenyl substituents can effectively inhibit self-aggregation, even without CDCA.



Chem. Asian J.
DOI: 10.1002/asia.201100777

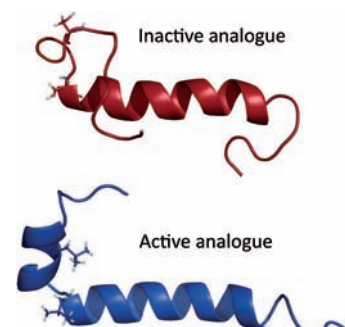


Peptides

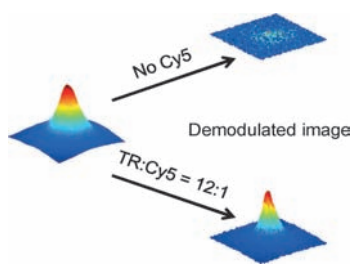
C. S. Sit, C. T. Lohans, M. J. van Belkum, C. D. Campbell, M. Miskolzie, J. C. Vederas*

Substitution of a Conserved Disulfide in the Type IIa Bacteriocin, Leucocin A, with L-Leucine and L-Serine Residues: Effects on Activity and Three-Dimensional Structure

Bridge not required: The disulfide bridge in the antibacterial peptide leucocin A was replaced with two Ser or two Leu residues. The double leucine mutant was found to be active, and elucidation of its 3D structure showed that the two leucines interact to hold the N- and C-terminal domains together.



ChemBioChem
DOI: 10.1002/cbic.201100634



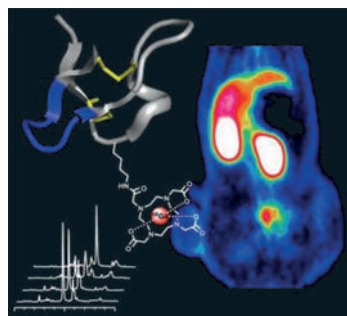
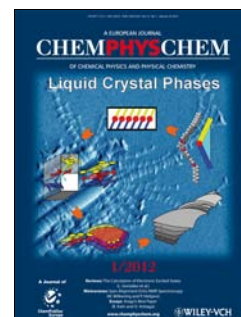
ChemPhysChem
DOI: 10.1002/cphc.201100671

Fluorescence Imaging

C. Fan, J.-C. Hsiang, R. M. Dickson*

Optical Modulation and Selective Recovery of Cy5 Fluorescence

Photoinduced isomerization of Cy5 from *trans* to *cis* can be quickly reversed with long-wavelength secondary illumination. Modulating this co-illumination directly encodes the modulation waveform on the higher energy Cy5 fluorescence, enabling its selective recovery even in the presence of overwhelming background. This low-energy, reversible, long-lived dark state makes Cy5 an excellent dye for synchronously amplified fluorescence image recovery (SAFIRE).



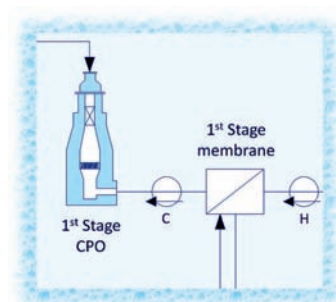
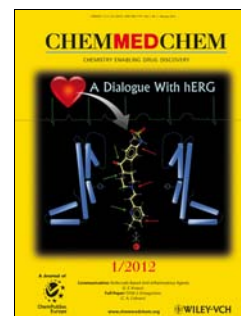
ChemMedChem
DOI: 10.1002/cmdc.201100497

Peptide Chemistry

F. Zoller, T. Schwaebel, A. Markert, U. Haberkorn, W. Mier*

Engineering and Functionalization of the Disulfide-Constrained Miniprotein Min-23 as a Scaffold for Diagnostic Application

Small but smart: Mini-proteins are scaffolds for the development of alternative non-immunoglobulin binding entities. Their structural characteristics and excellent stability support the use of this peptide format for the engineering of novel diagnostic agents. Herein we present the total chemical synthesis of the disulfide-constrained scaffold Min-23 and its functionalization for in vitro and in vivo application.



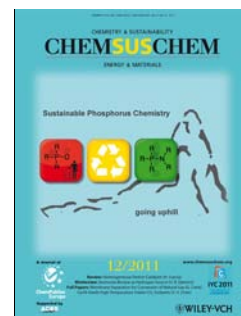
ChemSusChem
DOI: 10.1002/cssc.201100260

Membranes

D. Capoferri, B. Cucchiella, G. Iaquaniello,* A. Mangiapane, S. Abate, G. Centi

Catalytic Partial Oxidation and Membrane Separation to Optimize the Conversion of Natural Gas to Syngas and Hydrogen

Very synsible: The multistep integration of hydrogen-selective membranes into catalytic partial oxidation technology to convert natural gas into syngas and hydrogen is reported. Obtaining the same feed conversion at milder operating conditions translates into reduced natural gas consumption (and CO₂ emissions) and a reduction in variable operative costs of approximately 10% compared to conventional catalytic partial oxidation.



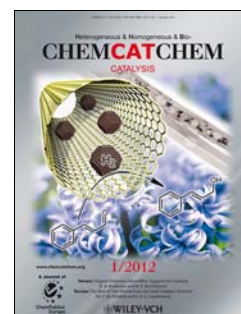
ChemCatChem
DOI: 10.1002/cctc.201100288

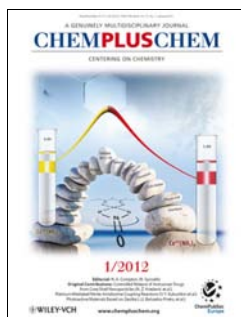
Gold Catalysis

M. P. de Almeida, S. A. C. Carabineiro*

The Best of Two Worlds from the Gold Catalysis Universe: Making Homogeneous Heterogeneous

The best of two worlds! Both heterogeneous and homogeneous catalyses by gold have well-known advantages. The heterogenization of gold complexes through anchoring on porous solid materials is a way to have "the best of two worlds." This work reviews the attempts made so far on this important topic. The results obtained show that these hybrid materials can have improved activity and selectivity and are potential choice candidates for several catalytic processes.



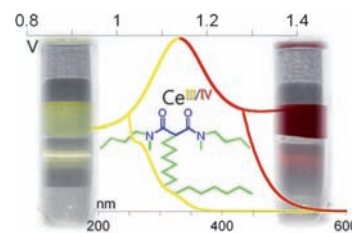


Electrochemistry

R. J. Ellis, M. R. Antonio*

Redox Chemistry of Third Phases Formed in the Cerium/Nitric Acid/Malonamide-*n*-Dodecane Solvent Extraction System

Three phases are a charm: The electroactive nature of Ce and its renowned $\text{Ce}^{\text{III/IV}}$ couple make it the keystone of this investigation at the intersection of separation science and electrochemistry. The $\text{Ce}^{\text{III/IV}}$ couple has been probed to disclose its physical and spectroscopic behaviors in organic phases of relevance to solvent extraction, thus affording original insights into third phase phenomena and ion transfer across the aqueous–organic liquid interface in the title system (see figure).



ChemPlusChem
DOI: 10.1002/cplu.201100022

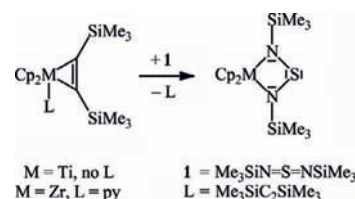


Metallacycles

K. Kaleta, M. Ruhmann, O. Theilmann, S. Roy, T. Beweries, P. Arndt, A. Villinger, E. D. Jemmis,* A. Schulz,* U. Rosenthal*

Experimental and Theoretical Studies of Unusual Four-Membered Metallacycles from Reactions of Group 4 Metallocene Bis(trimethylsilyl)acetylene Complexes with the Sulfurdiimide $\text{Me}_3\text{SiN}=\text{S}=\text{NSiMe}_3$

The reactions of the metallocene alkyne complexes $[\text{Cp}_2\text{Ti}(\eta^2\text{-Me}_3\text{SiC}_2\text{SiMe}_3)]$ and $[\text{Cp}_2\text{Zr}(\text{pyridine})(\eta^2\text{-Me}_3\text{SiC}_2\text{SiMe}_3)]$ with the sulfurdiimide $\text{Me}_3\text{SiN}=\text{S}=\text{NSiMe}_3$ yields metallacyclic metallocene sulfurdiimide complexes. The molecular structure and DFT analysis of the titanocene product revealed the presence of a butterfly coordination of the diimide along with two Ti–N σ -bonds.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201101188

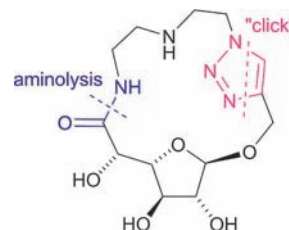


Macrocyclic Compounds

A. Allam, L. Dupont, J.-B. Behr, R. Plantier-Royon*

Convenient Synthesis of a Galacturonic Acid Based Macrocycle with Potential Copper-Complexation Ability

A galacturonic acid based macrocycle containing an amide group and a triazole ring has been synthesized by a procedure involving a copper-catalysed intramolecular cycloaddition reaction as the key step. The results of a preliminary study of the complexation properties of this macrocycle towards Cu^{II} cations are described.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201101406



What Makes a Candle Flame?

Vera Köster

What Makes a Candle Flame?

The different reaction zones of a candle flame and its heat and mass transfer pathways are illustrated in this Clever Picture.



ChemViews magazine
DOI: 10.1002/chemv.201000145