

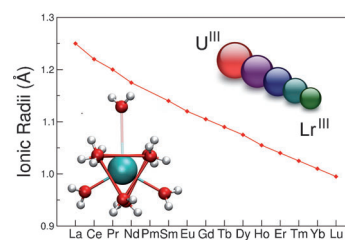


Lanthanoids and Actinoids

P. D'Angelo, R. Spezia*

Hydration of Lanthanoids(III) and Actinoids(III): an Experimental/Theoretical Saga

Experiments meet theory: X-ray absorption spectroscopy and theoretical methods succeeded in providing a clear picture of the hydration of lanthanoid(III) and actinoid(III) elements. Structural, dynamical, and thermodynamical properties have been investigated and pave the way for the study of the solvation and complexation of very heavy metals.



Chem. Eur. J.
DOI: 10.1002/chem.201200572

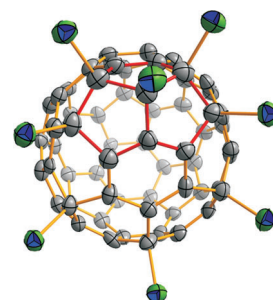


Fullerenes

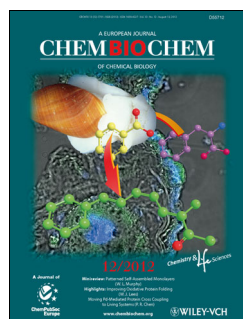
G.-J. Shan, Y.-Z. Tan, T. Zhou, X.-M. Zou, B.-W. Li, C. Xue, C.-X. Chu, S.-Y. Xie,* R.-B. Huang, L.-S. Zhen

$C_{64}Cl_8$: A Strain-Relief Pattern to Stabilize Fullerenes Containing Triple Directly Fused Pentagons

Chlorinate me! An incomplete chlorination pattern in $C_{64}Cl_8$ with an sp^2 -hybridized carbon atom remaining at the pentagon fusion represents a new model for exohedral stabilization of fullerenes containing triple directly fused pentagons.



Chem. Asian J.
DOI: 10.1002/asia.201200376

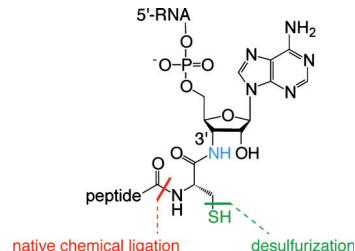


Peptides

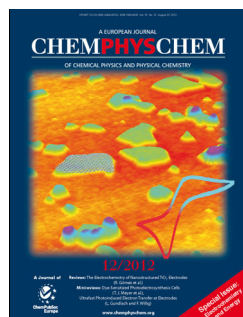
A.-S. Geiermann, R. Micura*

Selective Desulfurization Significantly Expands Sequence Variety of 3'-Peptidyl-tRNA Mimics Obtained by Native Chemical Ligation

Accessible: Functionally complex 3'-peptidyl-RNA conjugates can be efficiently desulfurized under free radical reaction conditions as demonstrated here. One-pot procedures for native chemical ligation (NCL) and desulfurization enable sequences for this class of bioconjugates that are inaccessible by other methods.



ChemBioChem
DOI: 10.1002/cbic.201200368

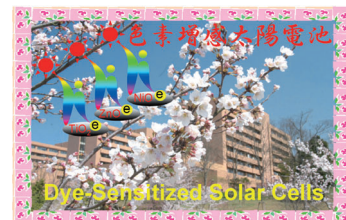


Organic Dyes

Y. Ooyama,* Y. Harima*

Photophysical and Electrochemical Properties, and Molecular Structures of Organic Dyes for Dye-Sensitized Solar Cells

Back to the drawing board: A new direction in the epoch-making molecular design of organic dyes for high photovoltaic performance and long-term stability of dye-sensitized solar cells (DSSCs) is described.



ChemPhysChem
DOI: 10.1002/cphc.201200218



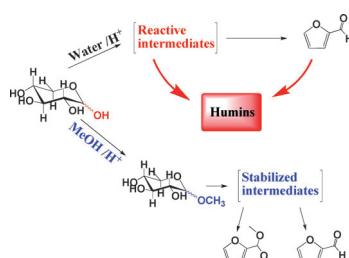
ChemMedChem
DOI: 10.1002/cmdc.201200234

Drug Design

A. Bhardwaj, S. N. Batchu, J. Kaur, Z. Huang, J. M. Seubert, E. E. Knaus*

Cardiovascular Properties of a Nitric Oxide Releasing Rofecoxib Analogue: Beneficial Anti-hypertensive Activity and Enhanced Recovery in an Ischemic Reperfusion Injury Model

Good news for the heart: The chronic use of rofecoxib causes adverse cardiovascular complications that prompted its withdrawal from the market. We recently modified rofecoxib into an NO-releasing, potent anti-inflammatory drug. Herein we describe the beneficial anti-hypertensive effects of the NO-releasing SO₂NHOH COX-2 pharmacophore on blood pressure and its ability to enhance recovery in a cardiac ischemic reperfusion injury model.



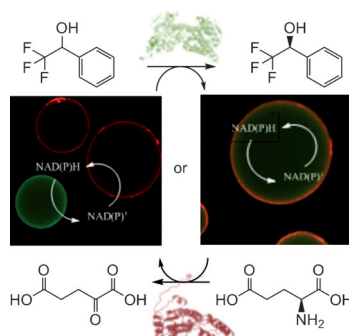
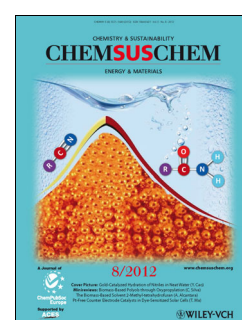
ChemSusChem
DOI: 10.1002/cssc.201100745

Biorefineries

X. Hu, C. Lievens, C.-Z. Li*

Acid-Catalyzed Conversion of Xylose in Methanol-Rich Medium as Part of Biorefinery

Methanolysis makes the difference: In a methanol/water medium, the conversion of xylose to methyl xylosides protects the C1 hydroxyl group of xylose, which stabilizes xylose and suppresses the formation of sugar oligomers and polymerization reactions.



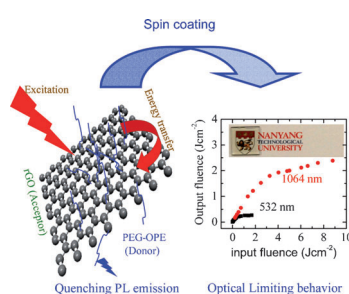
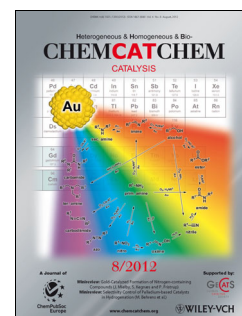
ChemCatChem
DOI: 10.1002/cctc.201200146

Enzyme Cascade

J. Rocha-Martín, B. d. I. Rivas, R. Muñoz, J. M. Guisán,*
F. López-Gallego*

Rational Co-Immobilization of Bi-Enzyme Cascades on Porous Supports and their Applications in Bio-Redox Reactions with In Situ Recycling of Soluble Cofactors

Better together: Co-immobilization was used to assemble three bio-redox orthogonal cascades with in situ cofactor-regeneration. These procedures were more efficient than if the dehydrogenases were immobilized on different carriers.



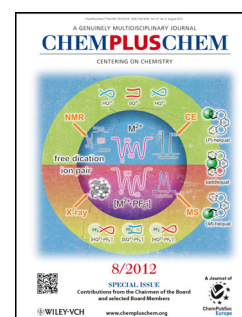
ChemPlusChem
DOI: 10.1002/cplu.201200113

Nonlinear Optics

T. He, X. Qi, R. Chen, J. Wei, H. Zhang,* H. Sun*

Enhanced Optical Nonlinearity in Noncovalently Functionalized Amphiphilic Graphene Composites

No limit! Broadband optical limiting (OL) characteristics are explored in the amphiphilic graphene composite (PEG-OPE-rGO) for the first time (see figure). It was found that the PEG-OPE-rGO nanocomposite presents excellent OL effects in various solvents and in highly transparent thin films from the nanosecond visible to near-infrared pulses, which makes this composite a very promising material for use in practical OL devices.



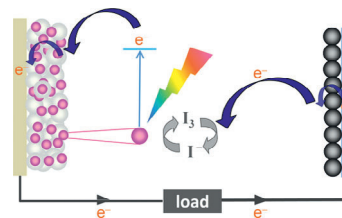


Solar Cells

Y. Wang, M. Wu, X. Lin, A. Hagfeldt, T. Ma*

Optimization of the Performance of Dye-Sensitized Solar Cells Based on Pt-Like TiC Counter Electrodes

A versatile material, TiC, has been introduced into a DSC system as a CE catalyst, catalyzing the regeneration of the I_3^-/I^- redox couple in the electrolyte. The effect of the loading of TiC on FTO glass on the performance of the DSC was investigated systematically. Under optimized conditions, a high-power conversion efficiency was obtained.



Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.201200329

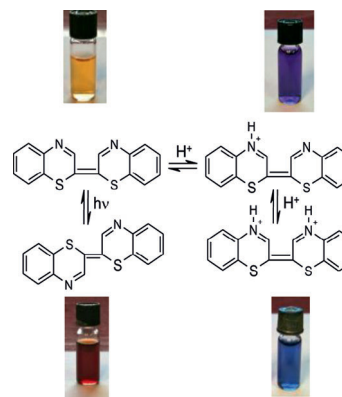


Photochromism

L. Leone, O. Crescenzi, A. Napolitano,* V. Barone, M. d'Ischia

The $\Delta^{2,2'}$ -Bi(2H-1,4-benzothiazine) Structural Motif of Red Hair Pigments Revisited: Photochromism and Acidochromism in a Unique Four-State System

The stable yellow form of $\Delta^{2,2'}$ -bi(2H-1,4-benzothiazine) (BBTZ) is shown to be the Z rather than E isomer, as originally suggested. The latter configuration pertains to the red photoexcited form. A blue species produced by diprotonation of BBTZ in 2 M HCl is also disclosed. BBTZ is thus proposed as a robust bioinspired four-state chromic system.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201200673



Sustainability

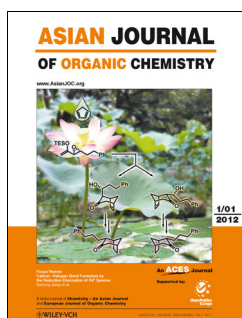
Vera Köster

Organizing a European Multilevel Biorefinery Project

The EuroBioRef project deals with the entire process of transformation of biomass, from fields to final commercial products. Professor Franck Dumeignil talks about how he started this huge, highly collaborative network and the challenges of coordinating 29 partners from industry, Small and Medium-sized Enterprises (SMEs), and academics from 15 different countries.



ChemViews magazine
DOI: 10.1002/chemv.201200068

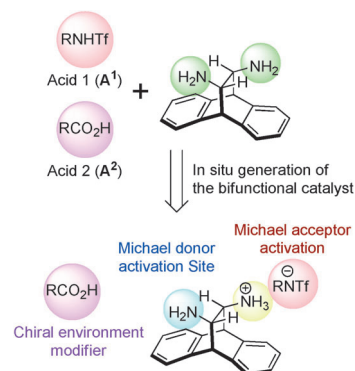


Asymmetric Organocatalysis

S. A. Moteki, P. G. Kirira, S. Arimitsu, K. Maruoka*

In Situ Preparation of Chiral Bifunctional Catalysts and Their Application to Asymmetric Michael Addition Reactions

Combine and conquer! The asymmetric conjugate addition of α -chloro aldehydes to vinyl sulfones catalyzed by chiral bifunctional catalysts is described. Two acid additives were mixed with a *trans*-diamine-based organocatalyst precursor to create a highly efficient bifunctional catalyst in situ. Each additive either activates the Michael acceptor or modifies the chiral environment, which gives high yields and enantioselectivity. Tf = trifluoromethanesulfonate.



Asian J. Org. Chem.
DOI: 10.1002/ajoc.201200040