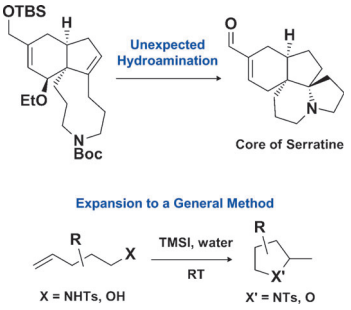
On these pages, we feature a selection of the excellent work that has recently been published in our sister journals. If you are reading these pages on a computer, click on any of the items to read the full article. Otherwise please see the DOIs for easy online access through Wiley Online Library.

Hydroamination

P. R. Leger, R. A. Murphy, E. Pushkarskaya, R. Sarpong*

Synthetic Efforts toward the *Lycopodium* Alkaloids Inspires a Hydrogen Iodide Mediated Method for the Hydroamination and Hydroetherification of Olefins

Harnessing the unexpected: The expedient synthesis of a strategic synthetic intermediate en route to structurally diverse *Lycopodium* alkaloids has been accomplished. During these studies, in situ generated hydrogen iodide promoted an unanticipated hydroamination. This transformation has been thoroughly investigated and expanded into a general method for the hydrofunctionalization of unactivated olefins.



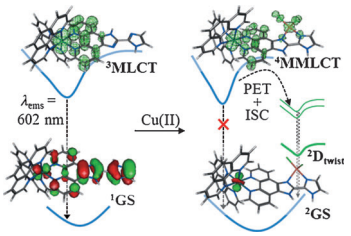
Chem. Eur. J.
DOI: **10.1002/chem.201406242**

Photophysics

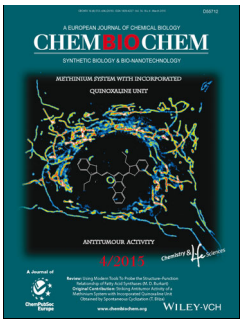
A. R. Santos, D. Escudero,* L. González, G. Orellana*

Unravelling the Quenching Mechanisms of a Luminescent Ru^{II} Probe for Cu^{II}

Quenching of photoluminescence: The mechanisms of the luminescence quenching of a novel metal ion probe for Cu^{II} in water have been experimentally and computationally studied. Non-radiative deactivation pathways opened up upon Cu^{II} binding are responsible for the population drainage of the emissive state.



Chem. Asian J.
DOI: **10.1002/asia.201403340**

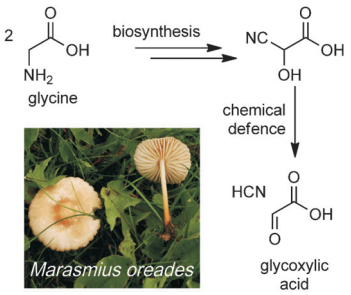


Natural Products

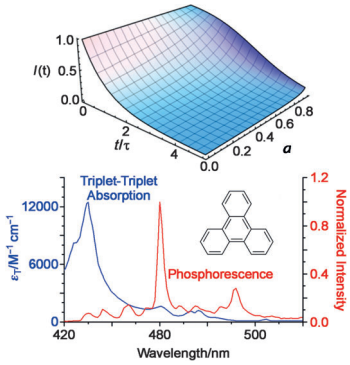
J. Caspar, P. Spiteller*

A Free Cyanohydrin as Arms and Armour of *Marasmius oreades*

The wound-activated chemical defence in *Marasmius oreades* and the fruiting bodies of other mushrooms is based on the free cyanohydrin of glyoxylic acid, which is degraded to hydrocyanic acid and glyoxylic acid upon injury. A feeding experiment with labelled glycine revealed that the free cyanohydrin of glyoxylic acid is biosynthetically derived from two glycine units.



ChemBioChem
DOI: **10.1002/cbic.201402453**



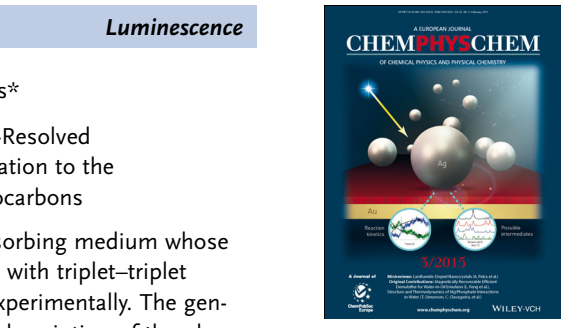
Luminescence

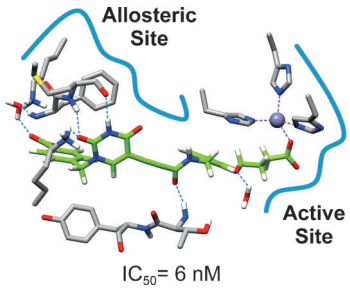
T. Palmeira, A. Fedorov, M. N. Berberan-Santos*

Influence of Excited-State Absorption on Time-Resolved Luminescence: General Formalism and Application to the Phosphorescence of Polycyclic Aromatic Hydrocarbons

The luminescence decay of a species in an absorbing medium whose optical thickness changes with time, as occurs with triplet–triplet absorption, is studied both theoretically and experimentally. The general approach introduced allows the adequate description of the phosphorescence decays of polycyclic aromatic hydrocarbons in the presence of triplet–triplet absorption, as shown for normal and perdeuterated coronene and triphenylene.

ChemPhysChem
DOI: **10.1002/cphc.201402695**





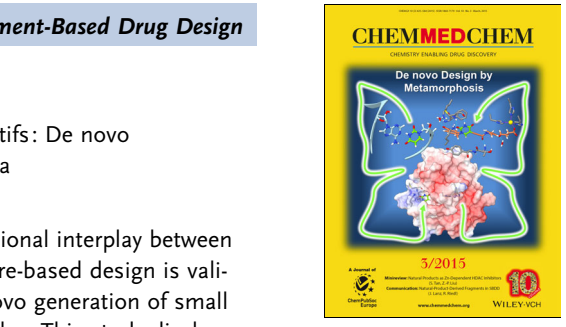
Fragment-Based Drug Design

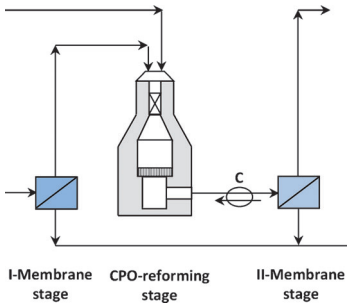
J. Lanz, R. Riedl*

Merging Allosteric and Active Site Binding Motifs: De novo Generation of Target Selectivity and Potency via Natural-Product-Derived Fragments

De novo design via metamorphosis: The functional interplay between natural-product-derived fragments and structure-based design is validated as a viable technology for efficient de novo generation of small molecules with tailored biological activity profiles. This study discloses the targeted discovery of potent, selective, and ligand-efficient uracil-based inhibitors of MMP-13 by using two binding motifs simultaneously.

ChemMedChem
DOI: **10.1002/cmdc.201402478**





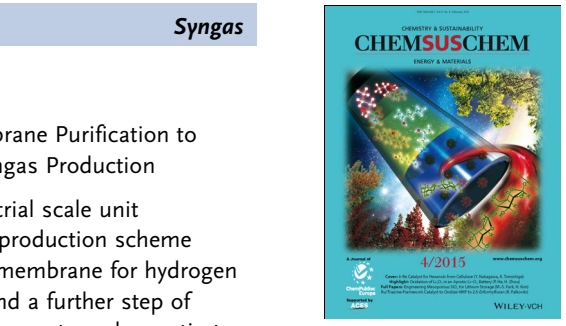
Syngas

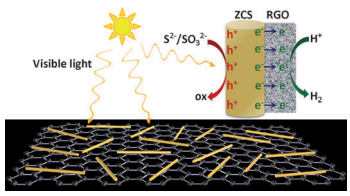
G. Iaquaniello, A. Salladini,* E. Palo, G. Centi

Catalytic Partial Oxidation Coupled with Membrane Purification to Improve Resource and Energy Efficiency in Syngas Production

Original syn: Experimentation in a semi-industrial scale unit (20 $Nm^3\ h^{-1}$ production) shows that a syngas production scheme based on a pre-reforming stage followed by a membrane for hydrogen separation, a catalytic partial oxidation step, and a further step of syngas purification by membrane allows the oxygen-to-carbon ratio to be decreased while maintaining levels of feed conversion, realizing a more sustainable and economic process for syngas production.

ChemSusChem
DOI: **10.1002/cssc.201402732**





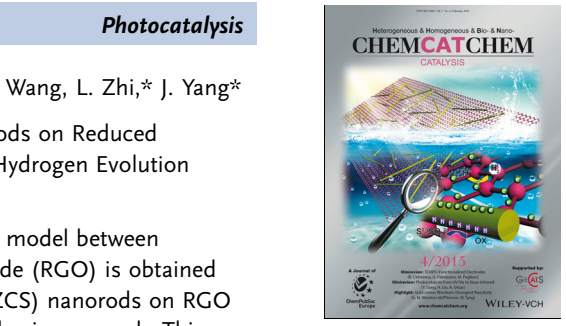
Photocatalysis

S. Shen, A. Ma, Z. Tang, Z. Han, M. Wang, Z. Wang, L. Zhi,* J. Yang*

Facile Synthesis of $Zn_{0.5}Cd_{0.5}S$ Ultrathin Nanorods on Reduced Graphene Oxide for Enhanced Photocatalytic Hydrogen Evolution under Visible Light

Net support for photocatalysts: A new contact model between $Zn_xCd_{1-x}S$ nanorods and reduced graphene oxide (RGO) is obtained by rational formation of ultrathin $Zn_{0.5}Cd_{0.5}S$ (ZCS) nanorods on RGO with a facile oleylamine–DMSO mediated synthesis approach. This new interface not only favors the fast collection and transfer of photogenerated electrons but also stabilizes the ultrathin nanorod structure.

ChemCatChem
DOI: **10.1002/cctc.201402872**

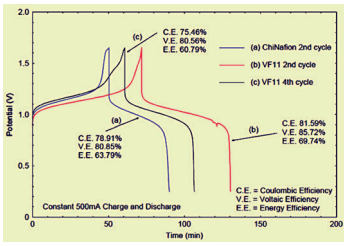


Redox Flow Batteries

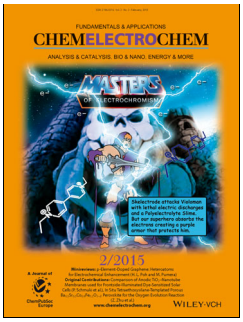
S. Winardi, G. Poon, M. Ulaganathan, A. Parasuraman, Q. Yan, N. Wai, T. M. Lim,* M. Skyllas–Kazacos*

Effect of Bromine Complexing Agents on the Performance of Cation Exchange Membranes in Second-Generation Vanadium Bromide Battery

Battery performance: Complexing agents affect the performance of both ChiNaf and VF11 membranes used in vanadium bromide redox flow cells owing to the formation of an organic layer on the membrane surface, which acts as an insulation barrier, and thus, increases membrane resistance. The VF11 membrane performs better than ChiNaf, with a higher coulombic efficiency and energy efficiency (see figure).



ChemPlusChem
DOI: **10.1002/cplu.201402260**

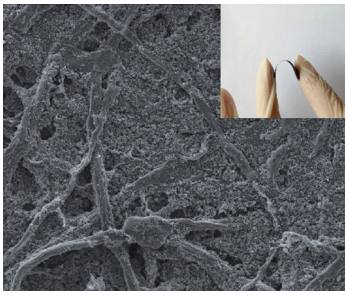


Lithium-Sulfur Batteries

W. Chen, Z. Zhang,* Q. Li, Y. Lai, J. Li

Freestanding Sulfur/3D Carbon Fiber Membrane Cathodes for Advanced Lithium–Sulfur Batteries

High in fiber: A freestanding porous membrane of nitrogen-doped carbon-sphere-coated 3D carbon fibers (NC@FCF) is designed and prepared through the carbonization of modified filter paper, on the surface of which polydopamine spheres are deposited. After infiltration with sulfur, the obtained S-NC@FCF membrane is directly used in lithium–sulfur batteries as a cathode, exhibiting excellent electrochemical performance.



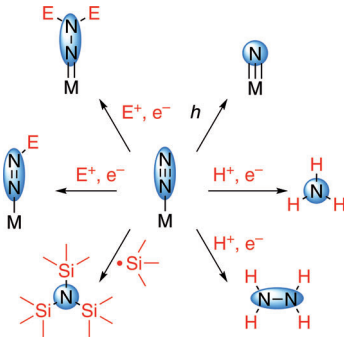
ChemElectroChem
DOI: **10.1002/celc.201402316**

Dinitrogen Activation

N. Khoenkhoen, B. de Bruin, J. N. H. Reek, W. I. Dzik*

Reactivity of Dinitrogen Bound to Mid- and Late-Transition-Metal Centers

Mid- and late-transition metals are excellent platforms for enabling the reactivity of dinitrogen. This microreview gives an overview of the many reactions in which N_2 is cleaved or forms new bonds with electrophiles or radicals. These reactions occur under ambient conditions, and some of them, such as the formation of ammonia or silylamines, are even catalytic.



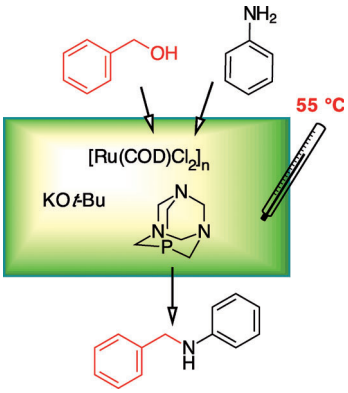
Eur. J. Inorg. Chem.
DOI: **10.1002/ejic.201403041**

Low-Temperature Alkylation

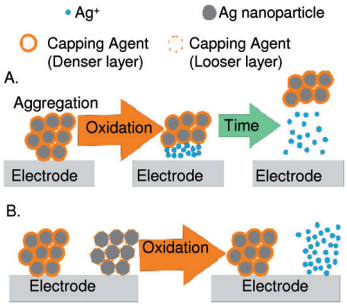
V. R. Jumde, L. Gonsalvi, A. Guerriero, M. Peruzzini, M. Taddei*

A Ruthenium-Based Catalytic System for a Mild Borrowing-Hydrogen Process

The alkylation of anilines with alcohols is possible at 55 °C using a Ru catalyst (2.5 mol-%) and a ligand that does not require an inert atmosphere.



Eur. J. Org. Chem.
DOI: **10.1002/ejoc.201403636**



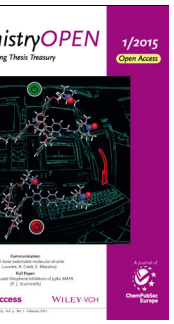
ChemistryOpen
DOI: **10.1002/open.201402050**

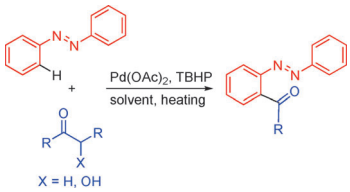
Voltammetry

S. J. Cloake, H. S. Toh, P. T. Lee, C. Salter, C. Johnston, R. G. Compton*

Anodic Stripping Voltammetry of Silver Nanoparticles: Aggregation Leads to Incomplete Stripping

Things to consider when stripping: Aggregation causes incomplete stripping of dopamine-capped silver nanoparticles. Two possible mechanisms of (A) 'partial oxidation' and (B) 'inactivation' of the nanoparticles are proposed to account for incomplete stripping. Aggregation effects must be considered when anodic stripping voltammetry is used for nanoparticle detection and quantification.





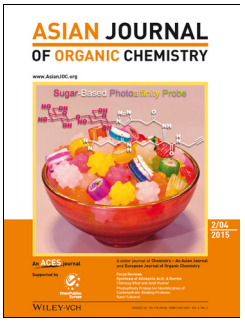
Asian J. Org. Chem.
DOI: **10.1002/ajoc.201402280**

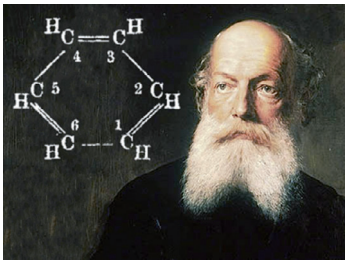
Acylation

B. Majhi, S. Ahammed, D. Kundu, B. C. Ranu*

Palladium-Catalyzed Oxidative C–C Bond Cleavage of α-Hydroxyketones: Application to C–H Acylation of Azoarenes and Synthesis of a Liver(X) Receptor Agonist

Soul acyl-um: Palladium-catalyzed oxidative C–C cleavage of α-hydroxyketones and 2-aryl acetophenones in the presence of *tert*-butyl hydrogen peroxide (TBHP) and subsequent C–H acylation of azoarenes with the generated acyl moiety provides easy access to acyl azoarenes.





ChemViews magazine
DOI: **10.1002/chemv.201500007**

History

150th Anniversary: Kekulé's Benzene Structure

August Kekulé, published his seminal paper on the structure of benzene in January of 1865. His pioneering insight allowed the field of structural organic chemistry to flourish and was a turning point for the drug and dye industries.