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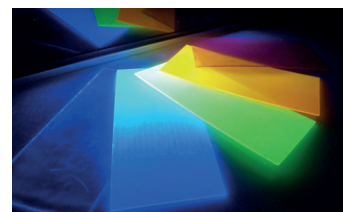


### Plastic Scintillators

G. H. V. Bertrand, M. Hamel,\* F. Sguerra

Current Status on Plastic Scintillators Modifications

**How have organic and polymer chemistry helped physicists to improve radiation detection?** Various examples of chemically modified plastic scintillators (see figure) are given from 2000 to present.



Chem. Eur. J.  
DOI: [10.1002/chem.201404093](https://doi.org/10.1002/chem.201404093)

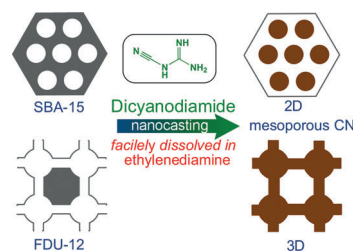


### Mesoporous Materials

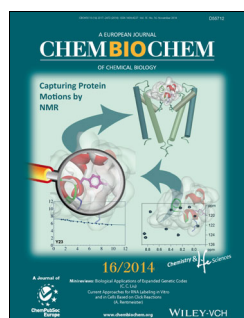
J. Xu,\* T. Chen, Q. Jiang, Y.-X. Li\*

Utilization of Environmentally Benign Dicyandiamide as a Precursor for the Synthesis of Ordered Mesoporous Carbon Nitride and its Application in Base-Catalyzed Reactions

**CN tower:** Assisted by its facile dissolution in ethylenediamine, commercially available and relatively non-toxic dicyandiamide was used as a precursor for the preparation of highly ordered mesoporous carbon nitride.



Chem. Asian J.  
DOI: [10.1002/asia.201402700](https://doi.org/10.1002/asia.201402700)

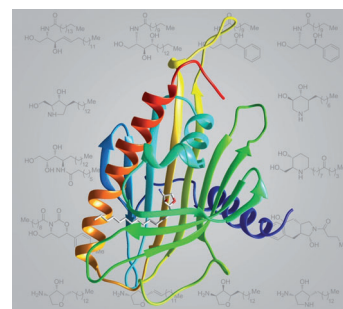


### Enzyme Inhibitors

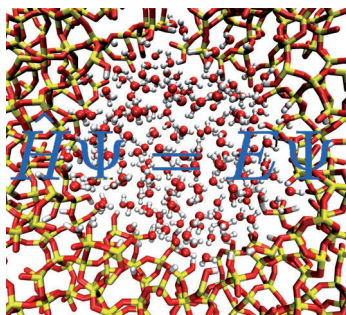
C. Santos, F. Rogriguez, V. Garcia, D. Moravčíková, D. Berkeš, A. Daich, T. Levade, C. Baudoin-Dehoux, S. Ballereau,\* Y. Génisson\*

Identification of Novel CERT Ligands as Potential Ceramide Trafficking Inhibitors

**Creating gridlock:** Because of its relevance in anticancer strategies, the design of inhibitors of CERT-mediated Cer trafficking is needed. Our approach, based on an in vitro binding assay supported by in silico molecular docking, allowed the identification of novel CERT ligands as potential inhibitors of the Cer inter-organelle transfer.



ChemBioChem  
DOI: [10.1002/cbic.201402366](https://doi.org/10.1002/cbic.201402366)



ChemPhysChem

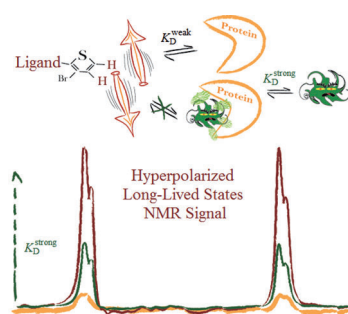
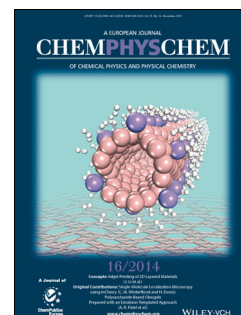
DOI: 10.1002/cphc.201402371

## Computational Chemistry

C. Allolio, F. Klameth, M. Vogel, D. Sebastiani\*

Ab Initio H<sub>2</sub>O in Realistic Hydrophilic Confinement

**Restricted by first principles:** An ab initio construction of a realistic cylindrical pore in amorphous silica, serving as a geometric nanoscale confinement for liquids and solutions, is provided (see figure). The properties of water in this confinement reveal that hydrogen bonding near the wall is weakened and the structure of water is affected up to the second shell.



ChemMedChem

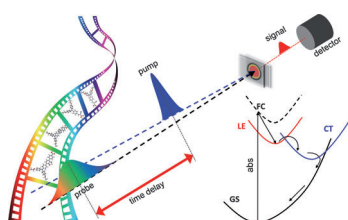
DOI: 10.1002/cmdc.201402214

## Drug Discovery

R. Buratto, A. Borner,\* J. Milani, D. Mammoli, B. Vuichoud, N. Salvi, M. Singh, A. Laguerre, S. Passemard, S. Gerber-Lemaire, S. Jannin, G. Bodenhausen\*

Drug Screening Boosted by Hyperpolarized Long-Lived States in NMR

**Spy ligands** tagged to support hyperpolarized long-lived states provide enhanced ligand binding contrast in NMR screening experiments. The binding of a stronger ligand can be monitored by displacement of the spy. These new advances broaden the applicability of the method to a wider variety of systems and also decrease ligand and protein reagent requirements.



ChemSusChem

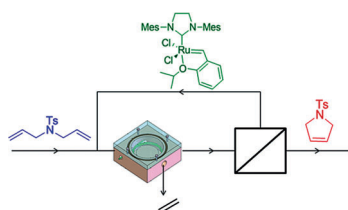
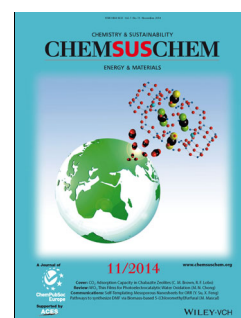
DOI: 10.1002/cssc.201402806

## Solar Cells

R. Li, M. Zhang, C. Yan, Z. Yao, J. Zhang, P. Wang\*

Electron-Acceptor-Dependent Light Absorption, Excited-State Relaxation, and Charge Generation in Triphenylamine Dye-Sensitized Solar Cells

**A lifetime of excitation:** Electron-acceptor-dependent excited-state torsional relaxation and multiple-state electron injection at the dye/titanium interface are investigated by broadband femtosecond transient spectroscopy measurements in conjunction with theoretical calculations. Results indicate the crucial role of a long excited-state lifetime in maintaining a high electron-injection yield.



ChemCatChem

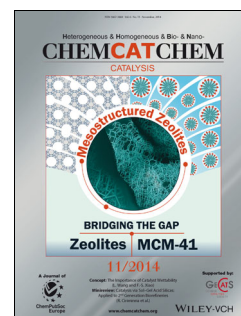
DOI: 10.1002/cctc.201402368

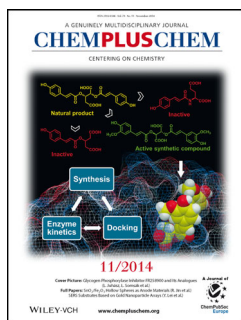
## Metathesis

E. J. O'Neal, K. F. Jensen\*

Continuous Nanofiltration and Recycle of a Metathesis Catalyst in a Microflow System

**A little catalyst can flow a long way:** Continuous-flow nanofiltration and recycle of a metathesis catalyst is demonstrated in a small-scale continuous-flow system using less than 2 mg of catalyst in 50 h of operation.



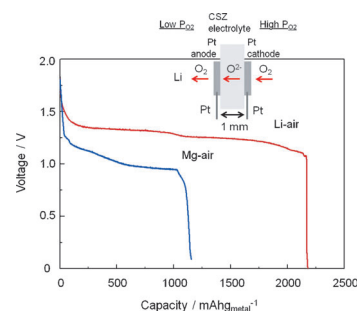


### Lithium-Oxygen Batteries

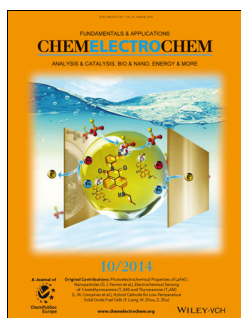
A. Inoishi,\* M. Matsuka, T. Sakai, Y.-W. Ju, S. Ida, T. Ishihara

Lithium–Air Oxygen Shuttle Battery with a  $\text{ZrO}_2$ -Based Ion-Conducting Oxide Electrolyte

**Full of hot air!** A lithium–air cell based on the concept of an “oxygen shuttle” in a calcium-stabilized  $\text{ZrO}_2$  (CSZ) electrolyte is described. The observed open-circuit voltage and discharge capacity are 1.81 V and 2179 mAh per gram of Li, respectively, at 1073 K (see picture). The observed overpotential in the anode is similar to that in a Mg–air cell reported previously, and much smaller than that of a  $\text{H}_2$ –air fuel cell.



ChemPlusChem  
DOI: 10.1002/cplu.201402041

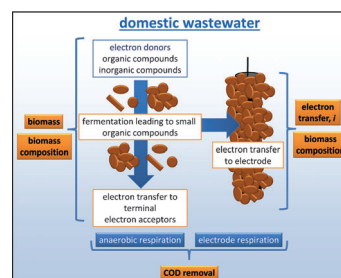


### Biofilms

C. Koch, D. Popiel, F. Harnisch\*

Functional Redundancy of Microbial Anodes fed by Domestic Wastewater

**The same, but different:** The use of identical wastewater for anode bio-film formation leads to different electroactive microbial communities.



ChemElectroChem  
DOI: 10.1002/celec.201402216

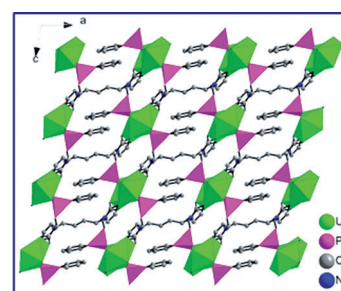


### Uranyl Phosphinates

W. Yang, H. Wang, W.-G. Tian, J. Li, Z.-M. Sun\*

The First Family of Actinide Carboxyphosphinates: Two- and Three-Dimensional Uranyl Coordination Polymers

The first family of actinide carboxyphosphinates has been synthesized using (2-carboxyethyl)(phenyl)phosphinic acid as the ligand including two layered assemblies and two framework structures pillared by imidazole derivatives. Well-defined charge-transfer vibronic transitions of green light emission and effective degradation of RhB under visible light are illustrated.



Eur. J. Inorg. Chem.  
DOI: 10.1002/ejic.201402592

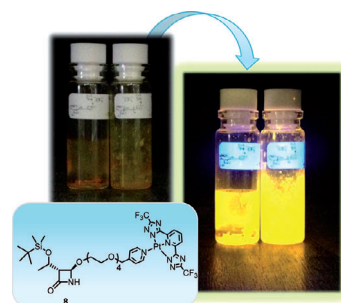


### Bioconjugate $\beta$ -Lactams

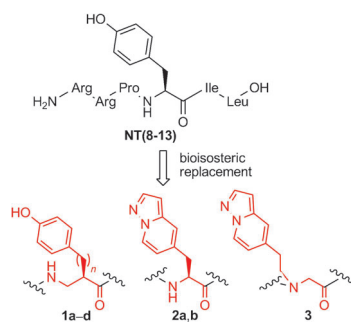
R. Soldati, A. Aliprandi, M. Mauro,\* L. De Cola,\* D. Giacomini\*

$\beta$ -Lactam Bioconjugates Bearing Luminescent Platinum(II) Tags: Synthesis and Photophysical Characterization

New complexes based on a  $\beta$ -lactam unit and platinum metal ion were synthesized and the  $\beta$ -lactam conjugates showed interesting photophysical properties. The formation of aggregates, due to the square-planar geometry of the  $\text{Pt}^{\text{II}}$  species, leads to new excited states that allow excitation in the visible region.



Eur. J. Org. Chem.  
DOI: 10.1002/ejoc.201402740



ChemistryOpen

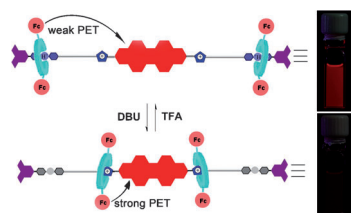
DOI: 10.1002/open.201402031

## Structure-Based Drug Design

C. Schaab, R. C. Kling, J. Einsiedel, H. Hübner, T. Clark, D. Seebach, P. Gmeiner\*

Structure-Based Evolution of Subtype-Selective Neurotensin Receptor Ligands

**Tyrosine surrogates:** Peptides **2a,b** showed that the 5-substituted azaindolylalanine is an appropriate bioisostere of tyrosine capable of enhancing NTS2 selectivity. Compound **2a** exhibits single-digit nanomolar affinity (4.8 nM) and a nearly 30-fold NTS2 selectivity over NTS1.



Asian J. Org. Chem.

DOI: 10.1002/ajoc.201402201

## Rotaxanes

Z.-Q. Cao, H. Li, J. Yao, L. Zou, D.-H. Qu,\* H. Tian

A Perylene-Bridged Switchable [3]Rotaxane Molecular Shuttle with a Fluorescence Output

**Shuttle up:** A bistable bis-branched [3]rotaxane with a perylene bisimide chromophore core and two mechanically interlocked [2]rotaxane arms was designed, prepared, and characterized. The reversible uniform shuttling motion of the macrocycles on the molecular thread results in remarkable fluorescence changes in the system.



ChemViews magazine

DOI: 10.1002/chemv.201400101

## Education

Vera Köster

Potential and Challenges of e-Testing in Chemistry

The European Chemistry Thematic Network (ECTN) has developed EChemTest, a platform for electronic exams in chemistry. Professor Antonio Laganà spoke to *ChemViews Magazine* about how e-testing is used in chemistry, why e-tests are so popular, and what their challenges are.

