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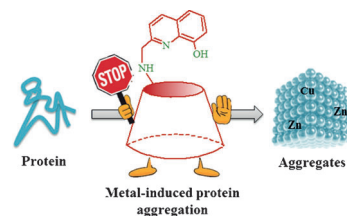


### Host–Guest Systems

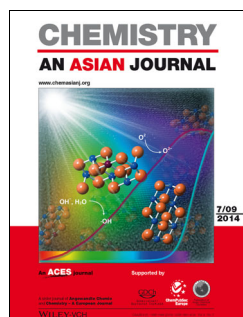
V. Oliveri, F. Attanasio, A. Puglisi, J. Spencer, C. Sgarlata, G. Vecchio\*

Multifunctional 8-Hydroxyquinoline-Appended Cyclodextrins as New Inhibitors of Metal-Induced Protein Aggregation

**Better together:** Two new 8-hydroxyquinoline-appended cyclodextrins are reported (see scheme) and their multifunctional properties are highlighted, including their  $\text{Cu}^{\text{II}}$  and  $\text{Zn}^{\text{II}}$  binding abilities, and their capacity to act as antioxidants and antiaggregants.



*Chem. Eur. J.*  
DOI: [10.1002/chem.201402690](https://doi.org/10.1002/chem.201402690)

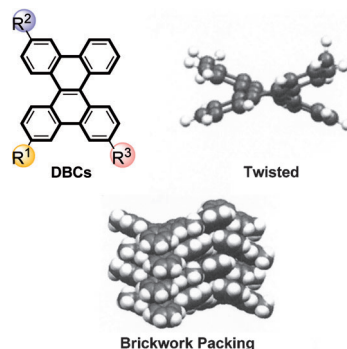


### Polycycles

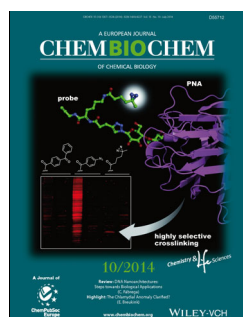
Y. Ueda, H. Tsuji,\* H. Tanaka, E. Nakamura\*

Synthesis, Crystal Packing, and Ambipolar Carrier Transport Property of Twisted Dibenzo[*g,p*]chrysenes

**More than bricks and mortar:** Dibenzo[*g,p*]chrysenes possessing a variety of substituents were synthesized. Single-crystal X-ray diffraction studies of these compounds revealed that they possess twisted molecular and brickwork packing structures. These structures are useful for their application to carrier transport materials.



*Chem. Asian J.*  
DOI: [10.1002/asia.201402102](https://doi.org/10.1002/asia.201402102)

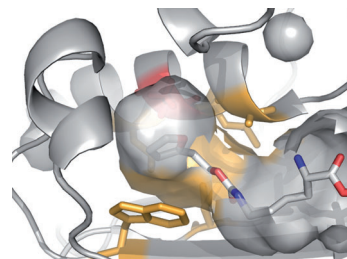


### Genetic Code Expansion

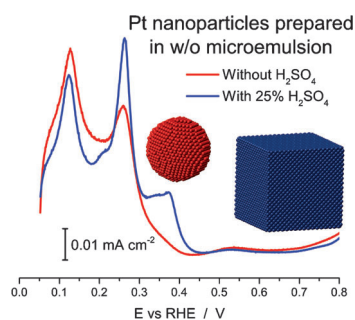
M. J. Schmidt, A. Weber, M. Pott, W. Welte, D. Summerer\*

Structural Basis of Furan–Amino Acid Recognition by a Polyspecific Aminoacyl-tRNA-Synthetase and its Genetic Encoding in Human Cells

**Photo opportunity:** We report the genetic encoding of a furan-based, photo-crosslinking amino acid in human cells by a mutant pyrrolysyl-tRNA synthetase (PylRS) with broad polyspecificity. Crystal structures of this enzyme reveal the mode of furan amino acid recognition and the basis of polyspecificity, thus providing a promising starting point for engineering PylRS mutants with increased substrate scope.



*ChemBioChem*  
DOI: [10.1002/cbic.201402006](https://doi.org/10.1002/cbic.201402006)



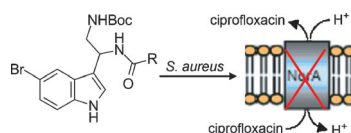
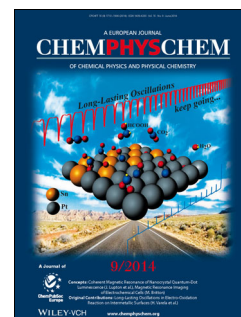
ChemPhysChem

DOI: 10.1002/cphc.201400056

## Electrocatalysis

R. A. Martínez-Rodríguez, F. J. Vidal-Iglesias, J. Solla-Gullón, C. R. Cabrera, J. M. Feliu\*

Synthesis and Electrocatalytic Properties of H<sub>2</sub>SO<sub>4</sub>-Induced (100) Pt Nanoparticles Prepared in Water-in-Oil Microemulsion

**Shapewear for nanoparticles:** Sulfuric acid is used as a surface modifier to synthesize (100) Pt nanoparticles (NPs) by using a water-in-oil microemulsion method. The electrocatalytic properties of the resulting cubic-like Pt NPs are evaluated towards ammonia and CO electro-oxidations.


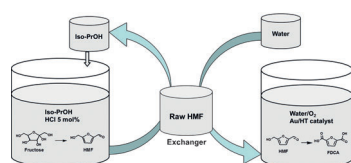
ChemMedChem

DOI: 10.1002/cmdc.201400042

## Antibiotics

A. Hequet, O. N. Burchak, M. Jeanty, X. Guinchard, E. Le Pihive, L. Maigre, P. Bouhours, D. Schneider, M. Maurin, J.-M. Paris, J.-N. Denis,\* C. Jolival\*

1-(1*H*-Indol-3-yl)ethanamine Derivatives as Potent *Staphylococcus aureus* NorA Efflux Pump Inhibitors

**A pump turn off:** 1-(1*H*-Indol-3-yl)ethanamine derivatives such as the one shown here, were synthesized through simple chemical modifications and were shown to be efficient NorA efflux pump inhibitors. They are able to restore ciprofloxacin activity against fluoroquinolone-resistant *Staphylococcus aureus* strains.


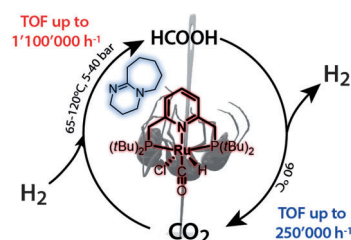
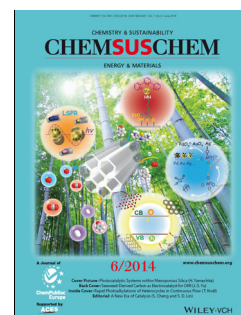
ChemSusChem

DOI: 10.1002/cssc.201402105

## Renewable Resources

G. Yi, S. P. Teong, X. Li, Y. Zhang\*

Purification of Biomass-Derived 5-Hydroxymethylfurfural and Its Catalytic Conversion to 2,5-Furandicarboxylic Acid

**Hell hath no furan:** A simple and effective water extraction method to purify 5-hydroxymethylfurfural (HMF) obtained from biomass dehydration system is reported. Up to 99 % of the HMF can be recovered and the aqueous solution of HMF can be directly used for further catalytic oxidation reaction to 2,5-furandicarboxylic acid (FDCA) as the sole product. This purification technique allows an integrated process to produce FDCA from fructose via HMF


ChemCatChem

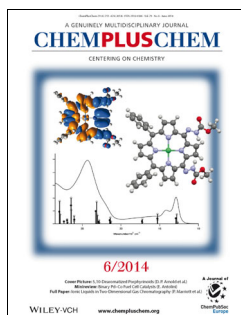
DOI: 10.1002/cctc.201402119

## Reversible Hydrogenation

G. A. Filonenko, R. van Putten, E. N. Schulp, E. J. M. Hensen, E. A. Pidko\*

Highly Efficient Reversible Hydrogenation of Carbon Dioxide to Formates Using a Ruthenium PNP-Pincer Catalyst

**Like pinning down an ant:** An Ru PNP catalyst provides unprecedented rates of CO<sub>2</sub> hydrogenation up to 1100000 h<sup>-1</sup> (turnover number > 200000) and excellent activity in the dehydrogenation of formic acid in DMF if used with the non-nucleophilic 1,8-diazabicyclo[5.4.0]undec-7-ene base. Unlike amine-based systems, this medium allows us to achieve high formate capacity together with rapid H<sub>2</sub> charging and release.

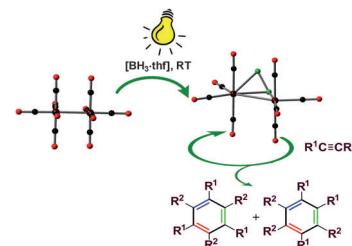



### Rhenium Complexes

V. P. Anju, S. K. Barik, B. Mondal, V. Ramkumar, S. Ghosh\*

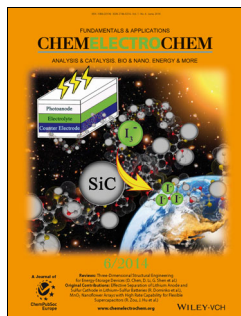
Metallaboranes from Metal Carbonyl Compounds and Their Utilization as Catalysts for Alkyne Cyclotrimerization

**Arachno compounds:** Room-temperature UV photolysis of  $[\text{Re}_2(\text{CO})_{10}]$  with  $\text{BH}_3\cdot\text{thf}$  yielded *arachno*- $[(\text{CO})_8\text{Re}_2\text{B}_2\text{H}_6]$ , which catalyzed the cyclotrimerization of various internal and terminal alkynes to yield mixtures of 1,3,5- and 1,2,4-substituted benzenes (see figure).



ChemPlusChem

DOI: 10.1002/cplu.201400013

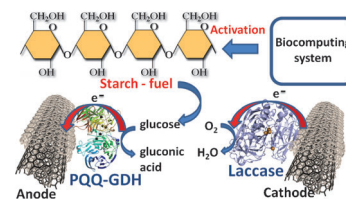


### Biofuel Cells

S. Mailloux, K. MacVittie, M. Privman, N. Guz, E. Katz\*

Starch-Powered Biofuel Cell Activated by Logically Processed Biomolecular Signals

**Switchable biofuel cell:** Logically processed biomolecular signals trigger conversion of starch to glucose, which is utilized in a biofuel cell.



ChemElectroChem

DOI: 10.1002/celc.201400009

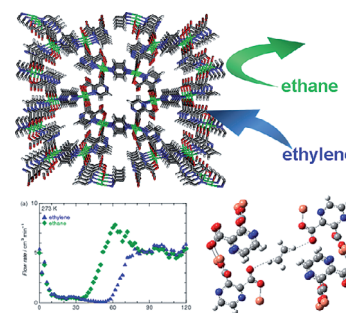


### Ethylene/Ethane Separation

K. Kishida, Y. Watanabe, S. Horike, Y. Watanabe, Y. Okumura, Y. Hijikata, S. Sakaki, S. Kitagawa\*

DRIFT and Theoretical Studies of Ethylene/Ethane Separation on Flexible and Microporous  $[\text{Cu}_2(2,3\text{-pyrazinedicarboxylate})_2(\text{pyrazine})]_n$

For ethylene/ethane separation by PSA, the adsorption properties of  $[\text{Cu}_2(2,3\text{-pyrazinedicarboxylate})_2(\text{pyrazine})]_n$  were investigated by both the single and binary gas system, which revealed its ethylene selective nature. Moreover, spectroscopic and computational studies suggested the importance of hydrogen bonds in the selective adsorption of ethylene over ethane.



Eur. J. Inorg. Chem.

DOI: 10.1002/ejic.201402085

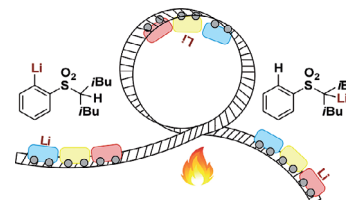


### Reaction Mechanisms

L. Řehová, U. Jahn\*

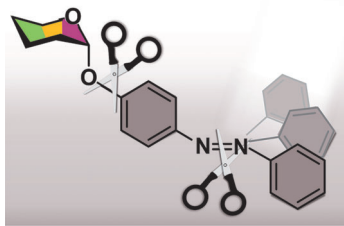
Elucidation of the Reaction Mechanism of *ortho*→ $\alpha$  Transmetalation Reactions of Alkyl Aryl Sulfone Carbanions

This comprehensive mechanistic study sheds light on the facility of the initial metalation of branched alkyl aryl sulfones and their subsequent formal *ortho*→ $\alpha$  rearrangement. A kinetic investigation, combined with studies aimed at the determination of deuterium KIEs, and crossover experiments, support an intermolecular mechanism for the transmetalation.



Eur. J. Org. Chem.

DOI: 10.1002/ejoc.201402171



ChemistryOpen

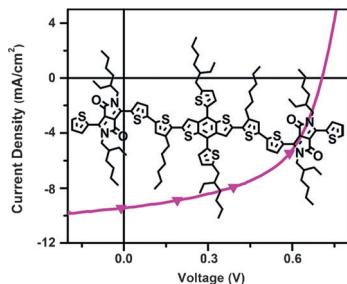
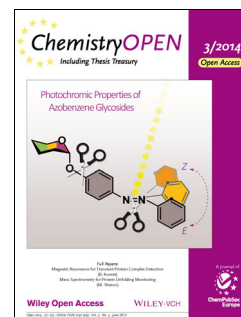
DOI: 10.1002/open.201402010

### Photoswitching

V. Chandrasekaran, E. Johannes, H. Kobarg, F. D. Sönnichsen, T. K. Lindhorst\*

Synthesis and Photochromic Properties of Configurationally Varied Azobenzene Glycosides

**Sweet switches:** Azobenzene glycosides with systematically varied structural properties were synthesized using glycoside synthesis and Mills reaction. Their photochromic properties were tested to evaluate their usefulness in studies requiring temporal and spatial alteration of carbohydrate orientation.



Asian J. Org. Chem.

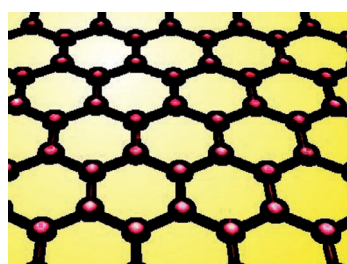
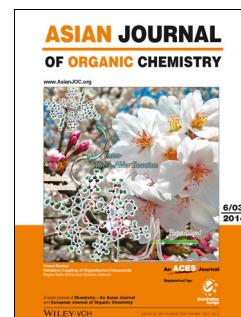
DOI: 10.1002/ajoc.201402048

### Solar Cells

Z. Niu, X. Wang, J. Huang, A. Tang, Y. Sun,\* C. Zhan\*

A Solution-Processed Small-Molecule Diketopyrrolopyrrole Dimer for Organic Solar Cells

**A diketopyrrolopyrrole (DPP)** dimer is synthesized by combining electron-rich benzodithiophene-thiophene and electron-deficient DPP. It has energy levels what match with [6,6]-phenyl-C<sub>71</sub>-butyric acid methyl ester (PC<sub>71</sub>BM) and a broad UV/vis absorption spectrum. With PC<sub>71</sub>BM as the acceptor, the power conversion efficiency is 3.90%, the short-circuit current density is 9.85 mAcm<sup>-2</sup>, the open-circuit voltage is 0.71 V, and the fill factor is 0.57.



ChemViews magazine

DOI: 10.1002/chemv.201400042

### Graphene

D. Bradley

Graphene At Your Fingertips

Frank Müller et al., Germany, have come up with a novel idea for synthesizing graphene. *ChemViews Magazine* highlights their recent article, in which they report the use of a human fingerprint as a liquid precursor to form well-ordered graphene layers. They showed that the homogeneity and purity of the resulting graphene layer is as high as when ultrapure synthetic precursors are used.

