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## Nanotoxic Impurities

M. Giovanni, A. Ambrosi, M. Pumera\*

Direct Determination of Bioavailable Molybdenum in Carbon Nanotubes

**Checking availability:** Metallic impurities within carbon nanotubes are responsible for toxicological effects to human health. From a toxicological point of view, it is crucial to know the amount of mobile, bioavailable metallic impurities as opposed to the total content of impurities. A facile and direct method to determine the content of bioavailable molybdenum impurities present in different CNT samples is proposed and discussed.



Chem. Eur. J.  
DOI: 10.1002/chem.201002979

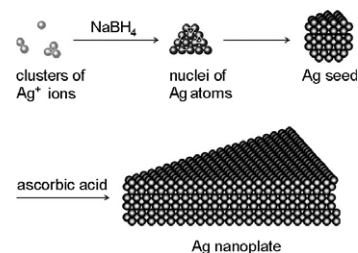


## Silver Nanoplates

J. Zeng, J. Tao, W. Li, J. Grant, P. Wang, Y. Zhu, Y. Xia\*

A Mechanistic Study on the Formation of Silver Nanoplates in the Presence of Silver Seeds and Citric Acid or Citrate Ions

**The world on a plate:** In addition to their roles as a capping agent that selectively binds to the {111} facets of silver, the carboxylate group can coordinate with  $\text{Ag}^+$  ions to form complexes and thus substantially reduce the reduction rate of  $\text{Ag}^+$  ions, leading to the formation of silver seeds with both twin planes and stacking faults.



Chem. Asian J.  
DOI: 10.1002/asia.201000728

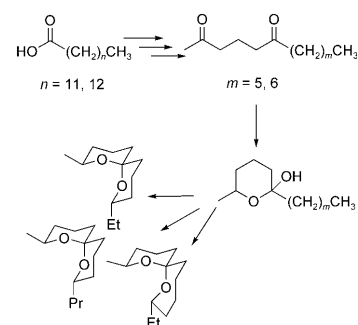


## Oxidoreductases

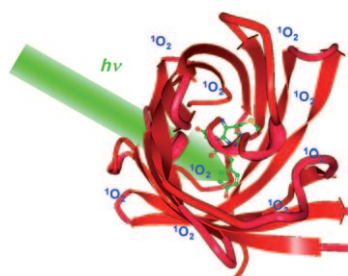
Y. K. Booth, W. Kitching, J. J. De Voss\*

Biosynthesis of the Spiroacetal Suite in *Bactrocera tryoni*

**Flying in spirals:** The biosynthesis of the minor  $\text{C}_{12}$  and  $\text{C}_{13}$  spiroacetals released by female *Bactrocera tryoni* (Queensland fruit-fly) is defined. Administration of over 30 deuterated potential precursors established that fatty acids are processed to 2,6-dioxygenated precursors by a modified  $\beta$ -oxidation pathway prior to oxidation of a tetrahydropyranol and cyclisation to the observed spiroacetals.



ChemBioChem  
DOI: 10.1002/cbic.201000481



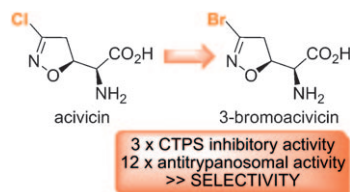
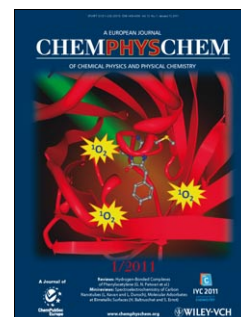
ChemPhysChem  
DOI: 10.1002/cphc.201000919

### Fluorescent Proteins

X. Ragàs, L. P. Cooper, J. H. White, S. Nonell,\* C. Flors\*

Quantification of Photosensitized Singlet Oxygen Production by a Fluorescent Protein

**Singlet oxygen and fluorescent proteins:** the fluorescent protein TagRFP is able to photosensitize singlet oxygen, with an estimated quantum yield of  $\Phi_{\Delta} \approx 0.004$  (see figure). This is the first estimation of a  $\Phi_{\Delta}$  value for a GFP-like protein. The short triplet lifetime of TagRFP suggests relatively high oxygen accessibility to the chromophore.



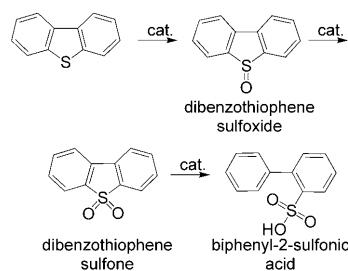
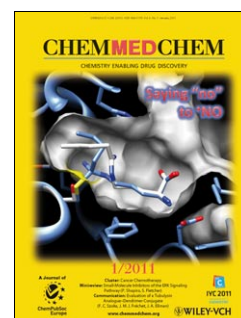
ChemMedChem  
DOI: 10.1002/cmdc.201000417

### Antiparasitic Agents

P. Conti,\* A. Pinto, P. E. Wong, L. L. Major, L. Tamborini, M. C. Iannuzzi, C. De Micheli, M. P. Barrett,\* T. K. Smith\*

Synthesis and in vitro/in vivo Evaluation of the Antitrypanosomal Activity of 3-Bromoacivicin, a Potent CTP Synthetase Inhibitor

**A tip of the HAT to bromine:** The antitrypanosomal activity of the natural antibiotic acivicin can be substantially increased on passing to its 3-bromo analogue. 3-Bromoacivicin is threefold more potent than acivicin as an inhibitor of *T. b. brucei* CTP synthetase. Interestingly, this translates into a 12-fold increase in the antitrypanosomal activity and a marked improvement in selectivity.



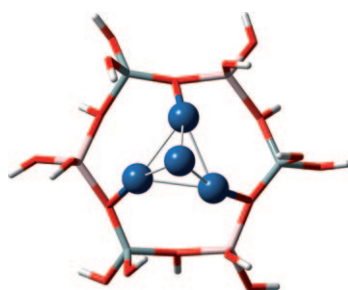
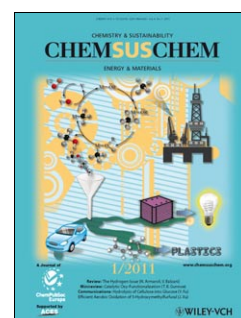
ChemSusChem  
DOI: 10.1002/cssc.201000366

### Desulfurization

M. Seredych, M. Khine, T. J. Bandosz\*

Enhancement in Dibenzothiophene Reactive Adsorption from Liquid Fuel via Incorporation of Sulfur Heteroatoms into the Nanoporous Carbon Matrix

**Sulfur atoms** present in the carbon matrix increase the breakthrough capacity of dibenzothiophenes and the selectivity of dibenzothiophene adsorption owing to sulfur-sulfur and sulfur-oxygen interactions. The catalytic influence of the carbon functionality results in the oxidation of adsorbed dibenzothiophenes (see Scheme).



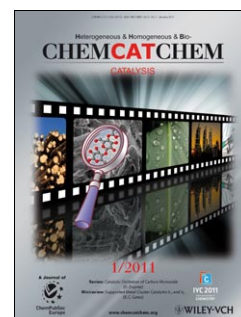
ChemCatChem  
DOI: 10.1002/cctc.201000271

### Supported Metal Clusters

A. Uzun, D. A. Dixon, B. C. Gates\*

Prototype Supported Metal Cluster Catalysts: Ir<sub>4</sub> and Ir<sub>6</sub>

**Clusterophilia:** Iridium offers a range of catalytic properties and forms numerous compounds with small, stable frameworks, including those with a tetrahedral Ir<sub>4</sub> framework (see figure) and those with an octahedral Ir<sub>6</sub> framework. Supported iridium clusters show catalytic activity in reactions such as ethylene hydrogenation. This Minireview discusses the synthesis, chemistry, and catalytic properties of Ir<sub>4</sub> and Ir<sub>6</sub> clusters.



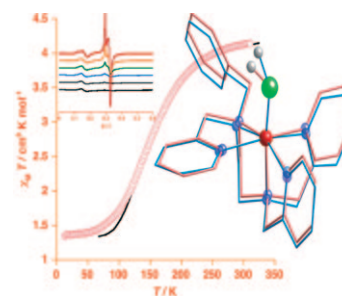


## Iron(III) Spin Crossover Complex

N. A. Ortega-Villar, M. C. Muñoz, J. A. Real\*

[Fe<sup>III</sup>(bztpen)(OCH<sub>3</sub>)](PF<sub>6</sub>)<sub>2</sub>: Stable Methoxide–Iron(III) Complex Exhibiting Spin Crossover Behavior in the Solid State

Magnetic studies, EPR spectroscopy, and single-crystal X-ray diffraction analysis demonstrate that complex [Fe<sup>III</sup>(bztpen)(OCH<sub>3</sub>)](PF<sub>6</sub>)<sub>2</sub> (**1**) undergoes solid-state spin crossover (SCO) behavior in the temperature range 300–50 K. This result supports the observation of SCO in solution in related biomimetic iron(III) complexes.



*Eur. J. Inorg. Chem.*  
DOI: 10.1002/ejic.201000791

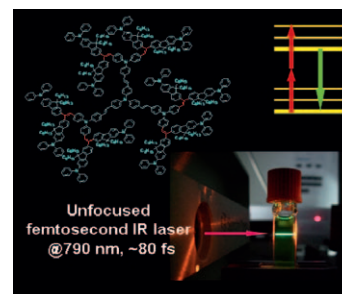


## Two-Photon Chromophores

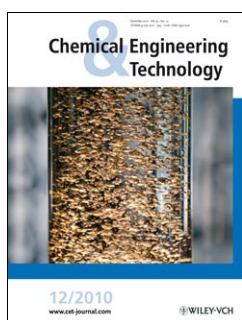
T.-C. Lin,\* W.-L. Lin, C.-M. Wang, C.-W. Fu

Synthesis and Characterization of Highly Soluble Two-Photon-Absorbing Chromophores with Multi-Branched and Dendritic Architectures

A chromophore set containing four fluorene-based analogues was synthesized and shown to possess two-photon absorptivities proportional to their  $\pi$ -conjugation size. The optical-power-attenuation properties in the near-IR region indicate that such dyes could act as broadband and rapid-response power-limiters, especially against laser lights with longer pulses.



*Eur. J. Org. Chem.*  
DOI: 10.1002/ejoc.201001165

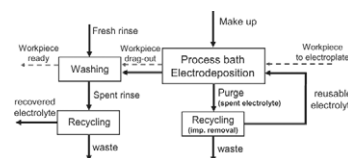


## Ionic Liquids

J. L. Solà Cervera\*, A. König

Recycling Concept for Aluminum Electrodeposition from the Ionic Liquid System EMIM[TF<sub>2</sub>N]-AlCl<sub>3</sub>

The IL system formed by specific mixtures of 1-ethyl-3-methylimidazolium bis[(trifluoromethyl)sulfonyl]imide (EMIM[TF<sub>2</sub>N]) and AlCl<sub>3</sub> proved to be a very suitable electrolyte for the electrodeposition of aluminum. In order to establish an industrial process based on this novel electrolyte system, recycling strategies for the purged spent electrolyte and the generated dragged-out electrolyte were evaluated.



*Chem. Eng. Technol.*  
DOI: 10.1002/ceat.201000200