

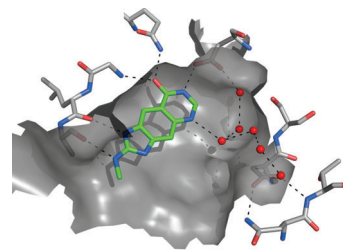


## Drug Design

L. J. Barandun, F. Immekus, P. C. Kohler, S. Tonazzi, B. Wagner, S. Wendelspiess, T. Ritschel, A. Heine, M. Kansy, G. Klebe,\* F. Diederich\*

From *lin*-Benzoguanines to *lin*-Benzohypoxanthines as Ligands for *Zymomonas mobilis* tRNA–Guanine Transglycosylase: Replacement of Protein–Ligand Hydrogen Bonding by Importing Water Clusters

**Water replacements:** A series of *lin*-benzopurines was evaluated as inhibitors of *Zymomonas mobilis* tRNA–guanine transglycosylase, an enzyme that was identified as a potential target for the treatment of shigellosis. X-ray cocrystal structures show the import of a new water cluster that replaces lost protein–ligand interactions (see figure), with an overall reduction in binding affinity.



Chem. Eur. J.  
DOI: 10.1002/chem.201200809

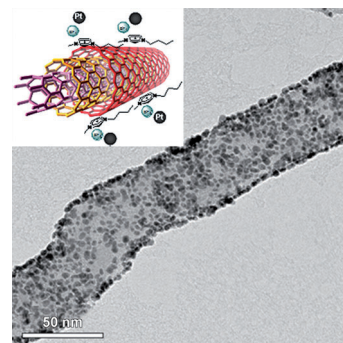


## Electrochemistry

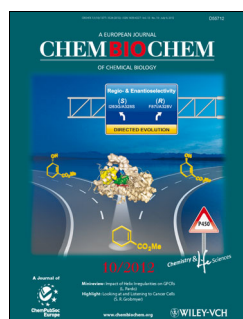
H.-Y. Chen, J.-Y. Liao, B.-X. Lei, D.-B. Kuang,\* Y. Fang, C.-Y. Su\*

Highly Catalytic Carbon Nanotube/Pt Nanohybrid-Based Transparent Counter Electrode for Efficient Dye-Sensitized Solar Cells

**Bending the rules:** An efficient carbon nanotube/platinum nanohybrid-based transparent counter electrode has been fabricated by a facile electrospray method and exhibits excellent electrochemical performances in dye-sensitized solar cells (DSSCs; see picture). Moreover, the as-prepared flexible counter electrode exhibits a conversion efficiency of 8.43 %, which shows great potential in developing low-cost flexible DSSCs.



Chem. Asian J.  
DOI: 10.1002/asia.201200144

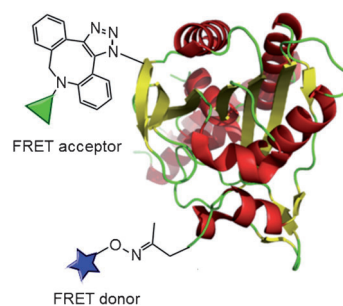


## FRET

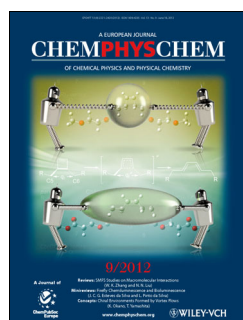
B. Wu, Z. Wang, Y. Huang, W. R. Liu\*

Catalyst-Free and Site-Specific One-Pot Dual-Labeling of a Protein Directed by Two Genetically Incorporated Noncanonical Amino Acids

**The genetic incorporation** of one azide-containing and one keto-containing noncanonical amino acid into a protein at amber and ochre mutation sites respectively, followed by their orthogonal reactions with hydroxylamine-containing and cyclooctyne-containing dyes allows highly efficient one-pot site-specific dual labeling of the protein in a catalyst-free fashion.



ChemBioChem  
DOI: 10.1002/cbic.201200281

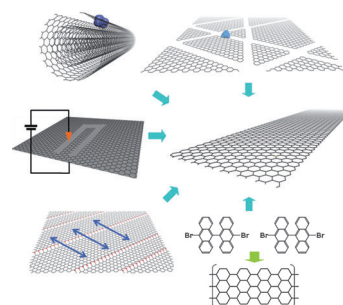


## Nanomaterials

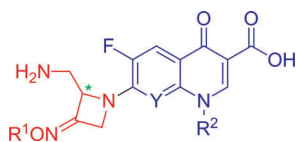
L. Ma, J. Wang,\* F. Ding\*

Recent Progress and Challenges in Graphene Nanoribbon Synthesis

**Making ribbons:** Synthetic methods for graphene nanoribbons, including unzipping of carbon nanotubes, lithographic patterning and plasma etching of graphene, cutting of graphene sheets by metal nanoparticles or oxidation, and chemical synthesis (see picture), are reviewed from both experimental and theoretical viewpoints, and advantages and disadvantages of these methods are compared.



ChemPhysChem  
DOI: 10.1002/cphc.201200253



ChemMedChem

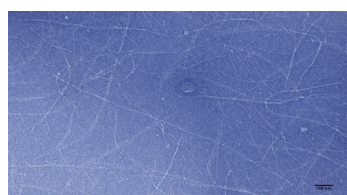
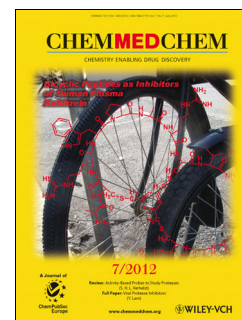
DOI: 10.1002/cmdc.201200210

## Antibacterial Agents

K. Lv, Y. Sun, L. Sun, Z. Wei, H. Guo, J. Wu, M. Liu\*

Design, Synthesis, and in vitro Antibacterial Activity of Fluoroquinolone Derivatives Containing a Chiral 3-(Alkoxyimino)-2-(aminomethyl)azetidine Moiety

**De-bugging agents:** A series of novel (*R*)/(*S*)-7-(3-alkoxyimino-2-aminomethyl-1-azetidinyl)fluoroquinolone derivatives were synthesized and evaluated for their in vitro antibacterial activity against representative strains. Some of the target compounds show generally better activity than gemifloxacin against the Gram-positive strains tested, including MRSA and MRSE.



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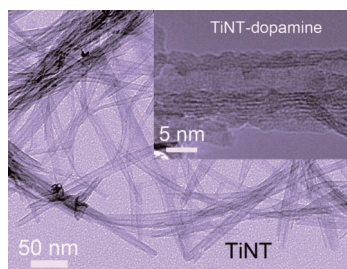
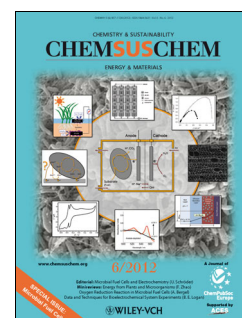
DOI: 10.1002/cssc.201100733

## Microbial Fuel Cells

N. S. Malvankar, D. R. Lovley\*

Microbial Nanowires: A New Paradigm for Biological Electron Transfer and Bioelectronics

**Live wires:** This concept article summarizes the current understanding of how microbial nanowires (see graph; scale bar: 100 nm) function, where they can be found, and their potential practical applications in bioenergy and bioelectronics.



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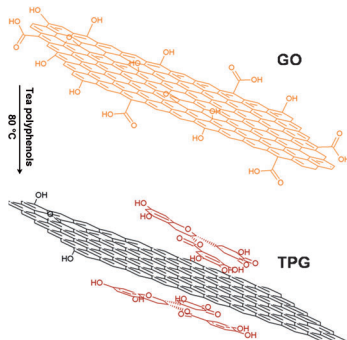
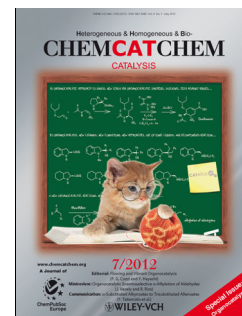
DOI: 10.1002/cctc.201200030

## Nanomaterials

G. Dawson, J. Liu, L. Lu, W. Chen\*

Dopamine-Modified Trititanate Nanotubes with UV- and Visible-Light Photocatalytic Activity: Coordinative Self-Assembly into a Recyclable Absorber

**Clash of the trititanates:** The search for a simple method to bestow trititanate nanotubes with visible-light activity for applications as solar-driven photocatalysts remains a challenge. Self-assembled-surface modification by dopamine imparted trititanate nanotubes with stable, recyclable photocatalytic activity under UV/Vis illumination. The controlled surface modification shifted the absorption onset into the visible region.



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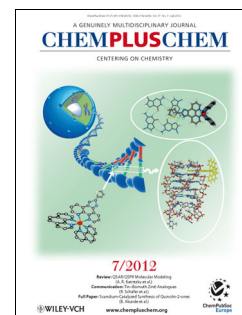
DOI: 10.1002/cplu.201200012

## Graphene Nanosheets

H. Song, L. Hao, Y. Tian, X. Wan, L. Zhang, Y. Lv\*

Stable and Water-Dispersible Graphene Nanosheets: Sustainable Preparation, Functionalization, and High-Performance Adsorbents for  $Pb^{2+}$

**On a friendly footing:** The preparation and functionalization of graphene nanosheets from graphene oxide using tea polyphenols as simultaneous reductant and functionalization reagent has been achieved in one step (see scheme; Go = graphene oxide, TPG = tea polyphenols-graphene). This environmentally friendly, simple, and low-cost method can be extended to large-scale preparation. The nanosheets, having a mostly single-layer structure, show high adsorbance for  $Pb^{2+}$ .





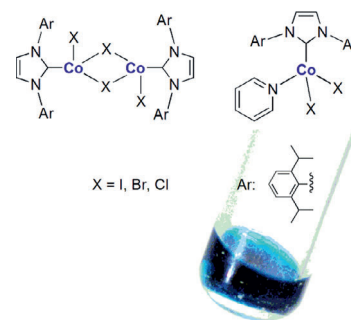
### Cobalt Catalysts

K. Matsubara,\* T. Sueyasu, M. Esaki, A. Kumamoto, S. Nagao, H. Yamamoto, Y. Koga, S. Kawata, T. Matsumoto

Cobalt(II) Complexes Bearing a Bulky N-Heterocyclic Carbene for Catalysis of Kumada–Tamao–Corriu Cross-Coupling Reactions of Aryl Halides

A series of cobalt(II) dimeric tetrahedral (30e) complexes were obtained in good yields and were transformed into the monomeric forms with pyridine. These complexes were characterized by SQUID, XPS, UV/Vis spectroscopy, elemental analysis, and X-ray crystallography, and were found to have high catalytic activity for Kumada–Tamao–Corriu cross-coupling reactions of aryl halides.

Active for Cross-Coupling Reactions



*Eur. J. Inorg. Chem.*  
DOI: 10.1002/ejic.201200095

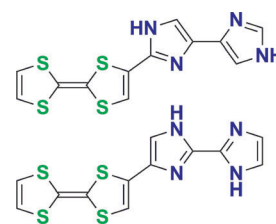


### Hydrogen Bonds

T. Murata, K. Nakasuji, Y. Morita\*

Tetrathiafulvalene-Type Electron Donors Bearing Biimidazole Moieties: Multifunctional Units with Hydrogen Bonding Abilities

New multifunctional electron-donor molecules containing tetrathiafulvalene and biimidazole units were synthesized. Hydrogen bonding of the biimidazole units,  $\pi$  stacking, and interaction of the chalcogen atoms of the TTF unit contribute to the formation of the multidimensional networks. These electron-donors afforded highly conductive charge-transfer complexes with TCNQ.



*Eur. J. Org. Chem.*  
DOI: 10.1002/ejoc.201200426



### Energetic Materials

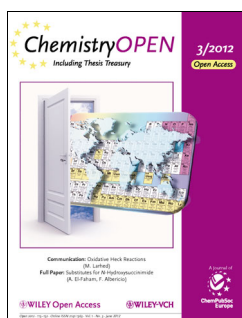
Julia Stuthe, Vera Köster

E.-C. Koch on Energetic Metal-Fluorocarbon Materials and Munitions Safety

Energetic materials are most prominently and controversially used in warfare, yet they are also necessary for our modern society. From blasting roads and tunnels to enable international traffic to life-saving airbags in cars, Dr. Ernst-Christian Koch, specialist in energetic materials for NATO, talks about the wide variety of energetic materials and their uses.



*ChemViews magazine*  
DOI: 10.1002/chemv.201200056

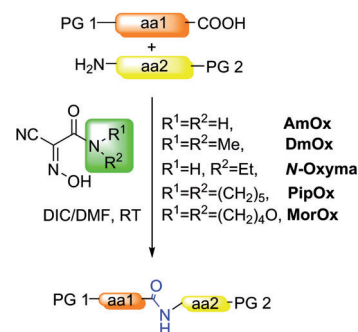


### Peptide Synthesis

S. N. Khattab, R. Subirós-Funosas, A. El-Faham,\* F. Albericio\*

Screening of N-Alkyl-Cyanoacetamido Oximes as Substitutes for N-Hydroxysuccinimide

**Putting oximes to the test:** Various N-alkyl-cyanoacetamido oximes were tested as additives in substitution of HOSu to carbodiimides for the construction of stable active esters in aqueous environments. All oximes evaluated had a better performance than HOSu in retaining the configuration and coupling efficiency. Especially remarkable was the capacity of AmOx and DmOx, which showed a similar performance to Oxyma in several experiments.



*ChemistryOpen*  
DOI: 10.1002/open.201200012