Spotlights ...

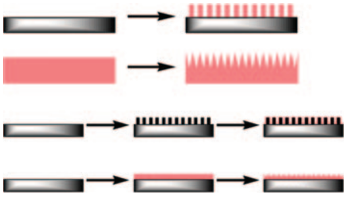
On these pages, we feature a selection of the excellent work that has recently been published in our sister journals. If you are reading these pages on a computer, click on any of the items to read the full article. Otherwise please see the DOIs for easy online access through Wiley InterScience.

Hydrophobic Effect

C. R. Crick, I. P. Parkin*

Preparation and Characterisation of Super-Hydrophobic Surfaces

Simply super! The interest in highly water-repellent surfaces has grown in recent years due to the desire for self-cleaning surfaces. This review identifies four methods for the construction of super-hydrophobic surfaces (see figure) along with a summation of the key properties of the surface that result in hydrophobicity. A summary of the different routes to super-hydrophobicity is also given.



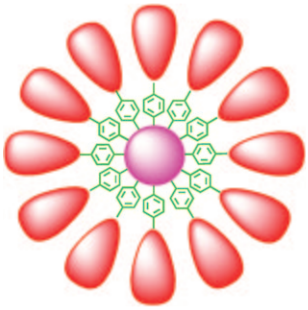
Chem. Eur. J.
DOI: **10.1002/chem.200903335**

Dendrimers

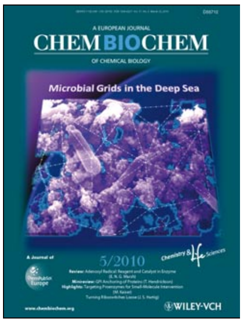
V. K. R. Kumar, K. R. Gopidas*

Synthesis and Characterization of Gold-Nanoparticle-Cored Dendrimers Stabilized by Metal–Carbon Bonds

A heart of gold: Reduction of $HAuCl_4$, phase-transferred into toluene in the presence of diazonium salt capped Fréchet-type dendrons (G_1–G_4), results in the formation of gold-nanoparticle-cored dendrimers (NCDs; see graphic) that have carbon–gold covalent bonds, which have been characterized by TEM, thermogravimetric analysis (TGA), and IR, UV, and NMR spectroscopy.



Chem. Asian J.
DOI: **10.1002/asia.200900388**

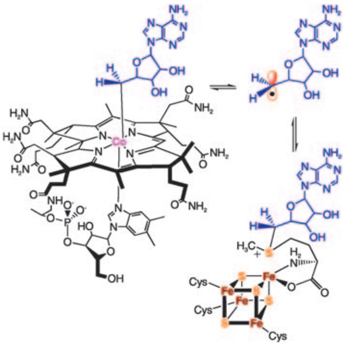


Enzymes

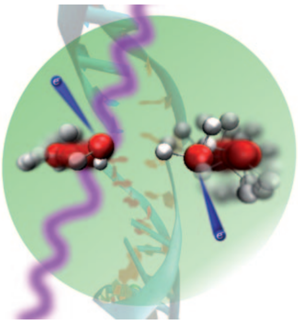
E. N. G. Marsh,* D. P. Patterson, L. Li*

Adenosyl Radical: Reagent and Catalyst in Enzyme Reactions

Primordial molecules: An adenosyl radical is generated as a reactive intermediate by two families of enzymes that use either adenosylcobalamin or *S*-adenosylmethionine as cofactors. We review and contrast the wide range of unusual reactions catalyzed by these enzyme families and discuss the likelihood that the highly oxygen-sensitive radical *S*-adenosylmethionine enzymes are also active in aerobic organisms.



ChemBioChem
DOI: **10.1002/cbic.200900777**



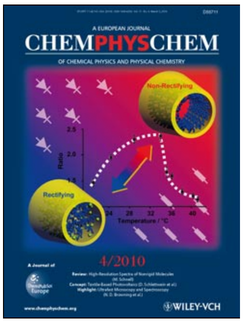
Water Radicals

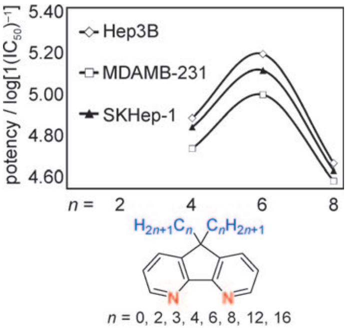
O. Vendrell,* S. D. Stoychev, L. S. Cederbaum*

Generation of Highly Damaging H_2O^+ Radicals by Inner Valence Shell Ionization of Water

Bye bye friend: Water molecules surround all biological structures. Inner-valence ionization of water, followed by intermolecular Coulombic decay, generates two water radical cations in close proximity. The two fragments strongly repel each other and quickly separate, gaining a large amount of translational and rotational energy (see graphic).

ChemPhysChem
DOI: **10.1002/cphc.201000034**





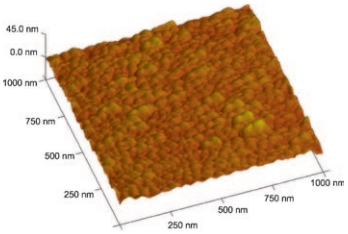
Antitumor Agents

Q. Wang, M. C.-W. Yuen, G.-L. Lu, C.-L. Ho, G.-J. Zhou, O.-M. Keung, K.-H. Lam, R. Gambari, X.-M. Tao, R. S.-M. Wong, S.-W. Tong, K.-W. Chan, F.-Y. Lau, F. Cheung, G. Y.-M. Cheng,* C.-H. Chui,* W.-Y. Wong*

Synthesis of 9,9-Dialkyl-4,5-diazafluorene Derivatives and Their Structure–Activity Relationships Toward Human Carcinoma Cell Lines

A homologous series of 9,9-dialkyl-4,5-diazafluorenes were prepared. Their spectroscopic properties and biological activities toward three human cancer cell lines, including Hep3B hepatocellular carcinoma, MDAMB-231 breast carcinoma, and SKHep-1 hepatoma, were investigated to understand their structure–activity relationships.

ChemMedChem
DOI: **10.1002/cmdc.201000034**



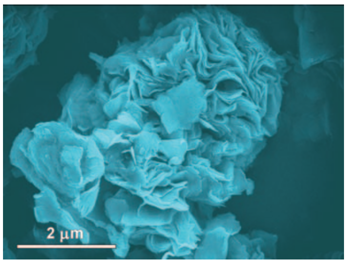
Photoelectron Generation

M. Vittadello,* M. Y. Gorbunov, D. T. Mastrogiovanni, L. S. Wielunski, E. L. Garfunkel, F. Guerrero, D. Kirilovsky, M. Sugiura, A. W. Rutherford, A. Safari, P. G. Falkowski

Photoelectron Generation by Photosystem II Core Complexes Tethered to Gold Surfaces

For Your Electrons Only: By using a nondestructive, ultrasensitive, fluorescence kinetic technique, the photochemical energy conversion efficiency and electron transfer kinetics on the acceptor side of histidine-tagged photosystem II core complexes tethered to gold surfaces are measured in situ.

ChemSusChem
DOI: **10.1002/cssc.200900255**



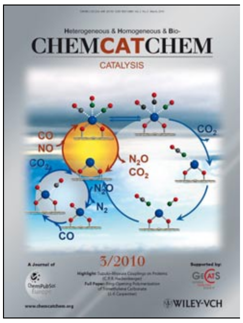
Heterogenous Catalysis

R. Al Otaibi, W. Weng, J. K. Bartley, N. F. Dummer, C. J. Kiely, G. J. Hutchings*

Vanadium Phosphate Oxide Seeds and Their Influence on the Formation of Vanadium Phosphate Catalyst Precursors

Seeds of change: Vanadium phosphate oxides (VPO) were prepared with the use of hemihydrate 'seeds' and evaluated for selective butane oxidation. This seeding concept is shown to have a dramatic effect on the morphology of the final activated catalyst. In the case of the reaction of $VOPO_4 \cdot 2H_2O$ in 3-octanol with a $VOHPO_4 \cdot 0.5H_2O$ seed, a mixed phase was formed which has a specific activity almost 2.5 times greater than the standard VPO preparation.

ChemCatChem
DOI: **10.1002/cctc.200900274**

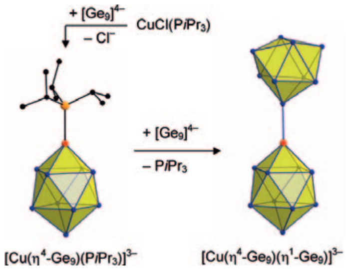


Intermetalloid Clusters

S. Scharfe, T. F. Fässler*

Varying Bonding Modes of the Zintl Ion $[Ge_9]^{4-}$ in Cu^I Complexes: Syntheses and Structures of $[Cu(\eta^4\text{-}Ge_9)(PR_3)]^{3-}$ (R = *i*Pr, Cy) and $[Cu(\eta^4\text{-}Ge_9)(\eta^1\text{-}Ge_9)]^{7-}$

The Cu-capped Ge_9 clusters $[Cu(\eta^4\text{-}Ge_9)R]^{3-}$ (R = PCy_3, $PiPr_3$) and $[Cu(\eta^4\text{-}Ge_9)(\eta^1\text{-}Ge_9)]^{7-}$ show that homoatomic Zintl anions can act as multifunctional ligands. The clusters serve as a six-electron donor with η^4 coordination and can also act as a two-electron σ donor. The stepwise exchange of ligands at the Cu^I atom shows how metal clusters can form larger intermetalloid clusters (Cu: red, Ge: blue, P: orange).



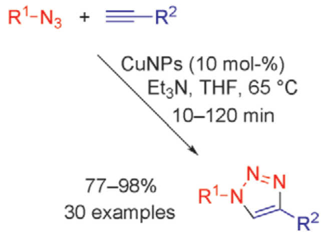
Eur. J. Inorg. Chem.
DOI: **10.1002/ejic.200901038**

Click Chemistry

F. Alonso,* Y. Moglie, G. Radivoy, M. Yus*

Unsupported Copper Nanoparticles in the 1,3-Dipolar Cycloaddition of Terminal Alkynes and Azides

The 1,3-dipolar cycloaddition of terminal alkynes and azides catalysed by readily generated copper nanoparticles is reported. Reactions are fast and lead to the corresponding triazoles in good-to-excellent yields. A reaction mechanism involving copper(I) acetylides is proposed on the basis of different reactivity studies and deuteration experiments.



Eur. J. Org. Chem.
DOI: **10.1002/ejoc.200901446**