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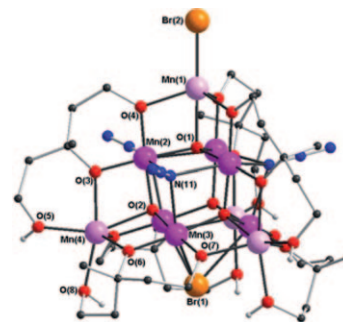


## Neutron Scattering

S. Stuibler, G. Wu, J. Nehrkorn, J. Dreiser, Y. Lan, G. Novitchi, C. E. Anson, T. Unruh, A. K. Powell,\* O. Waldmann\*

Inelastic Neutron Scattering on an  $Mn_{10}$  Supertetrahedron: Assessment of Exchange Coupling Constants, Ferromagnetic Spin Waves and an Analogy to the Hückel Method

**Spin-wave theory for chemists!** The synthesis, crystal structure and magnetism of an  $Mn_{10}$  supertetrahedron is reported (see figure). Inelastic neutron scattering and magnetic data permit the accurate determination of the ferromagnetic exchange coupling constants. An analogy to the Hückel method can be drawn, which allows one to understand the results of the spin-wave theory, that is, magnetic excitation spectrum in a chemical language.



*Chem. Eur. J.*  
DOI: [10.1002/chem.201100500](https://doi.org/10.1002/chem.201100500)

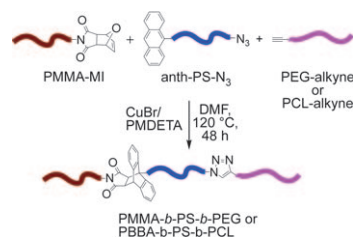


## Polymers

O. Altintas, U. Tunca\*

Synthesis of Terpolymers by Click Reactions

**Cycloadditions:** Well-defined polymeric structures were easily generated through living polymerization systems, in particular, living radical polymerizations. These precursors with orthogonal functionalities were subsequently clicked with each other in a single or double (combination) click reaction (see scheme).



*Chem. Asian J.*  
DOI: [10.1002/asia.201100138](https://doi.org/10.1002/asia.201100138)

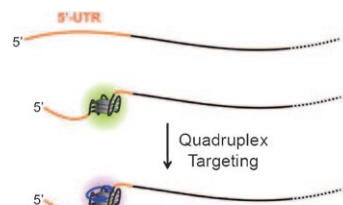


## Gene Expression

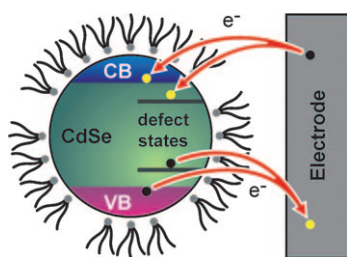
K. Halder, E. Largy, M. Benzler, M.-P. Teulade-Fichou,\* J. S. Hartig\*

Efficient Suppression of Gene Expression by Targeting 5'-UTR-Based RNA Quadruplexes with Bisquolinium Compounds

**Fourth amendment:** RNA quadruplexes located in the 5'-untranslated regions (5'-UTR in the figure) of mRNAs inhibit gene expression. This effect can be amplified by targeting RNA quadruplexes with specific bisquolinium compounds.



*ChemBioChem*  
DOI: [10.1002/cbic.201100228](https://doi.org/10.1002/cbic.201100228)



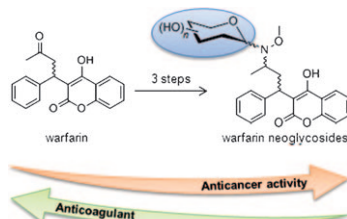
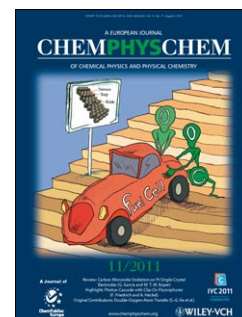
ChemPhysChem  
DOI: 10.1002/cphc.201100300

## Nanocrystals

M. Amelia, S. Impellizzeri, S. Monaco, I. Yildiz, S. Silvi, F. M. Raymo,\* A. Credi\*

Structural and Size Effects on the Spectroscopic and Redox Properties of CdSe Nanocrystals in Solution: The Role of Defect States

**Nobody's perfect:** A comparison between the spectroscopic and electrochemical data for two homogeneous series of CdSe nanocrystals of different diameters has enabled the proposal of a model for the size-dependent evolution of surface defects, based on the mechanism of formation and growth of these quantum dots (see picture; CB/VB = conduction/valence bands).



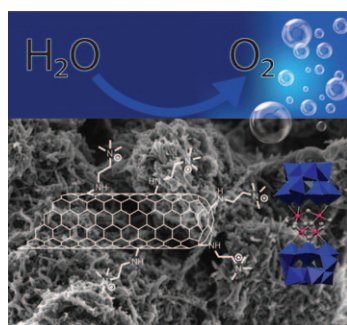
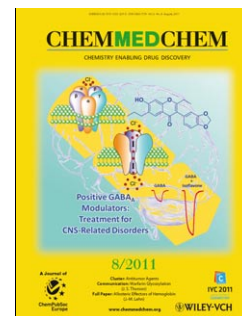
ChemMedChem  
DOI: 10.1002/cmdc.201100178

## Drug Discovery

P. Peltier-Pain, S. C. Timmons, A. Grandemange, E. Benoit, J. S. Thorson\*

Warfarin Glycosylation Invokes a Switch from Anticoagulant to Anticancer Activity

**Changing lanes!** Glycosylation of the classical pharmacophore warfarin fundamentally alters the drug's mechanism-of-action, leading to a dramatic reduction in anticoagulant function and a concomitant marked increase in anticancer cytotoxicity.



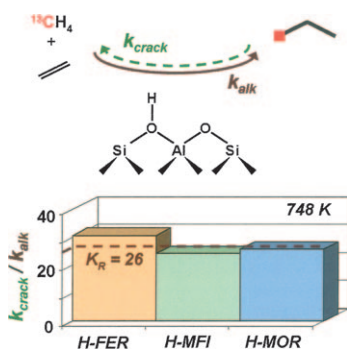
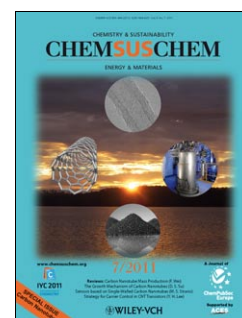
ChemSusChem  
DOI: 10.1002/cssc.201100089

## Carbon Nanotubes

F. M. Toma, A. Sartorel, M. Iurlo, M. Carraro, S. Rapino, L. Hooper-Burkhardt, T. Da Ros, M. Marcaccio, G. Scorrano, F. Paolucci,\* M. Bonchio,\* M. Prato\*

Tailored Functionalization of Carbon Nanotubes for Electrocatalytic Water Splitting and Sustainable Energy Applications

**Oxygenic carbon nanotubes:** Covalent and non-covalent strategies are utilized for the functionalization of carbon nanotubes with positively charged groups and subsequently negatively charged, inorganic catalysts, leading nanomaterials for electrocatalytic water splitting. Both multi- and single-walled carbon nanotubes react with under microwave irradiation and solvent-free conditions, whereas the formation of non-covalent nanoconjugates is accomplished by reaction of carbon nanotubes with trimethylammonium acetyl pyrene.



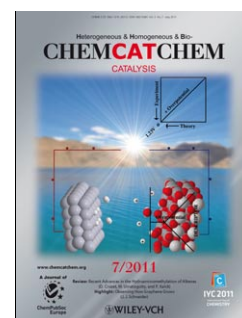
ChemCatChem  
DOI: 10.1002/cctc.201100051

## Zeolites

R. Gounder, E. Iglesia\*

Catalytic Alkylation Routes via Carbonium-Ion-Like Transition States on Acidic Zeolites

**Zeolites going crackers:** Brønsted acid sites in zeolites (H-FER, H-MFI, H-MOR) catalyze  $CH_4$ -alkene reactions at high temperatures ( $> 700$  K) via carbonium-ion-like transition states. The ratio of rate constants for forward and reverse reactions (alkane alkylation-cracking, alkene dimerization-cracking) equal their respective equilibrium constants ( $K_R$ ). In contrast, relative rates of  $CH_4$  and alkene reactions with a given alkoxide are influenced by the local environment around acid sites.



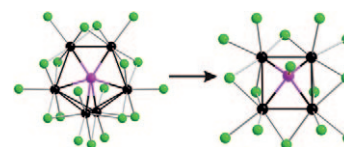


## Tungsten Clusters

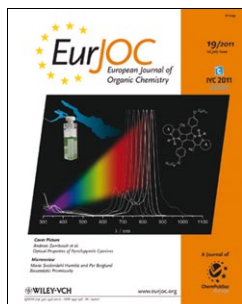
M. Ströbele, K. Eichele, H.-J. Meyer\*

### Phosphorus-Centered and Phosphinidene-Capped Tungsten Chloride Clusters

Solid-state reactions of highly reactive compounds or elements at low temperatures may provide a way to establish the potentially largest number of currently missing or unknown compounds. The reduction of  $WCl_6$  with elemental phosphorus yielded the phosphorus-centered  $W_6P_{17}$  cluster, which can be further reduced to yield the phosphinidene-capped cluster compound  $W_4(PCl)Cl_{10}$ .



*Eur. J. Inorg. Chem.*  
DOI: 10.1002/ejic.201100122

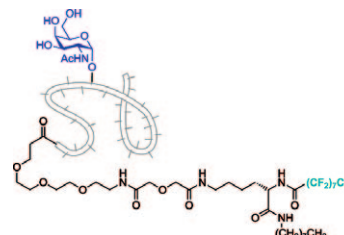


## Fluorous Glycopeptide Antigens

T. Platen, T. Schüler, W. Tremel, A. Hoffmann-Röder\*

### Synthesis and Antibody Binding of Highly Fluorinated Amphiphilic MUC1 Glycopeptide Antigens

Functional fluorous mucin-type antigens have been prepared in which double-tailed hydrocarbon/fluorocarbon lysine derivatives are conjugated to a tumor-associated  $T_N$  building block and a full 20 amino acid tandem repeat sequence of the glycopeptide mucin-1. The latter specifically binds to various anti-MUC1 mouse antibodies.



*Eur. J. Org. Chem.*  
DOI: 10.1002/ejoc.201100648

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