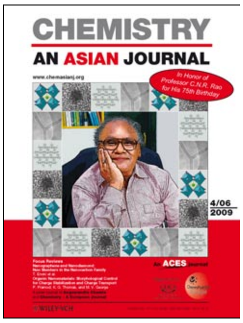
Spotlights ...

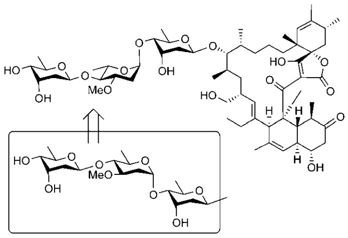


Glycosidation

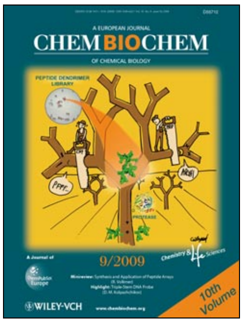
H. Tanaka,* A. Yoshizawa, S. Chijiwa, J.-y. Ueda, M. Takagi,
K. Shin-ya, T. Takahashi*

Efficient Synthesis of the Deoxysugar Part of Versipelostatin by Direct and Stereoselective Glycosylation and Revision of the Structure of the Trisaccharide Unit

Sweets for my sweet! Efficient synthesis of the deoxysugar part of versipelostatin (VST) was achieved by direct and stereoselective glycosidation of the reduced VST aglycon. Comparison of the synthetic and natural VST products using NMR indicate that VST has a β-d-digitoxose-(1,4)-α-l-oleandrose-(1,4)-β-d-digitoxose trisaccharide. A biological assay indicates that the deoxyoligosaccharide unit of the synthetic glycoside is important for biological activity.



Chem. Asian J.
DOI: **10.1002/asia.200800448**

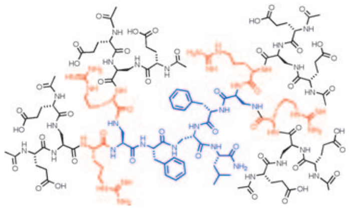


Dendrimers

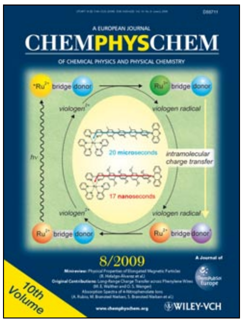
P. Sommer, V. S. Fluxa, T. Darbre, J.-L. Reymond*

Proteolysis of Peptide Dendrimers

Happy tree-like friends. Using trypsin and α-chymotrypsin cleavage sites as models, we show that the protease reactivity of peptide dendrimers, such as the structure illustrated in the figure, can be controlled by the degree of branching. Such a control provides a novel possibility to tune the biological properties of peptide dendrimers, and should be generally useful for their employment as functional biomolecule analogues, for example, in drug delivery applications.



ChemBioChem
DOI: **10.1002/cbic.200900060**

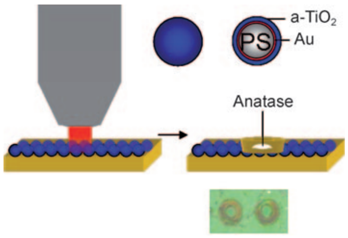


Colloidal Crystals

I. Alessandri,* M. Ferroni, L. E. Depero

In Situ Plasmon-Heating-Induced Generation of Au/TiO_2 "Hot Spots" on Colloidal Crystals

SERS you right: The plasmon heating of gold nanoshells is exploited to yield the local conversion of amorphous TiO_2 into anatase on the surface of polymeric colloidal crystals (see scheme). The resulting Au/TiO_2 spots are active substrates for surface-enhanced Raman spectroscopy and allow surface reactions and processes to be followed directly on-site.



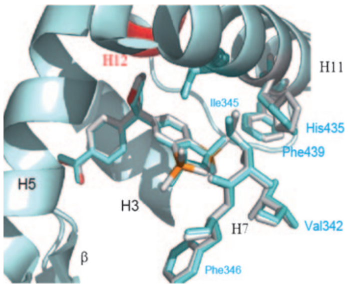
ChemPhysChem
DOI: **10.1002/cphc.200900080**

Drug Design

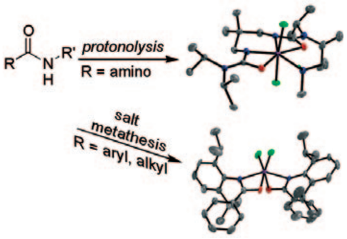
W. P. Lippert, C. Burschka, K. Götz, M. Kaupp, D. Ivanova,
C. Gaudon, Y. Sato, P. Antony, N. Rochel, D. Moras, H. Gronemeyer,
R. Tacke*

Silicon Analogues of the RXR-Selective Retinoid Agonist SR11237 (BMS649): Chemistry and Biology

C/Si switch: Twofold sila-substitution (C/Si exchange) in the RXR-selective retinoids **4a** (SR11237) and **5a** leads to **4b** (disila-SR11237) and **5b**, respectively. Chemistry and biology of the C/Si pairs are reported.



ChemMedChem
DOI: **10.1002/cmdc.200900090**



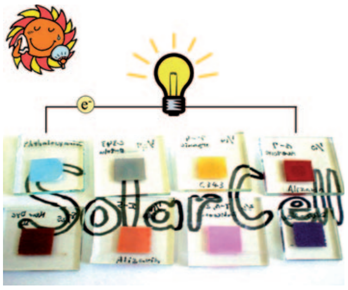
N,O-Chelating Ligands

D. C. Leitch, J. D. Beard, R. K. Thomson, V. A. Wright, B. O. Patrick, L. L. Schafer*

N,O-Chelates of Group 4 Metals: Contrasting the Use of Amidates and Ureates in the Synthesis of Metal Dichlorides

Group 4 dichloride complexes with amidate or ureate ancillary ligands, while potentially useful as starting materials or precatalysts, have been largely been overlooked in the literature. Here, several examples of these compounds have been prepared. A modified salt metathesis procedure is used to synthesize amidate dichlorides, while protonolysis is effective with electron-rich ureate ligands.

Eur. J. Inorg. Chem.
DOI: **10.1002/ejic.200900254**



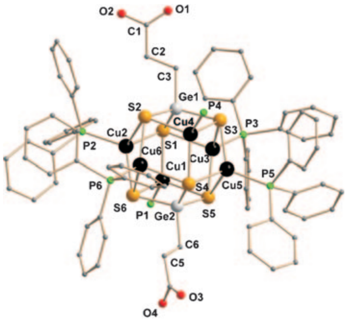
Dye-Sensitized Solar Cells

Y. Ooyama,* Y. Harima*

Molecular Designs and Syntheses of Organic Dyes for Dye-Sensitized Solar Cells

Dye-sensitized solar cells (DSSCs) based on organic dyes adsorbed on nanocrystalline TiO_2 electrodes have received considerable attention because of their high incident solar light-to-electricity conversion efficiencies and low costs of production. The aim of this microreview is to highlight the designs and syntheses of organic dyes for DSSCs based on recent work of organic chemists.

Eur. J. Org. Chem.
DOI: **10.1002/ejoc.200900236**



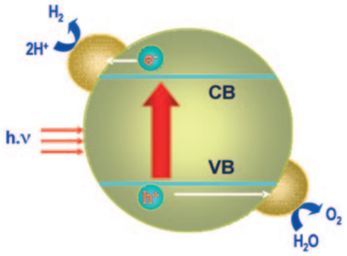
Cluster Compounds

Z. H. Fard, L. Xiong, C. Müller, M. Hołyńska, S. Dehnen*

Synthesis and Reactivity of Functionalized Binary and Ternary Thiometallate Complexes $[(RT)_4S_6]$, $[(RSn)_3S_4]^{2-}$, $[(RT)_2(CuPPh_3)_6S_6]$, and $[(RSn)_6(OMe)_6Cu_2S_6]^{4-}$ ($R = C_2H_4COOH$, CMe_2CH_2COMe; $T = Ge$, Sn)

Caged chalcogens: A series of novel, functionalized T_nS_m cages ($T = Ge$, Sn; $n/m = 4{:}6$, $3{:}4$) with terminal COO(H) or COMe groups were synthesized and show further reactivity toward Cu^I complexes (an example of which is shown here) and to hydrazines. This led to the generation of functionalized Cu/T/S clusters or the formation of Schiff bases at the $C{=}O$ groups, respectively, with or without further fragmentation of the T/E core.

Chem. Eur. J.
DOI: **10.1002/chem.200900523**



Water Splitting

R. M. Navarro Yerga,* M. C. Álvarez Galván, F. del Valle, J. A. Villoria de la Mano, J. L. G. Fierro*

Water Splitting on Semiconductor Catalysts under Visible-Light Irradiation

Splitting image: Sustainable hydrogen production is a key target for the development of alternative, future energy systems that will provide a clean and affordable energy supply. This Minireview focuses on the development of semiconductor catalysts that enable hydrogen production via water splitting upon visible-light irradiation.

ChemSusChem
DOI: **10.1002/cssc.200900018**