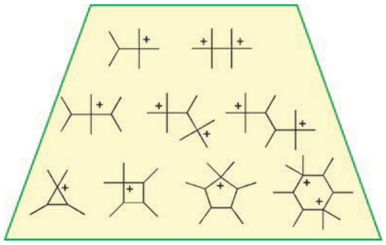
SPOTLIGHTS …

Phosphorus Chemistry

C. A. Dyker, N. Burford*

***catena*-Phosphorus Cations**

Chem. Asian J.
DOI: **10.1002/asia.200700229**



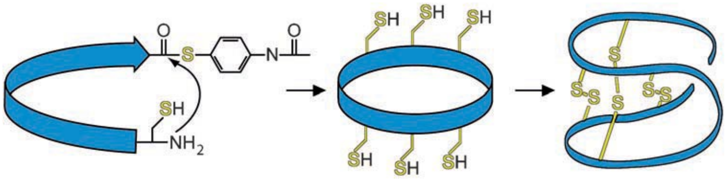
A new chapter: *catena*-Phosphorus cations represent a new and developing area in fundamental phosphorus chemistry that complements the series of neutral and anionic polyphosphorus compounds. The picture shows examples of phosphinophosphonium frameworks (each vertex represents a phosphorus center).

Protein Engineering

T. Leta Aboye, R. J. Clark,
D. J. Craik, U. Göransson*

Ultra-Stable Peptide Scaffolds for Protein Engineering—Synthesis and Folding of the Circular Cystine Knotted Cyclotide Cycloviolacin O2

ChemBioChem
DOI: **10.1002/cbic.200700357**



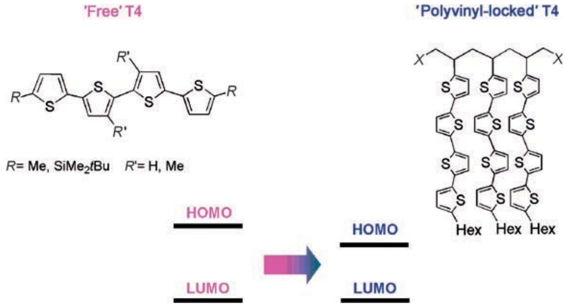
Key to the challenge of cross-linking disulfide bonds in a circular peptide backbone. The cyclic cystine knot motif is an attractive scaffold for protein engineering. However, the synthesis and folding of members of the most diverse and biologically active cyclotide subfamily, the bracelets, has been a big challenge. This study describes the key solution to these problems and thus provides an efficient method of exploring the most potent cyclic cystine knot peptides.

Electronic properties

M. Melucci,* M. Zambianchi,
A. Zanelli, N. Camaioni, M. Gazzano,
A. Bongini, G. Barbarella

Polyvinyl-Locked versus Free Quaterthiophene: Effect of Spatial Constraints on the Electronic Properties of *n*-Hexylquaterthiophene

ChemPhysChem
DOI: **10.1002/cphc.200700459**



Close chromophores: In a triad of quaterthiophene covalently linked to a polymer backbone (see figure), intramolecular as well as intermolecular interactions between pendant quaterthiophenes lead to a peculiar solid-state supramolecular organization which is responsible for a marked enhancement of the electron affinity.

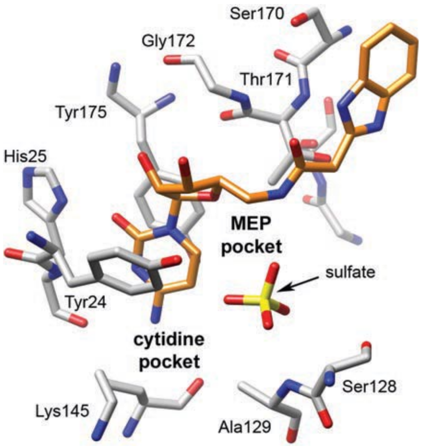
Kinase Inhibitors

C. M. Crane, A. K. H. Hirsch,
M. S. Alphey, T. Sgraja, S. Lauw,
V. Illarionova, F. Rohdich,*
W. Eisenreich, W. N. Hunter,*
A. Bacher, F. Diederich*

Synthesis and Characterization of Cytidine Derivatives that Inhibit the Kinase IspE of the Non-Mevalonate Pathway for Isoprenoid Biosynthesis

ChemMedChem
DOI: **10.1002/cmdc.200700208**

The binding modes of two water-soluble, cytidine-based inhibitors in complex with the *A. aeolicus* kinase IspE were elucidated by co-crystal structure analysis. Because key active site residues in *A. aeolicus* IspE are identical to those of the corresponding enzymes of *M. tuberculosis* and *P. falciparum*, useful structural information was gained for future structure-based development of inhibitors of the parasite enzymes.



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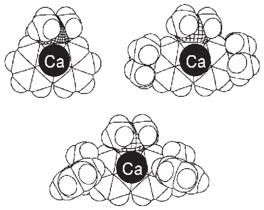
Ca-Mediated Styrene Polymerization



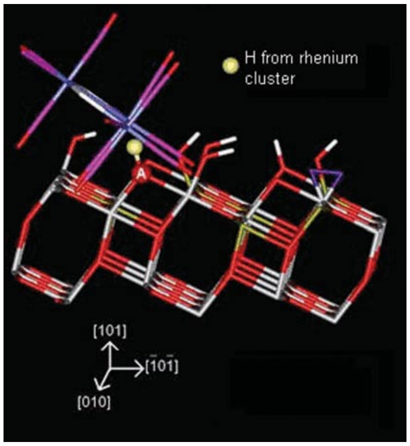
Increase of the steric bulk in the 2- and 7-positions of the fluorenyl ligands in several new organocalcium initiators led to a considerable improvement in the stereoselectivity for styrene polymerization. Syntheses, structures and polymerization results are discussed.

D. F. -J. Piesik, K. Häbe, S. Harder*

Ca-Mediated Styrene Polymerization: Tacticity Control by Ligand Design

Eur. J. Inorg. Chem.
DOI: **10.1002/ejic.200700802**

Surface Chemistry



Rhenium clusters probe reactivity of TiO_2 surface-defect sites: Graphical representation of deprotonated rhenium clusters adsorbed on defective TiO_2 surface interacting with surface after sites.

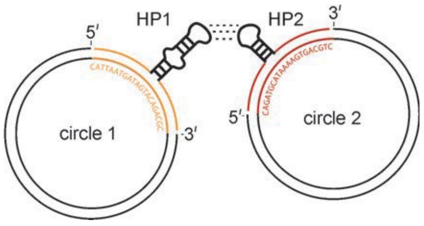
K. Suriye, R. J. Lobo-Lapidus, G. J. Yeagle, P. Praserthdam, R. D. Britt, B. C. Gates*

Probing Defect Sites on TiO_2 with $[Re_3(CO)_{12}H_3]$: Spectroscopic Characterization of the Surface Species

Chem. Eur. J.
DOI: **10.1002/chem.200701514**

DNA Architectures

Kissing complexes formed on the basis of highly specific noncanonical interactions of RNA hairpins can be harnessed for the controlled assembly of DNA nanoobjects. Two DNA minicircles, each equipped with a different RNA hairpin motif (see picture), mediate a tight and specific binding of the two circular DNA nanoobjects. These interactions may offer the possibility to construct DNA nanoobjects with increased complexity.

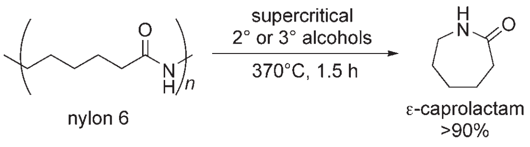


G. Mayer, D. Ackermann, N. Kuhn, M. Famulok*

Construction of DNA Architectures with RNA Hairpins

Angew. Chem. Int. Ed.
DOI: **10.1002/anie.704709**

Polymer Recycling



Towards sustainable stockings? Nylon 6 was efficiently converted into its monomer caprolactam, which was isolated in over 90 % yield with excellent purity as the sole product of the reaction, by treatment with supercritical secondary or tertiary alcohols. The present method opens up a new avenue in plastic recycling chemistry.

A. Kamimura,* Y. Oishi, K. Kaiso, T. Sugimoto, K. Kashiwagi

Supercritical Secondary Alcohols as Useful Media To Convert Polyamide into Monomeric Lactams

ChemSusChem
DOI: **10.1002/cssc.200700024**

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