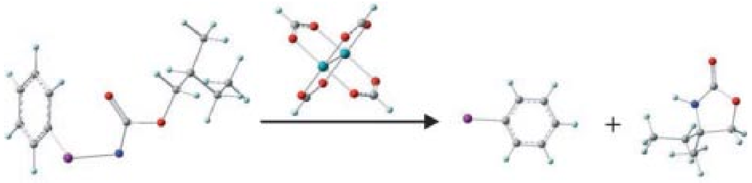
SPOTLIGHTS …

Reaction Mechanisms

X. Lin, C. Zhao, C.-M. Che,* Z. Ke, D. L. Phillips

A DFT Study on the Mechanism of Rh$_2^{II,II}$-Catalyzed Intramolecular Amidation of Carbamates

Chem. Asian J.
DOI: **10.1002/asia.200700068**



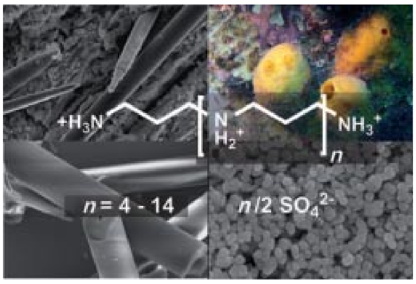
Alone yet together: DFT calculations elucidate the catalytic process of a dirhodium tetracarboxylate catalyzed intramolecular C–H bond-amidation reaction. Out of six reaction pathways that involve a metal–nitrene complex, the singlet concerted pathway that produces the product with retention of chirality at C is predicted to be the predominant one.

Biomineralization

S. Matsunaga, R. Sakai,* M. Jimbo, H. Kamiya

Long-Chain Polyamines (LCPAs) from Marine Sponge: Possible Implication in Spicule Formation

ChemBioChem
DOI: **10.1002/cbic.200700305**



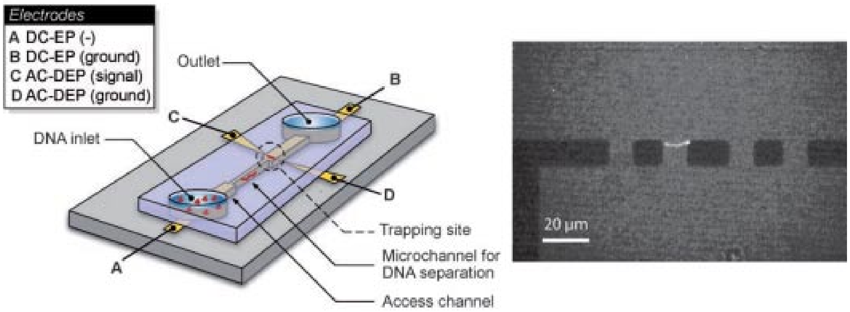
LCPAs in sponge spicules relate two distinct marine organisms, diatoms and sponges, by "silica deposition". LCPA-directed silica deposition has been proposed for the formation of silica walls in diatoms, while other chemical factors have been suggested for sponges. Here we show that LCPAs can be an additional factor involved in spiculogenesis in the sponge.

Dielectrophoretic Trapping

M. Kumemura,* D. Collard,* C. Yamahata, N. Sakaki, G. Hashiguchi, H. Fujita

Single DNA Molecule Isolation and Trapping in a Microfluidic Device

ChemPhysChem
DOI: **10.1002/cphc.200700268**



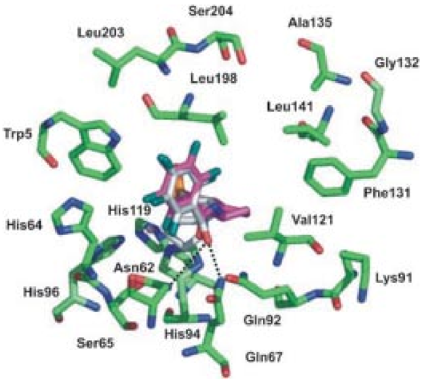
DNA bridges: A double stranded λ-DNA molecule is isolated by dc electrophoresis and trapped by ac dielectrophoresis between aluminium electrodes in a microfluidic chip [see device (left) in figure and DNA bridge between electrodes (right)]. This single-molecule trapping technique is highly effective, allowing long DNA fragments to be instantly captured in stretched formation.

Inhibitor Design

A. Thiry,* B. Masereel, J.-M. Dogné, C. T. Supuran, J. Wouters, C. Michaux

Exploration of the Binding Mode of Indanesulfonamides as Selective Inhibitors of Human Carbonic Anhydrase Type VII by Targeting Lys 91

ChemMedChem
DOI: **10.1002/cmdc.200700057**



The binding mode of (*R*)- (magenta) and (*S*)-1-pentafluorophenylamido-5-sulfonamide (light gray) inside the human carbonic anhydrase VII active site is shown. A shared hydrogen bond between the carbonyl group of each compound and Gln 67 and Asn 62 is observed. To increase hCA VII selectivity, structural modifications of these compounds are proposed in order to design new anticonvulsant agents.

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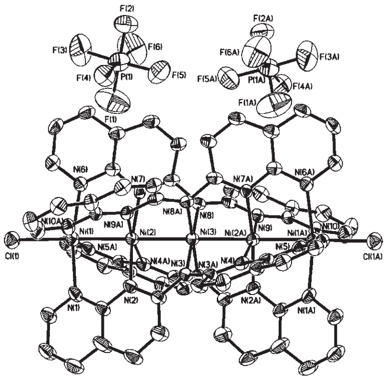


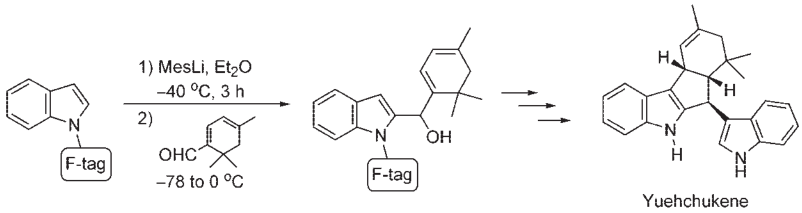
Metal string! The first linear nickel framework in which the usual sequence of Ni^{II} atoms has been reduced by two electrons is presented. The electronic structure of the metal framework appears intermediate between a localized picture corresponding to Ni^{II}-Ni^{I}-Ni^{II}-Ni^{I}-Ni^{II} and a fully delocalized model represented as $(Ni_2)^{3+}$-Ni^{II}-$(Ni_2)^{3+}$.

Mixed-Valent Compounds

I. P.-C. Liu, M. Bénard,* H. Hasanov, I.-W. P. Chen, W.-H. Tseng, M.-D. Fu, M.-M. Rohmer, C.-h. Chen, G.-H. Lee, S.-M. Peng*

A New Generation of Metal String Complexes: Structure, Magnetism, Spectroscopy, Theoretical Analysis, and Single Molecular Conductance of an Unusual Mixed-Valence Linear $[Ni_5]^{8+}$ Complex

Chem. Eur. J.
DOI: **10.1002/chem.200700750**



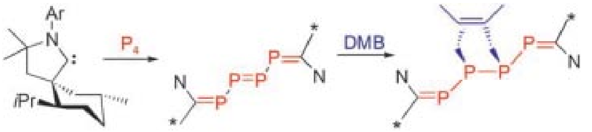
Mesityllithium was found to be a suitable reagent for the α-lithiation of perfluoroalkyl-tagged 1-(arylsulfonyl)indole, and the fluorous synthesis of yuehchukene was accomplished efficiently using this method as a key step.

Lithiation of Fluorous-Tagged Indole

H. Naka, Y. Akagi, K. Yamada, T. Imahori, T. Kasahara, Y. Kondo*

Fluorous Synthesis of Yuehchukene by α-Lithiation of Perfluoroalkyl-Tagged 1-(Arylsulfonyl)indole with Mesityllithium

Eur. J. Org. Chem.
DOI: **10.1002/ejoc.200700525**



Broken down and added onto: An enantiomerically pure cyclic (alkyl)(amino)carbene cleanly activates P_4, affording highly reactive products that can be further used for the diastereoselective construction of P_4-containing molecules that feature phosphorus–carbon bonds (see scheme; DMB = 2,3-dimethylbutadiene; portions of the products have been omitted, * denotes stereogenic carbon center).

P_4 Activation

J. D. Masuda, W. W. Schoeller, B. Donnadieu, G. Bertrand*

Carbene Activation of P_4 and Subsequent Derivatization

Angew. Chem. Int. Ed.
DOI: **10.1002/anie.200703055**

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