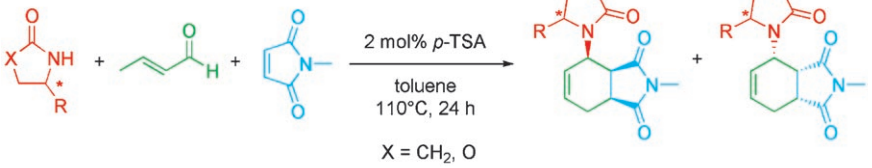
Multicomponent Reactions

S. Hübner, H. Jiao, D. Michalik, H. Neumann, S. Klaus, D. Strübing, A. Spannenberg, M. Beller*

In Situ Generation of Chiral *N*-Dienyl Lactams in a Multicomponent Reaction: An Efficient and Highly Selective Way to Asymmetric Amidocyclohexenes

Chem. Asian J.
DOI: **10.1002/asia.200600428**



Three amigos: The employment of chiral amides in combination with aldehydes and dienophiles in our novel multicomponent procedure allows the simple and efficient synthesis of amido-functionalized cyclohexene derivatives (see scheme; *p*-TSA = *para*-toluenesulfonic acid). The multicomponent methodology circumvents the circuitous preparation of chiral *N*-dienyl lactams as they are generated in situ.

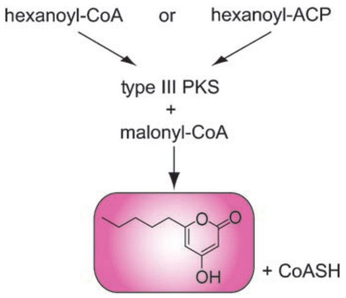
Polyketide Synthases

S. Grüschow, T. J. Buchholz, W. Seufert, J. S. Dordick, D. H. Sherman*

Substrate Profile Analysis and ACP-Mediated Acyl Transfer in *Streptomyces coelicolor* Type III Polyketide Synthases

ChemBioChem
DOI: **10.1002/cbic.200700026**

Protein partners. We report the biochemical characterization of two type III polyketide synthases (PKS) from *Streptomyces coelicolor.* Remarkably, germicidin synthase (Gcs)/SCO7221 was able to utilize both acyl-CoA and acyl-ACP as starter units for the production of pyrone containing compounds.

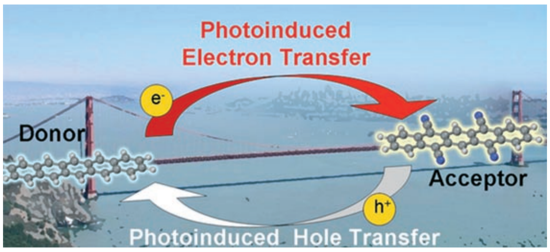


Electron Transfer

A. Van Vooren, V. Lemaur, A. Ye, D. Beljonne, J. Cornil*

Impact of Bridging Units on the Dynamics of Photoinduced Charge Generation and Charge Recombination in Donor–Acceptor Dyads

ChemPhysChem
DOI: **10.1002/cphc.200700130**



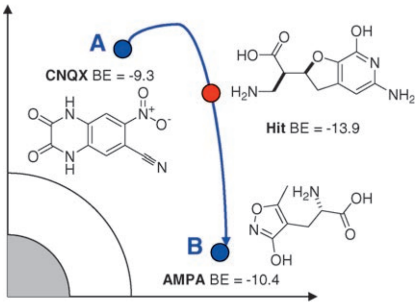
Donor–bridge–acceptor architectures: The authors estimate, at a full quantum-chemical level, the various molecular parameters governing charge-transfer rates in model organic structures containing a donor and an acceptor unit connected by a bridging unit (see picture). The nature, size, and conformation of the bridging unit have been systematically varied.

Cheminformatics

R. van Deursen, J.-L. Reymond

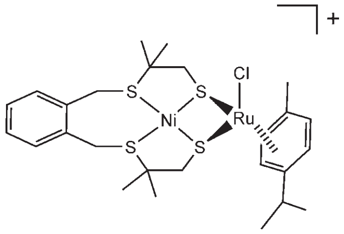
Chemical Space Travel

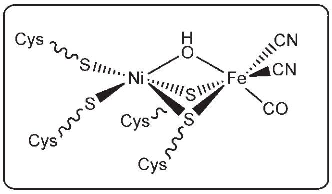
ChemMedChem
DOI: **10.1002/cmdc.200700021**



Space the final frontier! Modern medicine depends on the discovery of new drugs however, detailed knowledge of all possible organic molecules is not available. To travel in this so-called chemical space and discover new compounds, we wrote a spaceship program combining a point mutation generator with a selection module for target similarity. Thus, allowing travel from a starting molecule A to a target molecule B through a continuum of structural mutations.

Hydrogenase Models





[NiFe] hydrogenases active site

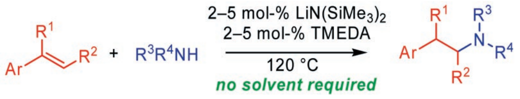
New dinuclear nickel-ruthenium catalysts for H_2 production that mimic the active site of [NiFe] hydrogenases are described. The activity of these new complexes is explained by the existence of a cooperative effect between the metal centers and is further related to their electronic properties.

Y. Oudart, V. Artero,* J. Pécaut, C. Lebrun, M. Fontecave

Dinuclear Nickel–Ruthenium Complexes as Functional Bio-Inspired Models of [NiFe] Hydrogenases

Eur. J. Inorg. Chem.
DOI: **10.1002/ejic.200700067**

Hydroamination



LiN(SiMe$_3$)$_2$/TMEDA is an efficient catalyst for the anti-Markovnikov addition of primary and secondary amines to vinylarenes. Reactions proceed readily at 120 °C in the absence of solvent. The mechanism of the lithium-catalyzed hydroamination and the influence of TMEDA was studied with DFT methods.

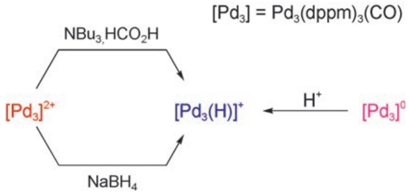
P. Horrillo-Martínez, K. C. Hultzsch,* A. Gil, V. Branchadell

Base-Catalyzed Anti-Markovnikov Hydroamination of Vinylarenes – Scope, Limitations and Computational Studies

Eur. J. Org. Chem.
DOI: **10.1002/ejoc.200700147**

Cluster Compounds

An unprecedented hydride adduct was formed upon the addition of formate to a dicationic palladium cluster [Pd$_3$(dppm)$_3$(μ_3-CO)]$^{2+}$ (dppm = bis(diphenylphosphinomethane). This is just one of the routes that can be used to form this product (see scheme). The palladium–hydride cluster has been fully characterised by both spectroscopic and electroanalytical methods.



C. Cugnet, D. Lucas,* E. Collange, B. Hanquet, A. Vallat, Y. Mugnier, A. Soldera, P. D. Harvey*

Generation, Characterization, and Electrochemical Behavior of the Palladium–Hydride Cluster [Pd$_3$(dppm)$_3$(μ_3-CO)(μ_3-H)]$^+$ (dppm = Bis(diphenylphosphinomethane)

Chem. Eur. J.
DOI: **10.1002/chem.200700069**

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