Spotlights ...

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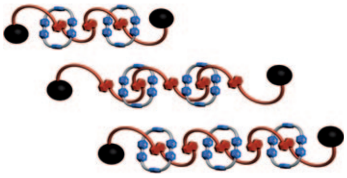
CHEMISTRY
A EUROPEAN JOURNAL
17/6
2011

Donor–Acceptor Systems

S. Basu, A. Coskun, D. C. Friedman, M. A. Olson, D. Benítez, E. Tkatchouk, G. Barin, J. Yang, A. C. Fahrenbach, W. A. Goddard, III, J. F. Stoddart*

Donor–Acceptor Oligorotaxanes Made to Order

Molecular accordions are playing in tune: Oligorotaxanes of the donor–acceptor variety have been designed to undergo folding of their constitutions in solution to produce secondary structures in which π–π stacking between π-donating dioxynaphthalene units and π-accepting bipyridinium ones are dominant (see figure).



Chem. Eur. J.
DOI: **10.1002/chem.201001822**

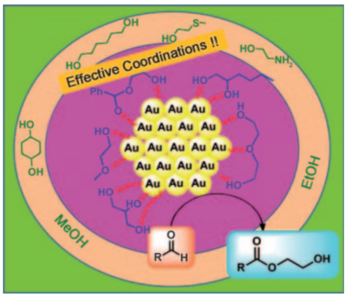
CHEMISTRY
AN ASIAN JOURNAL
2/06
2011

Gold Catalysis

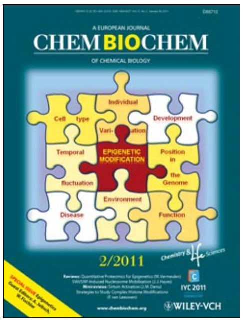
T. Yasukawa, H. Miyamura, S. Kobayashi*

Rate-Acceleration in Gold-Nanocluster-Catalyzed Aerobic Oxidative Esterification Using 1,2- and 1,3-Diols and Their Derivatives

Magnum PI: Gold-nanocluster catalysts, PI-Au, that were immobilized on polystyrene-based polymers with cross-linking moieties, were used to catalyze the syntheses of 1,2 and 1,3-diol monoesters and their derivatives from aldehydes. The effect of neighboring-group participation in the esterification reaction is also described.



Chem. Asian J.
DOI: **10.1002/asia.201000624**



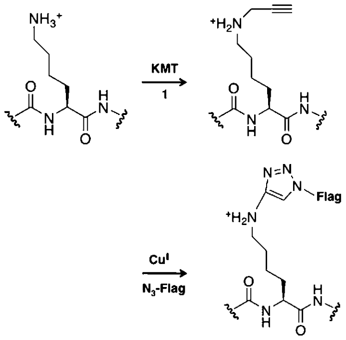
CHEMBIOCHEM
2/2011

Epigenetics

O. Binda, M. Boyce, J. S. Rush, K. K. Palaniappan, C. R. Bertozzi,* O. Gozani*

A Chemical Method for Labeling Lysine Methyltransferase Substrates

Click art: The transfer of an alkyne moiety from an *S*-adenosylmethionine analogue (**1**) onto a lysine residue by the methyltransferase, KMT, allowed the tagging of the modified substrate for subsequent analysis by copper-catalyzed click chemistry, as demonstrated in the scheme.



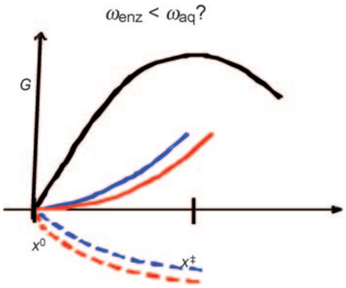
ChemBioChem
DOI: **10.1002/cbic.201000433**

Enzymatic reactions

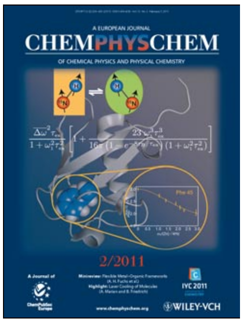
I. Tuñón,* J. T. Hynes

A Simple Model for Barrier Frequencies for Enzymatic Reactions

Enzymatic catalysis: Reaction frequencies are relevant in deviations of rate constants from their transition state theory values and in determining which environmental dynamics participate in the reaction. We present a simple model to understand the changes in these frequencies between an enzymatic reaction and an uncatalyzed process in aqueous solution (see picture). These changes have implications for dynamical environmental effects on the enzymatic reaction.



ChemPhysChem
DOI: **10.1002/cphc.201000774**

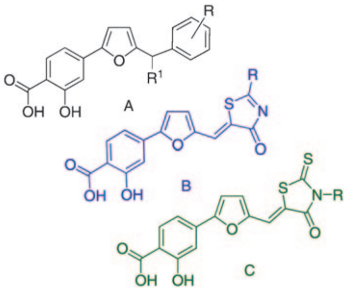


Antiviral agents

M. Rinaldi, C. Tintori, L. Franchi, G. Vignaroli, A. Innitzer, S. Massa, J. A. Esté, E. Gonzalo, F. Christ, Z. Debyser, M. Botta*

A Versatile and Practical Synthesis toward the Development of Novel HIV-1 Integrase Inhibitors

Easy as A, B, C: Three new series of salicylic acid derivatives were designed and synthesized to investigate their activity toward HIV-1 integrase. Some of these compounds were obtained with microwave-assisted procedures developed and optimized in our research group, which allowed us to rapidly generate several final compounds of high purity.



ChemMedChem
DOI: **10.1002/cmdc.201000510**

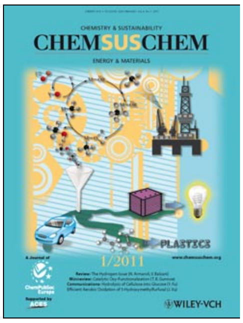
Biorenewables

Z. Zhang, Q. Wang, H. Xie,* W. Liu, Z. K. Zhao*

Catalytic Conversion of Carbohydrates into 5-Hydroxymethylfurfural by Germanium(IV) Chloride in Ionic Liquids

Ge whiz: Germanium(IV) chloride in ionic liquids catalyzes the direct conversion of carbohydrates into 5-hydroxymethylfurfural (HMF). The catalyst shows excellent activity for fructose dehydration, and a high yield of HMF up to 90% is obtained in 5 min. This nontoxic catalytic system is also efficient for other carbohydrates such as glucose, sucrose, and even cellulose.

ChemSusChem
DOI: **10.1002/cssc.201000279**

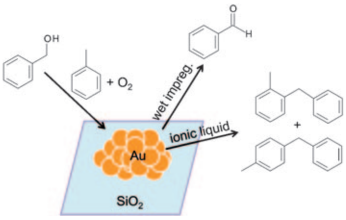


Supported Catalysts

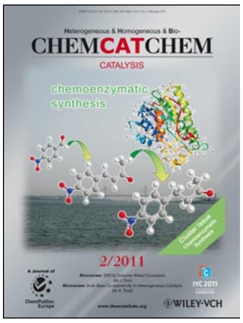
S. F. R. Taylor, J. Sá, C. Hardacre*

Friedel–Crafts Alkylation of Aromatics with Benzyl Alcohol over Gold-Modified Silica

Supports illustrated: Supported gold catalysts are shown to be active and selective for the alkylation of aromatics using benzyl alcohol for the first time. The catalysts are prepared using an ionic liquid deposition method which leads to alkylation reactions, whereas the conventional wet impregnation leads predominantly to oxidation products.



ChemCatChem
DOI: **10.1002/cctc.201000337**



Ruthenium Carbene Complexes

V. Friese, S. Nag, J. Wang, M.-P. Santoni, A. Rodrigue-Witchel, G. S. Hanan,* F. Schaper*

Red Phosphorescence in Ru^{II} Complexes of a Tridentate N-Heterocyclic Carbene Ligand Incorporating Tetrahydropyrimidine

A six-membered NHC forms the σ-donating core of a tridentate ligand incorporating two pyridine moieties. The enlarged NHC angles allow the formation of fully tridentate complexes, confirmed by X-ray crystallography. The electrochemistry and spectroscopy results of its Ru^{II} complexes confirm its electron-rich character. Powder samples of the complexes display red phosphorescence in the 735–750 nm region.

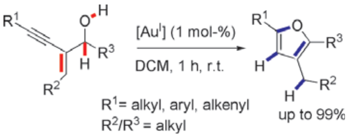
Eur. J. Inorg. Chem.
DOI: **10.1002/ejic.201000823**

Gold–Carbene Complex Catalysis

A. S. K. Hashmi,* T. Häffner, M. Rudolph, F. Rominger

Cyclization of 2-Alkynylallyl Alcohols to Highly Substituted Furans by Gold(I)–Carbene Complexes

Easily accessible 2-alkynylallyl alcohols were transformed into highly substituted furans under very mild reaction conditions by the use of gold(I)–carbene catalysts. A broad range of substrates could be transformed in high yields and within short reaction times.



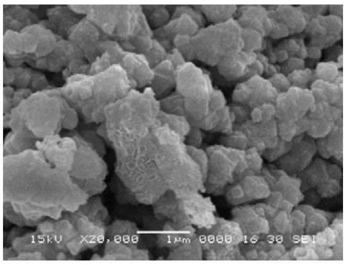
Eur. J. Org. Chem.
DOI: **10.1002/ejoc.201001479**

Steam reforming

P. Lan, Q. Xu, M. Zhou, L. Lan, S. Zhang, Y. Yan*

Catalytic Steam Reforming of Fast Pyrolysis Bio-Oil in Fixed Bed and Fluidized Bed Reactors

Catalytic steam reforming of bio-oil is an economically-feasible route which produces renewable hydrogen. The Ni/MgO-La_2O_3-Al_2O_3 catalyst was prepared with Ni as active agent, Al_2O_3 as support, and MgO and La_2O_3 as promoters. Experiments were conducted in both fixed and fluidized bed reactors, respectively.



Chem. Eng. Technol.
DOI: **10.1002/ceat.201000169**