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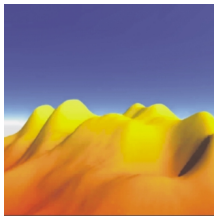
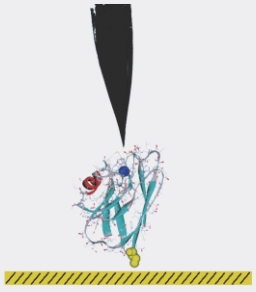


Cover
Computer graphical representation of the tunnelling profile of the metalloprotein Zn7-metallothionein. "Peaks" represent regions of enhanced tunnelling conductance.

contents

FEATURE ARTICLE



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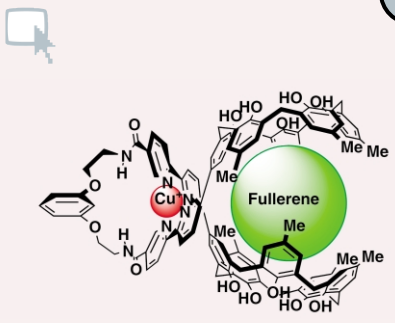
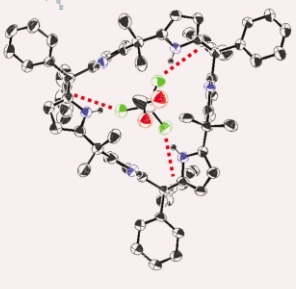
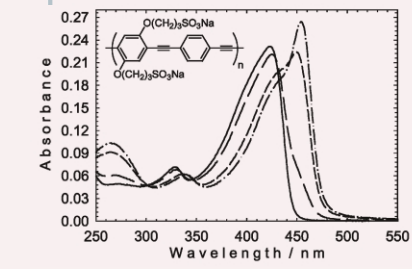


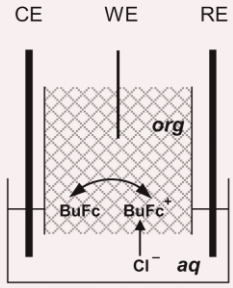




Photophysics, aggregation and amplified quenching of a water-soluble poly(phenylene ethynylene)

Chunyan Tan, Mauricio R. Pinto and Kirk S. Schanze

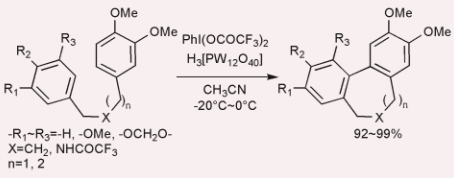
The fluorescence, absorption and fluorescence quenching properties of an anionic poly(phenylene ethynylene) are investigated in H_2O and methanol solutions.



Carbon ceramic electrode modified with redox liquid

Marcin Opallo and Monika Saczek-Maj

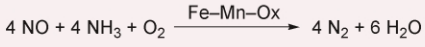
A new approach in electrode modification is presented. A hydrophobic liquid redox active modifier (butylferrocene) is introduced into a hydrophobic silicate matrix containing graphite particles.



A novel and efficient oxidative biaryl coupling reaction of phenol ether derivatives using a combination of hypervalent iodine(III) reagent and heteropoly acid

Hiromi Hamamoto, Gopinathan Anilkumar, Hirofumi Tohma and Yasuyuki Kita

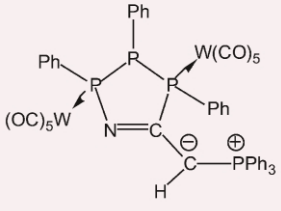
A novel and efficient oxidative biaryl coupling reaction of phenol ether derivatives using a combination of hypervalent iodine(III) reagent, phenyliodine(III) bis(trifluoroacetate) (PIFA), and heteropoly acid has been developed.



Low temperature selective catalytic reduction (SCR) of NO with NH_3 over Fe–Mn based catalysts

Richard Q. Long, Ralph T. Yang and Ramsay Chang

Fe–Mn based transition metal oxides (Fe–Mn, Fe–Mn–Zr and Fe–Mn–Ti) show nearly 100% NO conversion at 100–180 °C for selective catalytic reduction of NO with NH_3 under the applied conditions with a space velocity of 15 000 h^{-1}.



Synthesis of the first 1,2,3,4-azatriphospholene complex

Nils Hoffmann, Cathleen Wismach, Peter G. Jones, Rainer Streubel, Ngoc Hoa Tran Huy and François Mathey

Synthesis of the first 1,2,3,4-azatriphospholene complex was achieved by heating a solution of a *P*-phenyl-substituted 7-phosphanorbornadiene tungsten complex and triphenylphosphonio cyanomethylide.

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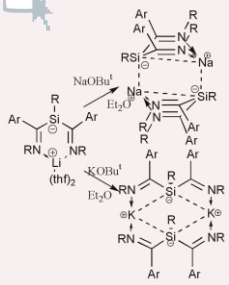

Sodium and potassium 3-sila-β-diketiminates show new coordination modes

James D. Farwell, Peter B. Hitchcock and Michael F. Lappert

The reaction between the lithium 3-sila-β-diketiminate (**1**) and the appropriate $MOBu^t$ yielded the crystalline sodium (**2**) or potassium (**3**) 3-sila-β-diketiminate in high yield.

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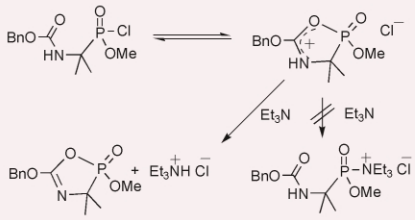

Reactive species formed from *N*-benzyloxycarbonyl α-aminophosphonochloridates and triethylamine: probable identity and implications for synthesis

Paul M. Cullis and Martin J. P. Harger

The synthetically useful phosphonylating species formed when a *N*-benzyloxycarbonyl α-aminophosphonochloridate reacts with Et_3N is not a phosphonylammonium salt; spectroscopic evidence points instead to an oxazaphospholine oxide.

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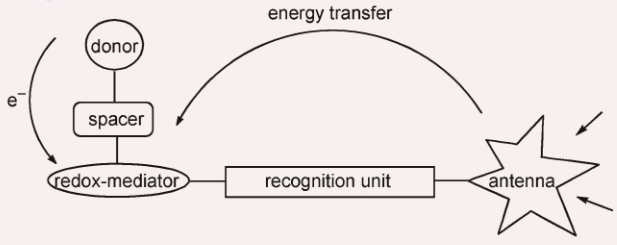

Mimicking dye-based functions of natural blue-light photoreceptors by studying photoinduced energy and electron transfer in a pyrene–isoalloxazine(flavin)–phenothiazine triad

Zhen Shen, Joerg Strauss and Joerg Daub

An artificial system containing phenothiazine as electron donor, isoalloxazine as flavinoid redox-mediator and pyrene as antenna has been built up in order to model photoinduced energy and electron transfer processes of natural blue-light photoreceptors.

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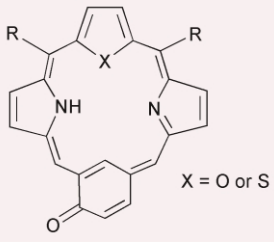

Core modified oxybenziporphyrins: new aromatic ligands for metal–carbon bond activation

Sundararaman Venkatraman, Venkataramanarao G. Anand, Simi K. Pushpan, Jeyaraman Sankar and Tavarekere K. Chandrashekar

Syntheses of two new core modified oxybenziporphyrins and a neutral palladium complex of oxa-substituted oxybenziporphyrin is reported.

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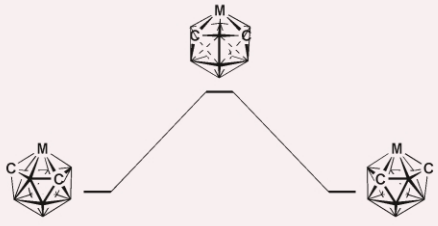

The first supraicosahedral p-block metallacarboranes

Neil M. M. Wilson, David Ellis, Alan S. F. Boyd, Barry T. Giles, Stuart A. Macgregor, Georgina M. Rosair and Alan J. Welch

4,1,6-*closo*-$SnC_2B_{10}H_{12}$ and 1,6-Me_2-4,1,6-*closo*-$SnC_2B_{10}H_{10}$ are the first examples of supraicosahedral metallacarboranes containing p-block metals. The former is fluctional in solution, switching between enantiomeric forms *via* a double diamond–square–diamond process with a calculated activation energy of 25.4 kJ mol^{-1}.

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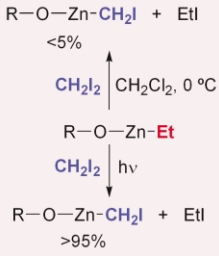

Photoinduced alkyl group exchange of ethylzinc alkoxides: X-ray crystal structure of an iodomethylzinc methoxide

André Charette, André Beauchemin, Sébastien Francoeur, Francine Bélanger-Gariépy and Gary D. Enright

Irradiation of a solution of ethyl zinc alkoxides and CH_2I_2 leads to clean formation of iodomethylzinc alkoxides. The solid-state structure of $(MeO)_8Zn_7(CH_2I)_6$ is also reported.

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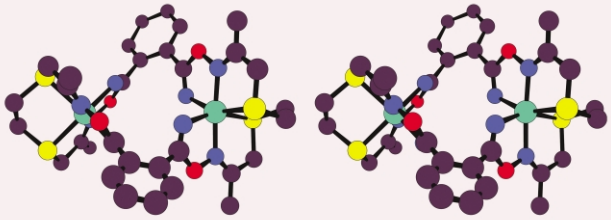

A new class of macrocyclic complexes formed *via* nickel-promoted macrocyclisation of dioxime with dinitrile

Vitaly V. Pavlishchuk, Sergey V. Kolotilov, Anthony W. Addison, Michael J. Prushan, Raymond J. Butcher and Laurence K. Thompson

Nickel(II) promotes coupling of dioxime with dinitrile, to yield the first example of a new class of macrocyclic ligands, the stereoelectronic demands of *o*-phthalonitrile here yielding a dinickel macrocycle.

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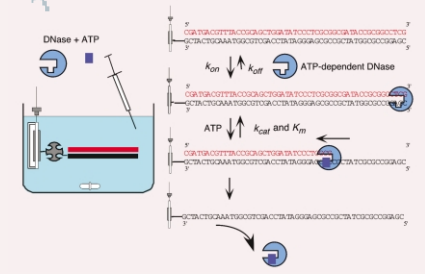

Direct monitoring of DNA cleavages catalyzed by an ATP-dependent deoxyribonuclease on a 27 MHz quartz-crystal microbalance

Hisao Matsuno, Hiroyuki Furusawa and Yoshio Okahata

Each step of DNA degradation by an ATP-dependent DNase could be quantified on one 27 MHz QCM device: binding of the enzyme onto DNA, hydrolysis of DNA, and release of the enzyme from the hydrolyzed DNA.

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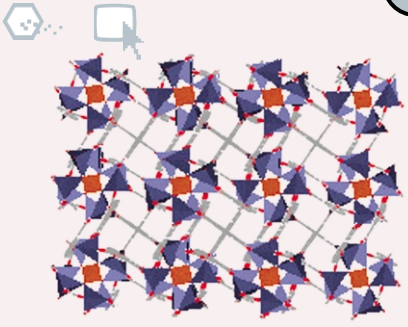

$[Zn_8(SiO_4)(C_8H_4O_4)_6]_n$: the firstborn of a metallosilicate–organic hybrid material family ($C_8H_4O_4$ = isophthalate)

S. Y. Yang, L. S. Long, R. B. Huang and L. S. Zheng

The first metallosilicate–organic hybrid material is constructed from $Zn_8(SiO_4)$ cores and isophthalate linkers; its diamondoid framework remains stable up to 500 °C.

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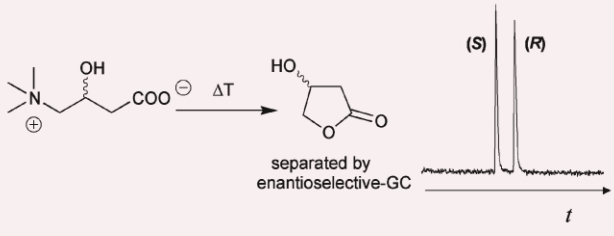
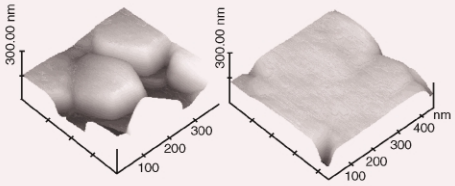


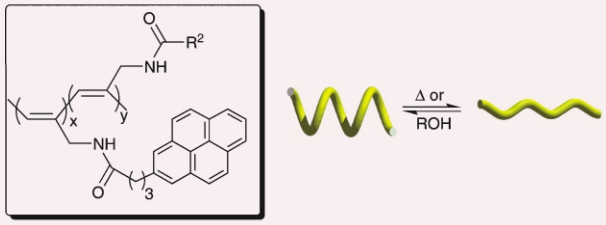
The first gas chromatographic resolution of carnitine enantiomers

Alessandra Di Tullio, Ilaria D'Acquarica, Francesco Gasparrini, Paola Desiderio, Fabio Giannessi, Sandra Muck, Fabrizio Piccirilli, Maria Ornella Tinti and Claudio Villani

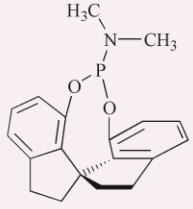
Polar, zwitterionic carnitine enantiomers are resolved by GC on a β-cyclodextrin chiral stationary phase after on-line thermal cyclization to the corresponding β-hydroxy-γ-butyrolactones.



Highly (0001) oriented zinc oxide (ZnO) films of smooth layer type and hexagonal columns have been prepared on quartz glass substrates at temperatures as low as 323 K by UV light assisted chemical deposition from an aqueous solution containing hydrated zinc nitrate and dimethylamine–borane (DMAB).

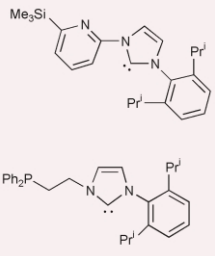


A new stimuli-responsive conjugated polymer was synthesized, where, following the conformational change from helical to disordered state, the fluorescence property of the side chain chromophore changes upon sensing external stimuli.

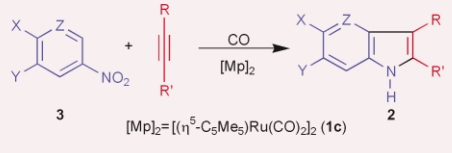


(*S*)-SIPHOS

The first monodentate phosphorus ligands containing the spiro structure (SIPHOS) have been synthesized and applied in the asymmetric rhodium-catalyzed hydrogenation of functionalized olefins, providing excellent enantioselectivities (up to 99.3% ee).

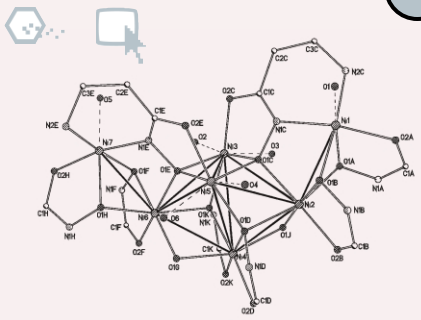


Stable, uncoordinated {1-[2-(6-trimethylsilyl)pyridyl]-3-[(2,6-diisopropyl)phenyl]imidazol-2-ylidene}, **I**, and {1-[β-(diphenylphosphino)ethyl]-3-[(2,6-diisopropyl)phenyl]imidazol-2-ylidene}, **II**, have been synthesised; in the solid state they adopt a conformation with the lone pairs in a mutually *anti* arrangement.



[Mp]$_2$=[(η^5-C$_5$Me$_5$)Ru(CO)$_2$]$_2$ (**1c**)

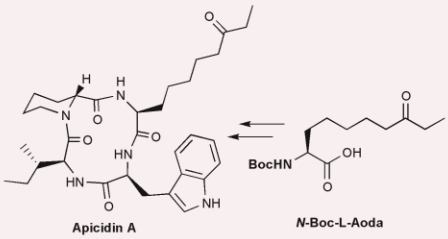
Indoles are produced regioselectively and in moderate yields from the [CpM(CO)$_2$]$_2$-catalyzed reactions of nitroaromatics with alkynes under carbon monoxide.



Synthesis and structure of a heptanuclear nickel(II) complex uniquely exhibiting four distinct binding modes, two of which are novel, for a hydroxamate ligand

Declan Gaynor, Zoya A. Starikova, Sergei Ostrovsky, Wolfgang Haase and Kevin B. Nolan

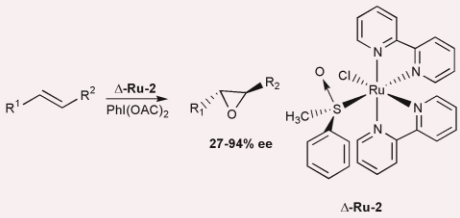
$[Ni_7(2\text{-dmAphaH}_{-1})_2(2\text{-dmApha})_8(H_2O)_2]SO_4{\cdot}15H_2O$ which contains a trigonal bipyramidal array of nickel ions with another nickel annexed to each apex, shows both antiferromagnetic and ferromagnetic interactions and uniquely shows four distinct hydroxamate binding modes, two of which are novel.



Solid-phase synthesis of apicidin A and a cyclic tetrapeptoid analogue

Frédéric Berst, Mark Ladlow and Andrew B. Holmes

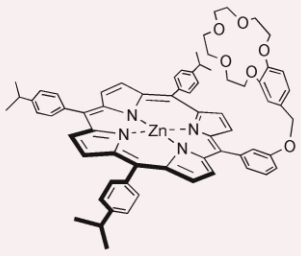
The solid-phase synthesis of the antiprotozoal cyclic tetrapeptide apicidin A is reported and its synthetic accessibility is contrasted with that of a structurally similar reduced cyclic tetrapeptoid analogue.



Ruthenium bis(bipyridine) sulfoxide complexes: new catalysts for alkene epoxidation

Frédéric Pezet, Hassan Aït-Haddou, Jean-Claude Daran, Isabelle Sasaki and Gilbert G. A. Balavoine

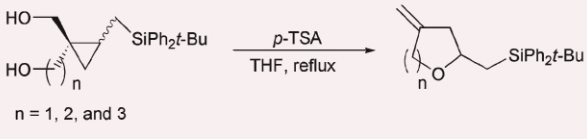
The ruthenium bis(bipyridine) sulfoxide complexes **Ru-1** and **Ru-2** exhibit high catalytic activity for epoxidation of unfunctionalized olefins in the presence of [bis(acetoxy)iodo]benzene; with the chiral catalyst, **Ru-2**, asymmetric induction up to 94% was observed for β-methylstyrene.



Ion pair recognition by Zn–porphyrin/crown ether conjugates: visible sensing of sodium cyanide

Yeon-Hwan Kim and Jong-In Hong

Synthesis and complexation behavior of ditopic neutral receptors composed of both a Lewis-acidic binding site (zinc porphyrin moiety) and a Lewis-basic binding site (crown ether moiety) are reported; the receptors bound only NaCN in a ditopic fashion with a color change, and in contrast other sodium salts bound to the receptors in a monotopic fashion without a color change.



Synthesis of γ-methylene oxacycles and α- and β-alkylidene lactones *via* silicon-assisted ring opening of cyclopropyl carbinols

Veejendra K. Yadav and Rengarajan Balamurugan

A versatile method for the synthesis of heterocycles such as 5-, 6-, and 7-membered oxacycles and 5-, and 6-membered alkylidene lactones involving silicon-assisted ring opening of cyclopropyl carbinols is described.

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