

JOURNAL OF THE CHEMICAL SOCIETY

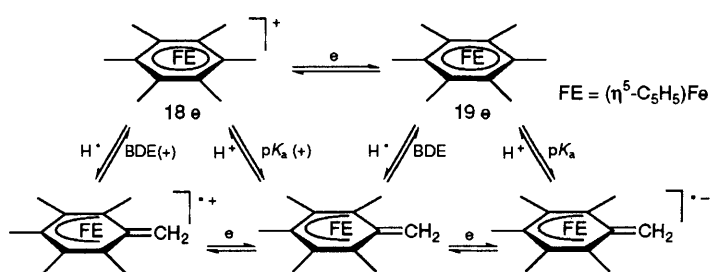
Chemical Communications

Number 1
1995

CONTENTS

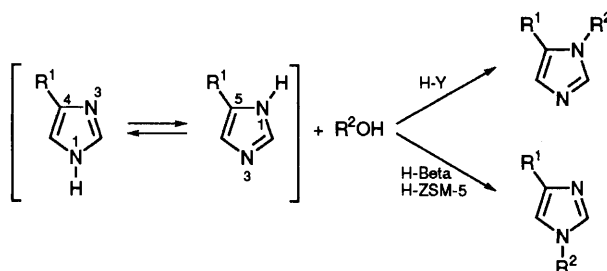
- 7 **Thermodynamics of Benzylic C–H Activation in 18- and 19-Electron Iron Sandwich Complexes: Determination of pK_a values and Bond Dissociation Energies**

Hernando A. Trujillo, Carmen Maria Casado, Didier Astruc



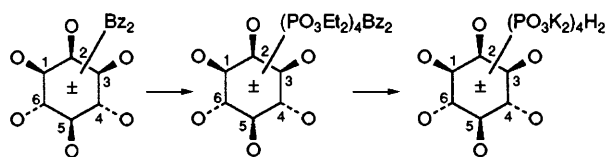
- 9 **Regioselective *N*-Alkylation of Imidazoles with Alcohols over Zeolites**

Yoshio Ono, Yuriko Izawa, Zi-hua Fu



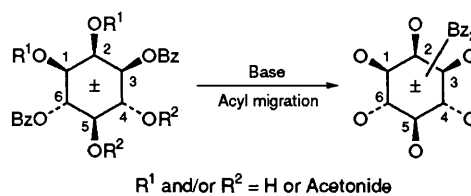
- 11 **Synthesis of All Possible Regioisomers of *myo*-Inositol Tetrakisphosphates**

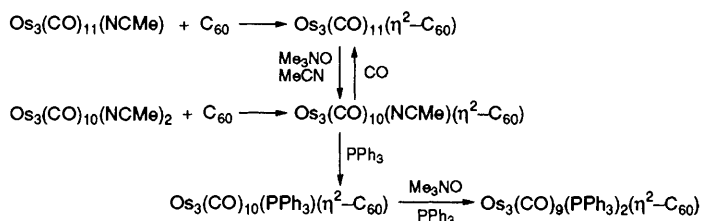
Sung-Kee Chung, Young-Tae Chang



- 13 **Base-catalysed Acyl Migrations in *myo*-Inositol Dibenzoates**

Sung-Kee Chung, Young-Tae Chang



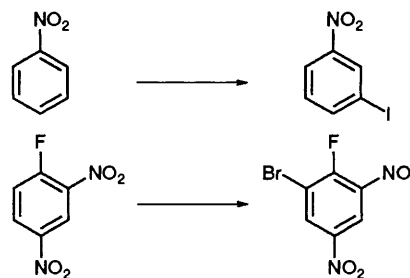
15 **Triosmium Cluster Derivatives of [60]Fullerene**

Joon T. Park, Jeong-Ju Cho, Hyunjoon Song

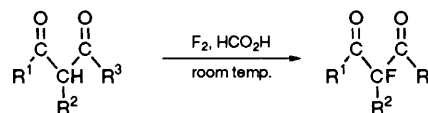
17 **Electrophilic Fluorination Using Elemental Fluorine**

Electrophilic fluorination by elemental fluorine is promoted by the use of protonic acids; formic and sulfuric acids are especially effective. Depending on the amount of fluorine used, 2,4-difluorobenzoic acid is converted to products that contain even pentafluorobenzoic acid when sulfuric acid is used as the reaction medium at room temperature.

Richard D. Chambers, Christopher J. Skinner, Julie Thomson, John Hutchinson

19 **Elemental Fluorine as an 'Enabler' for Generation of Powerful Electrophiles from Other Halogens**

Richard D. Chambers, Christopher J. Skinner, Malcolm Atherton, John S. Moilliet

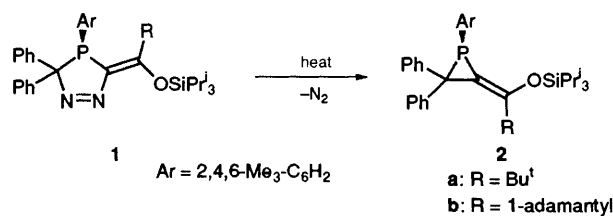
21 **Direct Fluorination of 1,3-Dicarbonyl Compounds**

Richard D. Chambers, Martin P. Greenhall, John Hutchinson

23 **A New and Simple Method for the Preparation of Active Ti-β Zeolite Catalysts**

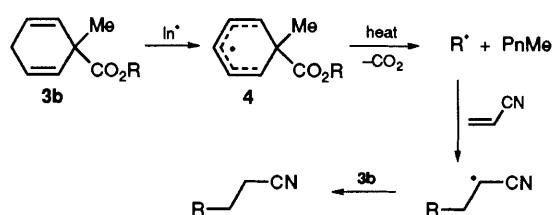
Active Ti-β zeolite catalysts were prepared by treating the aluminosilicate β with ammonium titanyl oxalate solution followed by calcination at 823 K for 6 h.

Jale Sudhakar Reddy, Abdelhamid Sayari

25 **Synthesis of Alkylidenephosphiranes by Extrusion of Nitrogen from 3-Alkylidene-4,5-dihydro-3H-1,2,4-diazaphospholes**

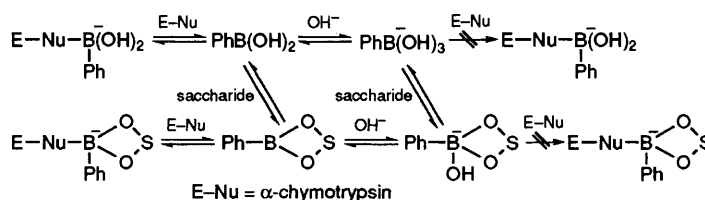
Berthold Manz, Gerhard Maas

- 27 **Radical-chain Decomposition of Cyclohexa-1,4-diene-3-carboxylates and 2,5-Dihydrofuran-2-carboxylates**



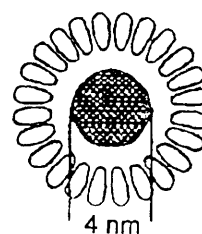
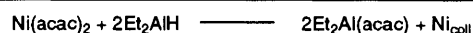
Gavin Binmore, John C. Walton, Liberato Cardellini

- 29 **Sugars Intensify the Inhibitory Effect of Phenylboronic Acid on the Hydrolytic Activity of α -Chymotrypsin**



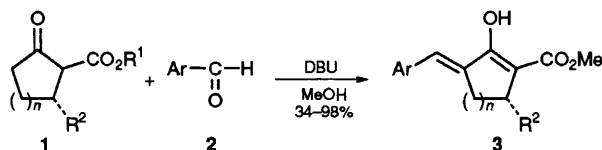
Hikaru Suenaga, Kazuaki Nakashima, Seiji Shinkai

- 31 **Ligand Stabilized Nickel Colloids**



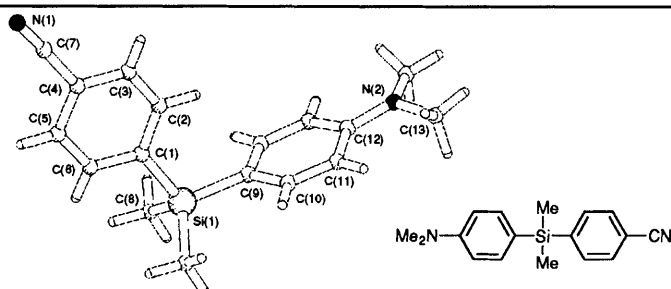
Anne Duteil, Günter Schmid, Wolfgang Meyer-Zaika

- 33 **An Unprecedented DBU-MeOH Promoted One-pot γ -Arylidation of Cyclic β -Ketoesters by a Directed γ -Aldol Reaction and Dehydration Sequence**



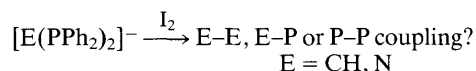
Marie-Hélène Filippini, Jean Rodriguez

- 35 **Photoinduced Intramolecular Charge Transfer in 4-Donor, 4'-Acceptor Substituted Dimethyldiphenylsilanes**



Cornelis A. van Walree, Huub Kooijman, Anthony L. Spek, Jan W. Zwikker, Leonardus W. Jenneskens

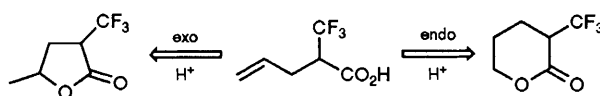
- 37 **Polyfunctional Ligands: Comparative Oxidative Coupling of $[\text{E}(\text{PPh}_2)_2]^-$ (E = CH, N) with Iodine**



The first comparative oxidative coupling reactions of the anions $[\text{E}(\text{PPh}_2)_2]^-$ with iodine are reported.

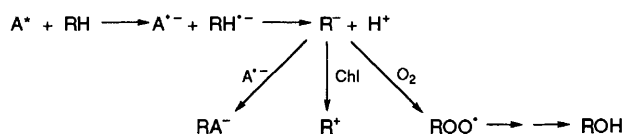
Pierre Braunstein, Reinhard Hasselbring, Antonio Tiripicchio, Franco Ugozzoli

39 A Cyclization Reaction Catalysed by Antibodies



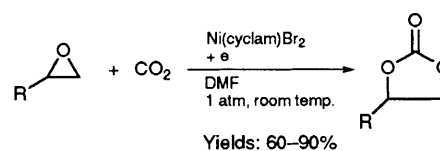
Tomoya Kitazume, Mitsunori Takeda

41 Photoinduced SET for the Functionalization of Alkanes

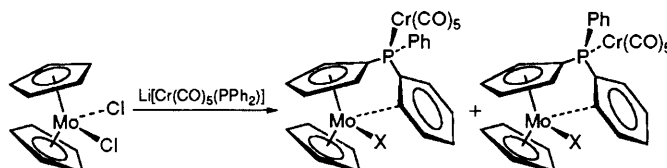


Mariella Mella, Mauro Freccero, Angelo Albini

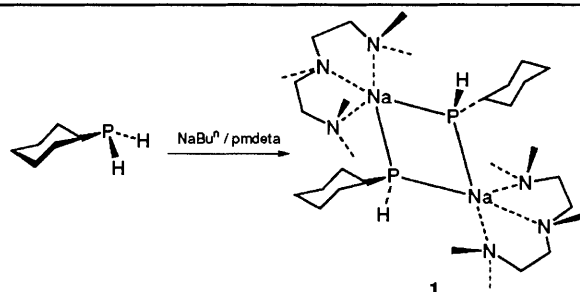
A = 1,2,4,5-tetracyanobenzene (TCB)
= 2,3,5,6-tetrachlorobenzoquinone (Chl)

43 Novel Electrochemical Reactivity of Ni(cyclam)Br₂: Catalytic Carbon Dioxide Incorporation into Epoxides

Patricia Tascadda, Elisabet Duñach

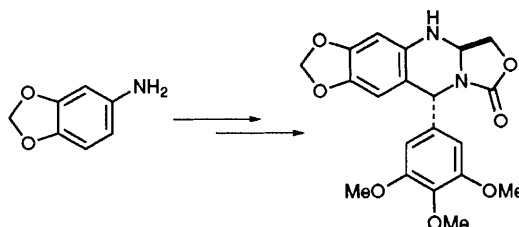
45 An Orthometallated Cyclopentadienyl Phosphine Bridge in a New Type of Heterobimetallic Complex: [(η⁵-C₅H₅)(η⁵-C₅H₄)Mo{o-C₆H₄P(Ph)Cr(CO)₅}]X (X = Cl, I)

Sandrine Rigny, Jean-Claude Leblanc, Claude Moïse, Bernd Nuber

47 Authentication of a Sodium Primary Phosphide: Synthesis and Crystal Structure of [Na{PH-(C₆H₁₁)}(pmdeta)₂] (pmdeta = N,N,N',N'',N'''-pentamethyldiethylenetriamine)

George A. Koutsantonis, Philip C. Andrews, Colin L. Raston

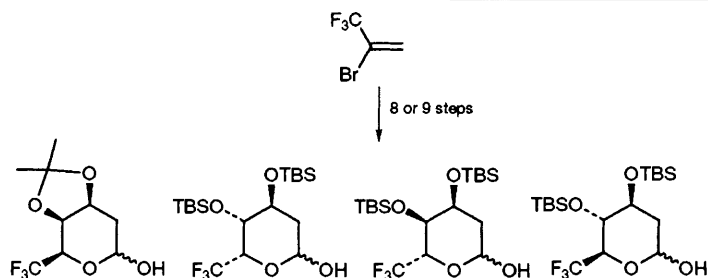
49 Synthesis of 2,4-Diaza-4-deoxypodophyllotoxin, a New Analogue of Podophyllotoxin possessing Antitumour Activity



Yukio Hitotsuyanagi, Yoichi Naka, Keiji Yamagami, Akihiro Fujii, Tetsuya Tahara

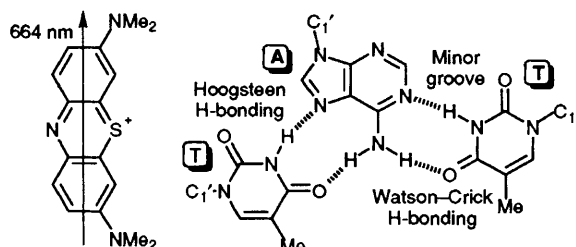
- 51 **Novel Stereoselective Syntheses of Chiral 2,6-Dideoxy-6,6,6-trifluoro Sugars via Enzymatic Resolution of Trifluoromethylated Propynyl Alcohol**

Kenji Mizutani, Takashi Yamazaki, Tomoya Kitazume



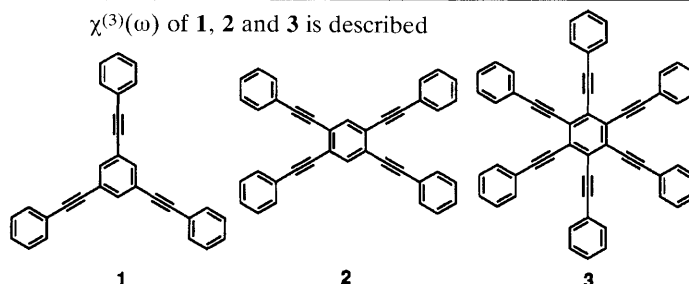
- 53 **Methylene Blue Intercalates with Triplex Poly-(dT)*Poly(dA)·Poly(dT) but not Duplex Poly(dA)·Poly(dT)**

Eimer Tuite, Bengt Nordén



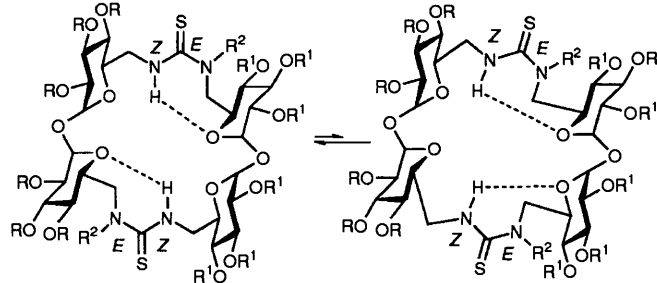
- 55 **The Third-order Optical Non-linearity of the Phenylethynyl-substituted Benzene System**

Koichi Kondo, Sayo Yasuda, Tohoru Sakaguchi, Masaru Miya



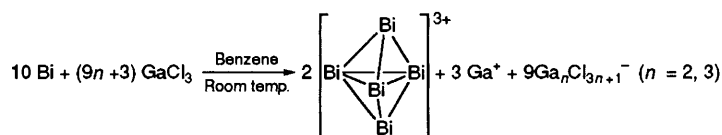
- 57 **Synthesis, Conformational Flexibility and Preliminary Complexation Behaviour of α, α' -Trehalose-based Macrocycles Containing Thiourea Spacers**

José M. García Fernández, José L. Jiménez Blanco, Carmen Ortiz Mellet, José Fuentes



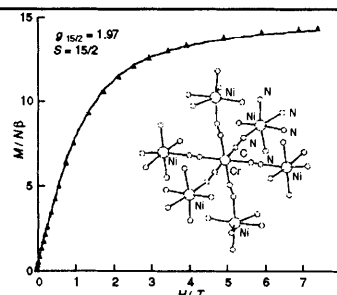
- 59 **Synthesis of Main-group Metal Clusters in Organic Solvents**

Stefan Ulvenlund, Andrew Wheatley, Lars A. Bengtsson



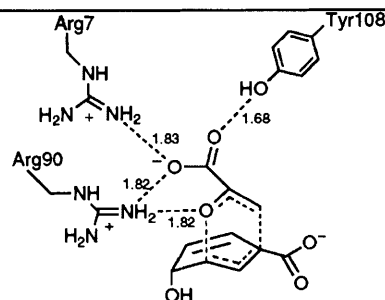
- 61 **A Heptanuclear $\text{Cr}^{\text{III}}\text{Ni}^{\text{II}}$ Complex with a Low-lying $S = 15/2$ Ground State**

Talal Mallah, Cyrille Auberger, Michel Verdaguer, Pierre Veillet



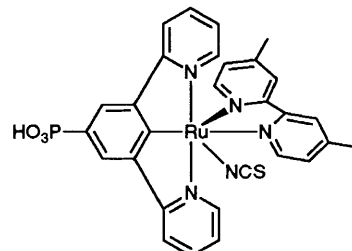
- 63 **Contribution of Transition-state Binding to the Catalytic Activity of *Bacillus subtilis* Chorismate Mutase**

Mark M. Davidson, Ian R. Gould, Ian H. Hillier



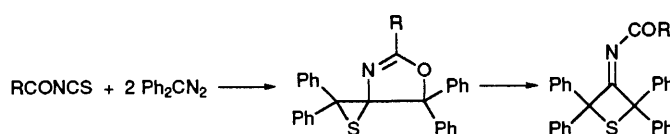
- 65 **Preparation of Phosphonated Polypyridyl Ligands to anchor Transition-metal Complexes on Oxide Surfaces: Application for the Conversion of Light to Electricity with Nanocrystalline TiO₂ Films**

Péter Péchy, François P. Rotzinger, Mohammed Khaja Nazeeruddin, Oliver Kohle, Shaik Mohammed Zakeeruddin, Robin Humphry-Baker, Michael Grätzel



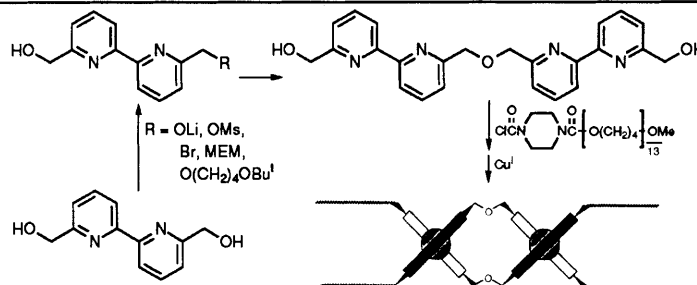
- 67 **Reactions of Acyl Isothiocyanates with Diphenyldiazomethane: a Route to Oxazole Derivatives and Thietan-3-imines**

Gerrit L'abbé, Agna Francis, Wim Dehaen, Suzanne Toppet



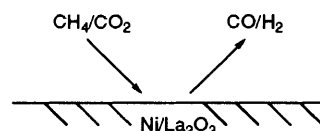
- 69 **A General Synthetic Strategy for Functionalized Oligo(bipyridines): New Building Blocks for Supramolecular Chemistry and their First Application in Macromolecules**

Claus D. Eisenbach, Ulrich S. Schubert, Gregory R. Baker, George R. Newkome

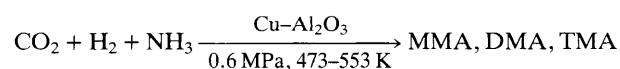


- 71 **A Stable and Active Nickel-based Catalyst for Carbon Dioxide Reforming of Methane to Synthesis Gas**

Zhaolong Zhang, Xenophon E. Verykios



- 73 **Synthesis of Methylamines from Carbon Dioxide and Ammonia**



Methylamines can be directly synthesized from CO₂-H₂-NH₃ over Cu-Al₂O₃, affording a distribution of monomethylamine (MMA): dimethylamine (DMA): trimethylamine (TMA) of 1:0.23:0.07.

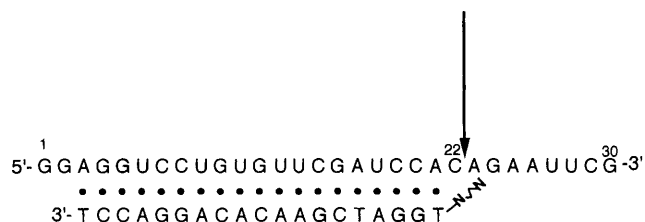
Silvia V. Gredig, René A. Koepfel, Alfons Baiker

75 **Molecular Assembly Recognition Process. Carbon Number Selective Intercalation of Amines by a Layered Zirconium Phosphonate**

The reaction of *n*-alkylamines $C_nH_{2n+1}NH_2$ ($n = 1-10$) with a partially phosphated zirconium carboxyethylphosphonate has shown that only heptylamine ($n = 7$) is preferentially intercalated to form a bilayer, demonstrating a new class of host-guest process based on molecular assembly recognition.

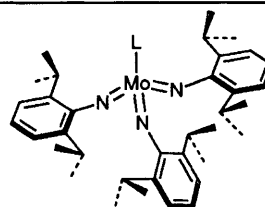
Tsuyoshi Kijima, Shinichi Watanabe, Kaoru Ohe, Masato Machida

77 **Ethylenediamine-oligo DNA Hybrid as Sequence-selective Artificial Ribonuclease**



Makoto Komiyama, Takuya Inokawa, Koichi Yoshinari

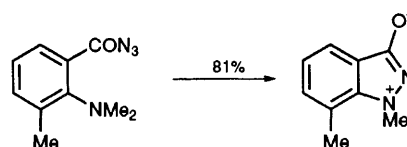
79 **Tris(2,6-diisopropylphenylimido) Complexes of Molybdenum: Kinetic Accessibility of the d^0 Mo(=NR)₃ Functional Group**



The preparation and properties of the first tris(imido) complexes of molybdenum are described and experiments which address the origin of this new imido-metal 'functional group' are reported.

Donald L. Morrison, David E. Wigley

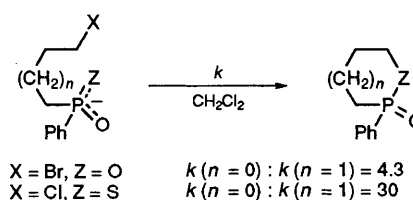
81 **A Novel Carboxylic Acid Azide Decomposition to yield 1,1,7-Trimethylindazol-3-ylid Oxide**



The decomposition of the azide takes place rapidly above 0 °C and can be explosive.

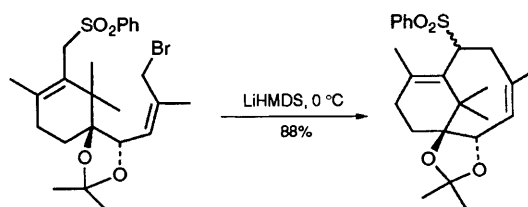
Norman M. Waldron, Majid Montevalli, Shamim Azam, Peter C. Dasopoulos

83 **Intramolecular Nucleophilic Substitution by Phosphinate and Thiophosphinate Anions: Relative Rates of Formation of Five- and Six-membered Rings**



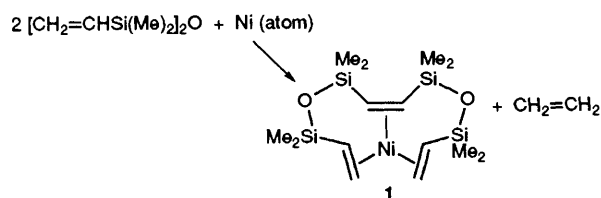
Amirah Chaudhry, Martin J. P. Harger, Philippa Shuff, Alison Thompson

85 **Synthesis of a Highly Functionalised AB Taxane Ring System: Formation of the Eight-membered Ring by an Efficient 8-*exo*-tet Alkylation of an α -Sulfonyl Anion**



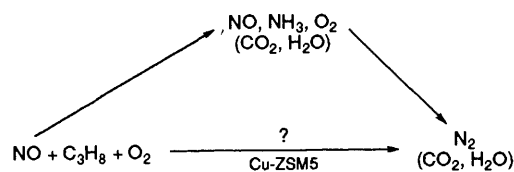
David Crich, Swaminathan Natarajan

- 87 **Synthesis and Characterisation of a Novel Macrocyclic Vinylsiloxane-based Tris(alkene)nickel(0) Complex**



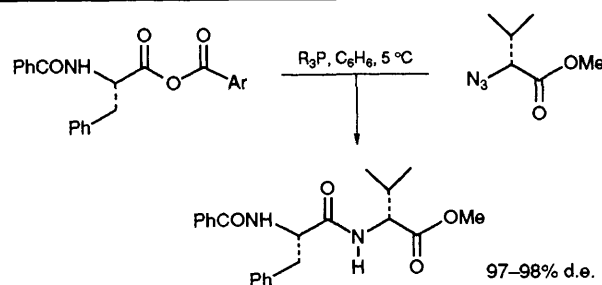
F. Geoffrey N. Cloke, Peter B. Hitchcock, Michael F. Lappert, Calum MacBeath, Gary O. Mepsted

- 89 **NH_3 Formation during the Reduction of Nitrogen Monoxide by Propane on H-Cu-ZSM-5 in Excess Oxygen**



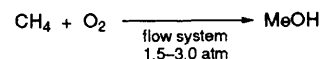
Frédéric Poignant, Jacques Saussey, Jean-Claude Lavalley, Gilles Mabilon

- 91 **Epimerisation-free Peptide Formation from Carboxylic Acid Anhydrides and Azido Derivatives**



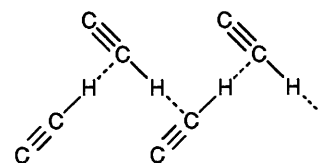
Imma Bosch, Fèlix Urpí, Jaume Vilarrasa

- 93 **Formation of Methanol by the Gas Phase Partial Oxidation of Methane under Normal Pressures**



Li-Biao Han, Susumu Tsubota, Tetsuhiko Kobayashi, Masatake Haruta

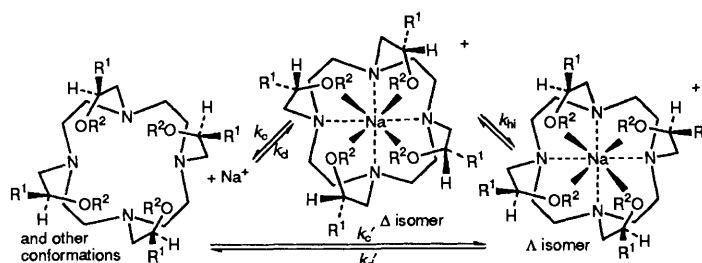
- 95 **Cooperative $\text{C}\equiv\text{C}-\text{H}\cdots\text{C}\equiv\text{C}-\text{H}$ Interactions: Crystal Structure of DL-Prop-2-ynylglycine and Database Study of Terminal Alkynes**



Weak hydrogen bonding interactions.

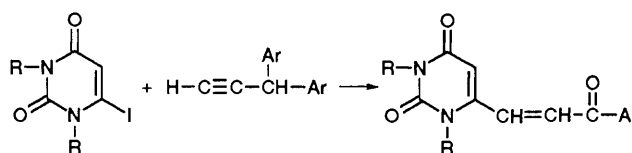
Thomas Steiner

- 97 **Helicity Interchange in Pendant Arm Tetraaza Macrocyclic Sodium(I) Complexes**



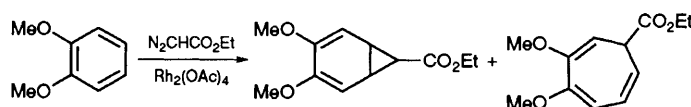
Ramesh Dhillon, Ashley K. W. Stephens, Sonya L. Whitbread, Stephen F. Lincoln, Kevin P. Wainwright

- 99 **Palladium-catalysed Synthesis of 6-(2-Acylvinyl)-uracils, a group of Novel 6-Substituted Uracils of Biological Significance**



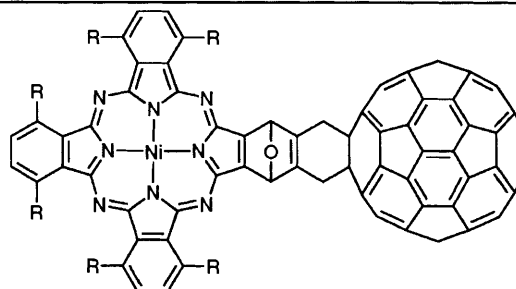
Nitya G. Kundu, Palas Das

- 101 **Rh₂(OAc)₄-Catalysed Cycloaddition of Ethyl Diazoacetate to 1,2-Dialkoxybenzenes: a New Type of Stable Norcaradiene**



Masakatsu Matsumoto, Tamaki Shiono, Hiroshi Mutoh, Masaaki Amano, Satoshi Arimitsu

- 103 **A Green Fullerene: Synthesis and Electrochemistry of a Diels–Alder Adduct of [60]Fullerene with a Phthalocyanine**



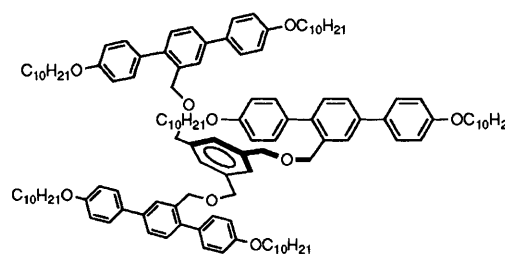
Torsten G. Linßen, Kai Dürr, Michael Hanack, Andreas Hirsch

- 105 **Nitrogen-15 Detection of Broad Amide Protons in Paramagnetic Proteins**

A ¹⁵N-detected two-dimensional INEPT NMR experiment allows the identification of broadened ¹H resonances of amide hydrogens adjacent to paramagnetic centres in an electron transfer protein, the 2[Fe₄S₄] ferredoxin from *Clostridium pasteurianum*.

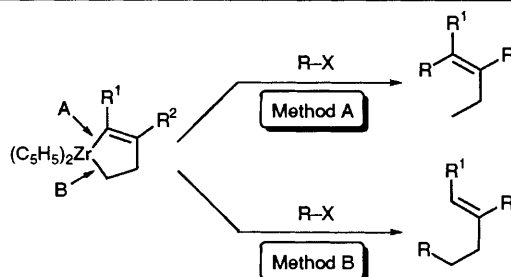
Maruse Sadek, Sergio D. B. Scrofani, Robert T. C. Brownlee, Anthony G. Wedd

- 107 **Laterally Connected ‘Trimesogens’**



Jens Andersch, Siegmur Diele, Petra Göring, Jörg-Andreas Schröter, Carsten Tschierske

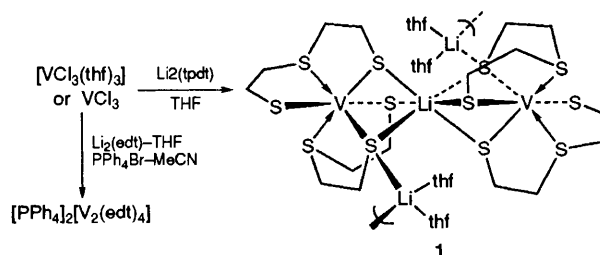
- 109 **Chemoselective Carbon–Carbon Bond Formation Reactions of Zirconacyclopentenes**



Kayoko Kasai, Martin Kotora, Noriyuki Suzuki, Tamotsu Takahashi

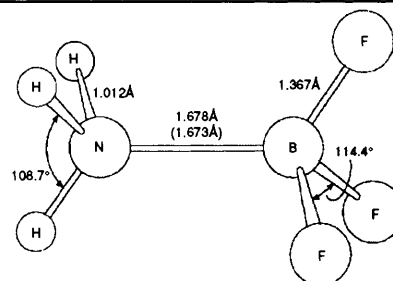
- 111 **A Zigzag Chain Structure of a 3-Thiapentane-1,5-dithiolato Vanadium Complex linked by Lithium Ions**

Hiroyuki Kawaguchi, Kazuyuki Tatsumi, Akira Nakamura



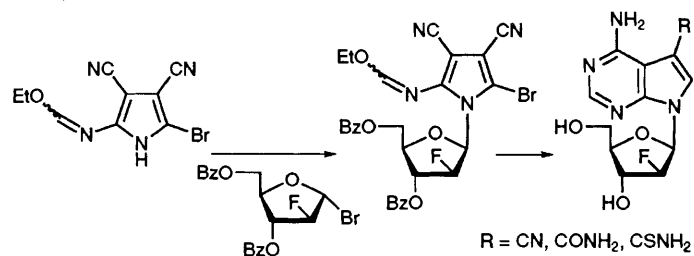
- 113 **Geometric and Electric Properties of the Donor-Acceptor Complex H_3N-BF_3**

Ding Fujiang, Patrick W. Fowler, A. C. Legon



- 115 **Total Synthesis of 2'-Deoxy-2'-arafluorotocamycin and Related Nucleosides**

Birendra K. Bhattacharya, Ganapathi R. Revankar



AUTHOR INDEX

- Albini, Angelo, 41
 Amano, Masaaki, 101
 Andersch, Jens, 107
 Andrews, Philip C., 47
 Arimitsu, Satoshi, 101
 Astruc, Didier, 7
 Atherton, Malcolm, 19
 Auburger, Cyrille, 61
 Azam, Shamim, 81
 Baiker, Alfons, 73
 Baker, Gregory R., 69
 Bengtsson, Lars A., 59
 Binmore, Gavin, 27
 Bosch, Imma, 91
 Braunstein, Pierre, 37
 Brownlee, Robert T. C., 105
 Cardellini, Liberato, 27
 Casado, Carmen Maria, 7
 Chambers, Richard D., 17, 19, 21
 Chang, Young-Tae, 11, 13
 Chaudhry, Amirah, 83
 Cho, Jeong-Ju, 15
 Chung, Sung-Kee, 11, 13
 Cloke, F. Geoffrey N., 87
 Crich, David, 85
 Das, Palas, 99
 Dasopoulos, Peter C., 81
 Davidson, Mark M., 63
 Dehaen, Wim, 67
 Dhillon, Ramesh, 97
 Diele, Siegmar, 107
 Duñach, Elisabet, 43
 Dürr, Kai, 103
 Duteil, Anne, 31
 Eisenbach, Claus D., 69
 Filippini, Marie-Hélène, 33
 Fowler, Patrick W., 113
 Francis, Agna, 67
 Freccero, Mauro, 41
 Fu, Zi-hua, 9
 Fuentes, José, 57
 Fujiang, Ding, 113
 Fujii, Akihiro, 49
 García Fernández, José M., 57
 Göring, Petra, 107
 Gould, Ian R., 63
 Grätzel, Michael, 65
 Gredig, Silvia V., 73
 Greenhall, Martin P., 21
 Han, Li-Biao, 93
 Hanack, Michael, 103
 Harger, Martin J. P., 83
 Haruta, Masatake, 93
 Hasselbring, Reinhard, 37
 Hillier, Ian H., 63
 Hirsch, Andreas, 103
 Hitchcock, Peter B., 87
 Hitotsuyanagi, Yukio, 49
 Humphry-Baker, Robin, 65
 Hutchinson, John, 17, 21
 Inokawa, Takuya, 77
 Izawa, Yuriko, 9
 Jenneskens, Leonardus W., 35
 Jiménez Blanco, José, 57
 Kasai, Kayoko, 109
 Kawaguchi, Hiroyuki, 111
 Kijima, Tsuyoshi, 75
 Kitazume, Tomoya, 39, 51
 Kobayashi, Tetsuhiko, 93
 Koepfel, René A., 73
 Kohle, Oliver, 65
 Komiyama, Makoto, 77
 Kondo, Koichi, 55
 Kooijman, Huub, 35
 Kotora, Martin, 109
 Koutsantonis, George A., 47
 Kundu, Nitya G., 99
 L'abbé, Gerrit, 67
 Lappert, Michael F., 87
 Lavalley, Jean-Claude, 89
 Leblanc, Jean-Claude, 45
 Legon, A. C., 113
 Lincoln, Stephen F., 97
 Linszen, Torsten G., 103
 Maas, Gerhard, 25
 Mabilon, Gilles, 89
 MacBeath, Calum, 87
 Machida, Masato, 75
 Mallah, Talal, 61
 Manz, Berthold, 25
 Matsumoto, Masakatsu, 101
 Mella, Mariella, 41
 Mepsted, Gary O., 87
 Meyer-Zaika, Wolfgang, 31
 Miya, Masaru, 55
 Mizutani, Kenji, 51
 Moillet, John S., 19
 Moise, Claude, 45
 Montevalli, Majid, 81
 Morrison, Donald L., 79
 Mutoh, Hiroshi, 101
 Naka, Yoichi, 49
 Nakamura, Akira, 111
 Nakashima, Kazuaki, 29
 Natarajan, Swaminathan, 85
 Nazcecruddin, Mohammed Khaja, 65
 Newkome, George R., 69
 Nordén, Bengt, 53
 Nuber, Bernd, 45
 Ohe, Kaoru, 75
 Ono, Yoshio, 9
 Ortiz Mellet, Carmen, 57
 Park, Joon T., 15
 Péchy, Péter, 65
 Poignant, Frédéric, 89
 Raston, Colin L., 47
 Reddy, Jale Sudhakar, 23
 Rigny, Sandrine, 45
 Rodriguez, Jean, 33
 Rotzinger, François P., 65
 Sadek, Maruse, 105
 Sakaguchi, Tohoru, 55
 Saussey, Jacques, 89
 Sayari, Abdelhamid, 23
 Schmid, Günter, 31
 Schröter, Jörg-Andreas, 107
 Schubert, Ulrich S., 69
 Scrofani, Sergio D. B., 105
 Shinkai, Seiji, 29
 Shiono, Tamaki, 101
 Shuff, Philippa, 83
 Skinner, Christopher J., 17, 19
 Song, Hyunjoon, 15
 Speck, Anthony L., 35
 Steiner, Thomas, 95
 Stephens, Ashley K. W., 97
 Suenaga, Hikaru, 29
 Suzuki, Noriyuki, 109
 Tahara, Tetsuya, 49
 Takahashi, Tamotsu, 109
 Takeda, Mitsunori, 39
 Tascadda, Patricia, 43
 Tatsumi, Kazuyuki, 111
 Thompson, Alison, 83
 Thomson, Julie, 17
 Tiripicchio, Antonio, 37
 Toppet, Suzanne, 67
 Trujillo, Hernando A., 7
 Tschierske, Carsten, 107
 Tsubota, Susumu, 93
 Tuite, Eimer, 53
 Ugozzoli, Franco, 37
 Ulvenlund, Stefan, 59
 Urpí, Fèlix, 91
 van Walree, Cornelis A., 35
 Veillet, Pierre, 61
 Verdaguer, Michel, 61
 Verykios, Xenophon E., 71
 Vilarrasa, Jaume, 91
 Wainwright, Kevin P., 97
 Waldron, Norman M., 81
 Walton, John C., 27
 Watanabe, Shinichi, 75
 Wedd, Anthony G., 105
 Wheatley, Andrew, 59
 Whitbread, Sonya L., 97
 Wigley, David E., 79
 Yamagami, Keiji, 49
 Yamazaki, Takashi, 51
 Yasuda, Sayo, 55
 Yoshinari, Koichi, 77
 Zakecruddin, Shaik Mohammed, 65
 Zhang, Zhaolong, 71
 Zwikker, Jan W., 35

