

JOURNAL OF THE CHEMICAL SOCIETY

Chemical Communications

Number 14
1985

CONTENTS

- 933 Shape Similarity Effect on the Strength of Weak Interactions of a Phenyl Group with Unsaturated Hydrocarbons and Ethers **Tadashi Endo, Masato M. Ito, Takao Namiki**
- 935 A Molecular Bronze formed by Intercalation of Benzidine in V_2O_5 Gels **Hacène Masbah, Daniel Tinet, Michel Crespin, René Erre, Ralph Setton, Henri Van Damme**
- 936 The Methylidiazonium Ion in Water: Competition Between Hydrolysis and Proton Exchange **Richard H. Smith, Jr., Steven R. Koepke, Yves Tondeur, Cheryl L. Denlinger, Christopher J. Michejda**
- 937 A Novel Giant Palladium Cluster **Michail N. Vargaftik, Victor P. Zagorodnikov, Igor P. Stolyarov, Ilya I. Moiseev, Vladimir A. Likholobov, Dmitry I. Kochubey, Andrew L. Chuvilin, Vladimir I. Zaikovsky, Kirill I. Zamaraev, Galina I. Timofeeva**
- 939 Chemistry of Bulky Alkoxides of Bivalent Germanium and Tin; Structures of Gaseous $[Sn(OBu^t)_2]_2$ and Crystalline $Ge(OCBu^t)_2$ **Torgny Fjeldberg, Peter B. Hitchcock, Michael F. Lappert, Stephen J. Smith, Andrew J. Thorne**
- 941 2-(Phenylseleno)prop-2-enitrile: a Three-carbon Unit for Radical Cyclization **A. Gaëtan Angoh, Derrick L. J. Clive**
- 943 Benzoyl σ -Radicals: the Barrier to Internal Rotation **Loris Grossi, Giuseppe Placucci**
- 945 Metal Atom Synthesis and Photochemistry of Bis(η -pentamethylcyclopentadienyl)tungsten Dihydride **F. Geoffrey N. Cloke, Jennifer C. Green, Malcolm L. H. Green, Christopher P. Morley**
- 946 η^2 -Co-ordination in a 1,3-Diphospha-allene complex of Platinum(0). Synthesis and Solution ^{31}P N.M.R. Spectrum of $[Pt(PPh_3)_2(RP=C=PR)]$ ($R = 2,4,6-Bu^t_3C_6H_2$) **Clara Afiong Akpan, Mohamed F. Meidine, John F. Nixon, Masaaki Yoshifuji, Kozo Toyota, Naoki Inamoto**
- 948 Infrared Spectroscopic Evidence for Two Forms of the Hydrogen-bonded Dimethylacetamide–Hydrogen Iodide Complex isolated in an Argon Matrix **Zofia Mielke, Austin J. Barnes**
- 949 Structures of the Radical Cation and Dication from Oxidation of 1,6-Diazabicyclo[4.4.4]tetradecane **Roger W. Alder, A. Guy Orpen, Jonathan M. White**
- 951 Flash Vacuum Thermolysis of α -Aminonitriles and Subsequent HCN Removal on Solid Base, a 'One Line' Multistep Sequence to Reactive *N*-Methyleamines **J. C. Guillemin, J. M. Denis**
- 953 A Novel Electrochemical Method for the Preparation of Triangular and Cubic Molybdenum Clusters as Aqua Ions **Poopathy Kathirgamanathan, Manuel Martinez, A. Geoffrey Sykes**
- 954 One-electron Oxidation of the Flavin Triplet State as Studied by Laser-Flash Photolysis **Paul F. Heelis, Barry J. Parsons, Barry Thomas, Glyn O. Phillips**
- 955 Borylaminyl Radicals. *N*-(9-Borabicyclo[3.3.1]nonan-9-yl)-*N*-*t*-butylaminyl: a σ -Aminyl Radical **Jehan A. Baban, Brian P. Roberts, Alice C. H. Tsang**
- 957 Noncyclic Polyethers containing Sulphur Atoms: a Novel Type of Neutral Carrier for Ion-selective PVC Membrane Electrodes **Hideki Sugihara, Tatsuhiro Okada, Kazuhisa Hiratani**
- 958 Mild Generation of Adamantylidenevinylidene (an Alkenylidene carbene) from 2-Bromo-2-(trimethylsilyl)ethynyladamantane and (2-Bromo-2-trimethylsilylvinylidene)adamantane **Shoji Eguchi, Tomoyuki Ikemoto, Yasuyuki Kobayakawa, Tadashi Sasaki**
- 959 Photochemical Cleavage of the Al–C Bond of $Al(TPP)(Et)$ ($TPP =$ tetraphenylporphyrinato). Spin Trapping of the $\bullet Al(TPP)$ Radical and Photolysis Quantum Yield **Shozo Tero-Kubota, Naomi Hoshino, Masako Kato, Virgil L. Goedken, Tasuku Ito**
- 961 Tetrabutylammonium and Polymer-supported Dihydrogentrifluoride: New Hydrofluorinating Reagents for Electrophilic Alkynes **Patrice Albert, Jack Cousseau**
- 962 Probing the Structure of Zeolites by Fourier Transform Electron Microscopy: Zeolite-L as a Test Case **G. Robert Millward, John M. Thomas, Robert M. Glaeser**
- 964 The Pyrolysis of Cubane; an Example of a Thermally Induced Hot Molecule Reaction **Hans-Dieter Martin, Thomas Urbanek, Peter Pföhler, Robin Walsh**
- 966 The E.S.R. Spectrum of $Ag(CO)_3$, a $^2A_1'$ Ground State Molecule **Carl A. Hampson, James A. Howard, Brynmor Mile**
- 967 Synthesis of Bis(η -pentamethylcyclopentadienyl)rhenium Hydride and its Photochemical Conversion into Decamethylrhenocene **F. Geoffrey N. Cloke, Jeremy P. Day**
- 968 Structural Reappraisal of the Limonoid Insect Antifeedant Azadirachtin **John N. Bilton, Howard B. Broughton, Steven V. Ley, Zev Lidert, E. David Morgan, Henry S. Rzepa, Richard N. Sheppard**

- 971 Palladium Catalysed Intra- and Inter-molecular Coupling of Vinyl Halides. Regiospecific Formation of 1,3-Dienes **Ronald Grigg, Paul Stevenson, Tanachat Worakun**
- 973 [3.3]Orthocyclophanes having *vis-à-vis* Benzene Rings **Shuntaro Mataka, Kazufumi Takahashi, Toshizumi Hirota, Keisuke Takuma, Hiroshi Kobayashi, Masashi Tashiro**
- 974 Cleavage of NH₂ Terminal Tyrosyl-Peptide Bonds using Hypervalent Iodine **Robert M. Moriarty, Mumtaz Sultana, Yi-Yin Ku**
- 975 Unusual Promotion of the Dehydrogenation Activity of Supported Platinum by Mercury in Low Concentration **George C. Georgiades, Paul A. Sermon**
- 977 Synthesis and Reactivity of (dppe)Pt(OMe)₂ [dppe = 1,2-bis(diphenylphosphino)ethane] **Henry E. Bryndza, Suzanne A. Kretchmar, Thomas H. Tulip**
- 978 A New Metallic Environment for Carbon in a Carbido Metal Cluster: X-Ray Crystal Structure of the Anion [Re₄C(CO)₁₅I]⁻ **T. Beringhelli, G. Ciani, G. D'Alfonso, A. Sironi, M. Freni**
- 980 Radical Annulation: A Method for Preparation of Carbocycles **A. Gaëtan Angoh, Derrick L. J. Clive**
- 982 Energy Barrier for 1,2-Hydrogen Migration in Benzylchlorocarbene **Michael T. H. Liu**
- 985 Mismatches in DNA: Measurement of Reduced Duplex Stability using ¹H N.M.R. Spectroscopy **Stephen A. Salisbury, Naveen N. Anand**
- 986 High-valent Dioxo-ruthenium(vi) Complexes of Macrocyclic Tetradentate Tertiary Amines: X-Ray Crystal Structures of *trans*-[Ru^{VI}(15-tmc)O₂](ClO₄)₂ (15-tmc = 1,4,8,12-tetramethyl-1,4,8,12-tetra-azacyclopentadecane) and *trans*-[Ru^{VI}(16-tmc)O₂](ClO₄)₂ (16-tmc = 1,5,9,13-tetramethyl-1,5,9,13-tetra-azacyclohexadecane) **Thomas C. W. Mak, Chi-Ming Che, Kwok-Yin Wong**
- 988 Oxo-Ruthenium(v) Complexes of Macrocyclic Tetradentate Tertiary Amines that Function as Active Electrochemical Oxidative Catalysts, and X-Ray Crystal Structure of *trans*-[Ru^{IV}(tmc)O(Cl)]ClO₄ (tmc = 1,4,8,11-tetramethyl-1,4,8,11-tetra-azacyclotetradecane) **Chi-Ming Che, Kwok-Yin Wong, Thomas C. W. Mak**
- 990 Side Arm Participation in Crown Phosphonate Monoethyl Ester-Alkali Metal Cation Complexes **Thomas W. Robison, Richard A. Bartsch**
- 991 Complementary Spherical Electron Density Model for Inorganic Stereochemistries **D. Michael P. Mingos, Jeremy C. Hawes**
- 994 Zinc Ion and Micelle Catalysed Reduction of Pyridine-2-carbaldehyde by 1-Dodecyl-3,5-bis(pyrrolidin-1-ylcarbonyl)-1,4-dihydropyridine as a NADH Analogue in Aqueous Media **Hiroshi Awano, Waichiro Tagaki**
- 996 Alpha-cleavage in Amine Molecular Ions. A Not-so-simple Simple Cleavage **Steen Hammerum, Peter J. Derrick**
- 998 Optical Resolution of Chiral *N*-Alkyl-3,3-bismethoxycarbonyloxaziridines **Maria Bucciarelli, Arrigo Forni, Irene Moretti, Giovanni Torre, Alexander Prosyaniuk, Remir G. Kostyanovsky**
- 999 Electrochemical Synthesis and Preliminary Characterization of Poly(thieno[3,2-*b*]pyrrole) **Roberto Lazzaroni, Joseph Riga, Jacques J. Verbist, Léon Christiaens, Marcel Renson**
- 1000 Efficient Transformations of Trithio- and Triseleno-orthoesters into Ketene Dithio- and Diseleno-acetals **K. M. Nsunda, L. Hevesi**
- 1001 Synthesis of New Chiral Macrocyclic Polyhydroxy Ethers by Reduction of Cyclodextrins **Manuel Bernabé, Manuel Martín-Lomas, Soledad Penadés, Roland Köster, Wilhelm V. Dahlhoff**
- 1002 Biosynthesis of the Polyether Antibiotic Monensin-A: Stereochemical Aspects of the Incorporation and Metabolism of Isobutyrate **David Gani, David O'Hagan, Kevin Reynolds, John A. Robinson**
- 1004 Synthesis of the First Example of a Cyclometallated *ortho*-Nitrophenyl Complex. X-Ray Molecular Structure of Carbonyl(chloro)bis(*o*-nitrophenyl-*C,O*)rhodium **José Vicente, José Martín, Maria-Teresa Chicote, Xavier Solans, Carlos Miravittles**
- 1006 Fourier Transform I.R. Evidence of the Formation of Dioxymethylene Species from Formaldehyde Adsorption on Anatase and Thoria **Jean-Claude Lavalley, Jean Lamotte, Guido Busca, Vincenzo Lorenzelli**

Corrigendum

- 1008 Dictyotetraene, a New Diterpenoid from a *Dictyota* sp. (Chromophycota, Dictyotaceae) of the North Brittany Sea **Beniamino Demattè, Antonio Guerriero, Francesco Pietra**

AUTHOR INDEX

- Akpan, Clara Afiong, 946
 Albert, Patrice, 961
 Alder, Roger W., 949
 Anand, Naveen N., 985
 Angoh, A. Gaëtan, 941, 980
 Awano, Hiroshi, 994
 Baban, Jehan A., 955
 Barnes, Austin J., 948
 Bartsch, Richard A., 990
 Beringhelli, T., 978
 Bernabé, Manuel, 1001
 Bilton, John N., 968
 Broughton, Howard B., 968
 Bryndza, Henry E., 977
 Bucciarelli, Maria, 998
 Busca, Guido, 1006
 Che, Chi-Ming, 986, 988
 Chicote, Maria-Teresa, 1004
 Christiaens, Léon, 999
 Chuvilin, Andrew L., 937
 Ciani, G., 978
 Clive, Derrick L. J., 941, 980
 Cloke, F. Geoffrey N., 945, 967
 Cousseau, Jack, 961
 Crespín, Michel, 935
 Dahlhoff, Wilhelm V., 1001
 D'Alfonso, G., 978
 Day, Jeremy P., 967
 Demattè, Beniamino, 1008
 Denis, J. M., 951
 Denlinger, Cheryl L., 936
 Derrick, Peter J., 996
 Eguchi, Shoji, 958
 Endo, Tadashi, 933
 Erre, René, 935
 Fjeldberg, Torgny, 939
 Forni, Arrigo, 998
 Freni, M., 978
 Gani, David, 1002
 Georgiades, George C., 975
 Glaeser, Robert M., 962
 Goedken, Virgil L., 959
 Green, Jennifer C., 945
 Green, Malcolm L. H., 945
 Grigg, Ronald, 971
 Grossi, Loris, 943
 Guerriero, Antonio, 1008
 Guillemin, J. C., 951
 Hammerum, Steen, 996
 Hampson, Carl A., 966
 Hawes, Jeremy C., 991
 Heelin, John N., 968
 Hevelis, Paul F., 954
 Hevesi, L., 1000
 Hiratani, Kazuhisa, 957
 Hirota, Toshizumi, 973
 Hitchcock, Peter B., 939
 Hoshino, Naomi, 959
 Howard, James A., 966
 Ikemoto, Tomoyuki, 958
 Inamoto, Naoki, 946
 Ito, Masato M., 933
 Ito, Tasuku, 959
 Kathirgamanathan, Poopathy, 953
 Kato, Masako, 959
 Kobayakawa, Yasuyuki, 958
 Kobayashi, Hiroshi, 973
 Kochubey, Dmitry I., 937
 Koepke, Steven R., 936
 Köster, Roland, 1001
 Kostyanovsky, Remir G., 998
 Kretchmar, Suzanne A., 977
 Ku, Yi-Yin, 974
 Lamotte, Jean, 1006
 Lappert, Michael F., 939
 Lavalley, Jean-Claude, 1006
 Lazzaroni, Roberto, 999
 Ley, Steven V., 968
 Lidert, Zev, 968
 Likholobov, Vladimir A., 937
 Liu, Michael T. H., 982
 Lorenzelli, Vincenzo, 1006
 Mak, Thomas C. W., 986, 988
 Martin, Hans-Dieter, 964
 Martín, José, 1004
 Martínez, Manuel, 953
 Martín-Lomas, Manuel, 1001
 Masbah, Hacène, 935
 Mataka, Shuntaro, 973
 Meidine, Mohamed F., 946
 Michejda, Christopher J., 936
 Mielke, Zofia, 948
 Mile, Brynmor, 966
 Millward, G. Robert, 962
 Mingos, D. Michael P., 991
 Miravittles, Carlos, 1004
 Moiseev, Ilya I., 937
 Moretti, Irene, 998
 Morgan, E. David, 968
 Moriarty, Robert M., 974
 Morley, Christopher P., 945
 Namiki, Takao, 933
 Nixon, John F., 946
 Nsunda, K. M., 1000
 O'Hagan, David, 1002
 Okada, Tatsuhiro, 957
 Orpen, A. Guy, 949
 Parsons, Barry J., 954
 Penadés, Soledad, 1001
 Pföhler, Peter, 964
 Phillips, Glyn O., 954
 Pietra, Francesco, 1008
 Placucci, Giuseppe, 943
 Prosyaniak, Alexander, 998
 Renson, Marcel, 999
 Reynolds, Kevin, 1002
 Riga, Joseph, 999
 Roberts, Brian P., 955
 Robinson, John A., 1002
 Robison, Thomas W., 990
 Rzepa, Henry S., 968
 Salisbury, Stephen A., 985
 Sasaki, Tadashi, 958
 Sermon, Paul A., 975
 Setton, Ralph, 935
 Sheppard, Richard N., 968
 Sironi, A., 978
 Smith, Jr., Richard H., 936
 Smith, Stephen J., 939
 Solans, Xavier, 1004
 Stevenson, Paul, 971
 Stolyarov, Igor P., 937
 Sugihara, Hideki, 957
 Sultana, Mumtaz, 974
 Sykes, A. Geoffrey, 953
 Tagaki, Waichiro, 994
 Takahashi, Kazufumi, 973
 Takuma, Keisuke, 973
 Tashiro, Masashi, 973
 Tero-Kubota, Shozo, 959
 Thomas, Barry, 954
 Thomas, John M., 962
 Thorne, Andrew J., 939
 Timofeeva, Galina I., 937
 Tinetti, Daniel, 935
 Tondeur, Yves, 936
 Torre, Giovanni, 998
 Toyota, Kozo, 946
 Tsang, Alice C. H., 955
 Tulip, Thomas H., 977
 Urbanek, Thomas, 964
 Van Damme, Henri, 935
 Vargaftik, Michail N., 937
 Verbist, Jacques J., 999
 Vicente, José, 1004
 Walsh, Robin, 964
 White, Jonathan M., 949
 Wong, Kwok-Yin, 986, 988
 Worakun, Tanachat, 971
 Yoshifuji, Masaaki, 946
 Zagorodnikov, Victor P., 937
 Zaikovskiy, Vladimir I., 937
 Zamaraev, Kirill I., 937

Chemistry Cassettes

General Editor: Peter Groves

FOUR RECENT CASSETTES (1984):

Ions in Solution (I)

By John Burgess

A comprehensive discussion of the nature of metal ions in solution and of the structural aspects of their behaviour. Suitable for undergraduate courses in chemistry.

Cassette and workbook 0 85186 418 X £9.75 (\$18.50)

RSC Members £7.25

Additional workbooks £1.75 (\$3.25) each or 10 for £14.00 (\$26.50)

The Periodic Law

by David Johnson

The story of the search for pattern in the diverse behaviour of the chemical elements and the relevance of the modern periodic law to chemistry.

For sixth forms and undergraduate courses in chemistry and related subjects.

Cassette, workbook 0 85186 428 7 and set of element cards £10.50 (\$20.00) RSC members £7.75 Additional workbooks £1.75 (\$3.25) each or 10 for £14.00 (\$26.50)

Additional sets of element cards £1.00 (\$2.00) each or 10 for £8.00 (\$15.25)

Using Chemical Abstracts

An introduction to the techniques of literature searching using Chemical Abstracts. Five practical exercises are included.

For undergraduate and postgraduate students of chemistry and related subjects.

Cassette and workbook 0 85186 448 1 £9.75 (\$18.50)

RSC Members £7.25

Additional workbooks £1.75 (\$3.25) or 10 for £14.00 (\$26.50)

The Chemistry of Biological Nitrogen Fixation

by Raymond L. Richards

Covers the importance of nitrogen to life and the chemistry of the processes whereby atmospheric nitrogen is converted into biologically useful compounds.

Cassette and workbook 0 85186 438 4 £9.75 (\$18.50)

RSC Members £7.25

Additional workbooks £1.75 (\$3.25) each or 10 for £14.00 (\$26.50)

Also available:

Heavy Metals as Contaminants of the Human Environment

by Derek Bryce-Smith

(1975) Cassette and workbook 0 85186 979 3

Price £9.75 (\$18.50) RSC Members £7.25

Additional workbooks—£1.75 (\$3.25) or 10 for £14.00 (\$26.50)

An Introduction to NMR Spectroscopy

by Bruce Gilbert and Richard Norman, FRS

(1977) Cassette and workbook 0 85186 639 5

Price £10.25 (\$19.50) RSC Members £7.75

Additional workbooks—£2.75 (\$5.25) or 10 for £22.00 (\$42.50)

Ion-Selective Electrodes

by Arthur Covington

(1981) Cassette and workbook 0 85186 398 1

Price £9.75 (\$18.50) RSC Members £7.25

Additional workbooks—£1.75 (\$3.25) or 10 for £14.00 (\$26.50)

Ionic Crystals

by Richard B. Heslop

(1979) Cassette and workbook 0 85186 770 7

Price £9.75 (\$18.50) RSC Members £7.25

Additional workbooks—£1.75 (\$3.25) or 10 for £14.00 (\$26.50)

Linear Free Energy Relationships

by Peter Sykes

(1981) Cassette and workbook 0 85186 378 7

Price £9.75 (\$18.50) RSC Members £7.25

Additional workbooks—£1.75 (\$3.25) or 10 for £14.00 (\$26.50)

Quantization

by P. W. Atkins

(1981) Cassette and workbook 0 85186 388 4

Price £9.75 (\$18.50) RSC Members £7.25

Additional workbooks—£1.75 (\$3.25) or 10 for £14.00 (\$26.50)

Radicals and their Reaction Pathways

by Peter Sykes

(1979) Cassette and workbook 0 85186 890 8

Price £9.75 (\$18.50) RSC Members £7.25

Additional workbooks—£1.75 (\$3.25) or 10 for £14.00 (\$26.50)

Reaction Pathways of Carboxylic Acid Derivatives

by Peter Sykes

(1979) Cassette and workbook 0 85186 640 9

Price £9.75 (\$18.50) RSC Members £7.25

Additional workbooks—£1.75 (\$3.25) or 10 for £14.00 (\$26.50)

Solving Inorganic Spectroscopic Problems

by Alan Vincent

(1981) Cassette and workbook 0 85186 368 X

Price £9.75 (\$18.50) RSC Members £7.25

Additional workbooks—£1.75 (\$3.25) or 10 for £14.00 (\$26.50)

Some Aspects of the Electrochemistry of Solutions

by Graham Hills

(1975) Cassette and workbook 0 85186 989 0

Price £7.75 (\$14.75) RSC Members £5.75

Additional workbooks—£1.75 (\$3.25) or 10 for £14.00 (\$26.50)

Some Organic Reaction Pathways

by Peter Sykes

(1975) Cassette and workbook 0 85186 999 8

Price £8.75 (\$16.50) RSC Members £6.50

Additional workbooks—£1.75 (\$3.25) or 10 for £14.00 (\$26.50)

Some Reaction Pathways of Double Bonds: C=C; C=O

by Peter Sykes

(1977) Cassette and workbook 0 85186 629 8

Price £9.75 (\$18.50) RSC Members £7.25

Additional workbooks—£1.75 (\$3.25) or 10 for £14.00 (\$26.50)

Symmetry in Chemistry

by Sidney Kettle

(1976) 2 Cassettes and workbook 0 85186 729 4

Price £11.50 (\$21.75) RSC Members £8.75

Additional workbooks—£1.75 (\$3.25) or 10 for £14.00 (\$26.50)

The Royal Society of Chemistry
Burlington House,
London W1V 0BN
Telephone (01) 734 9864
Telex 268001



ORDERING

Non-RSC Members should send their orders to:

The Royal Society of Chemistry, Distribution Centre,
Blackhorse Road, Letchworth, Herts SG6 1HN, England

RSC Members should send their orders to:

The Royal Society of Chemistry, Membership Officer,
30 Russell Square, London WC1B 5DT