## JOURNAL OF THE CHEMICAL SOCIETY

## **Chemical Communications**

Number 12 1995

#### **CONTENTS**

1197 Intramolecular Pummerer Reaction of γ, δ-Unsaturated Sulfinyl Compounds

TsOH ON NO2

Hitoshi Abe, Junko Itani, Chieko Masunari, Setsuo Kashino, Takashi Harayama A novel preparation of 1,3-oxathiane derivatives through the Pummerer rearrangement of  $\gamma$ , $\delta$ -unsaturated sulfinyl compounds, and its plausible mechanism are described.

1199 Unprecedented Iridium Catalysed Group Transfer Reactions of 1,3-Thiazanes

Howard Alper, Cathleen Crudden, Kanjai Khumtaveeporn

1201 Stacked Supramolecular Structures involving Hydrogen-bonded Networks in Highly Functionalised Tetrathiafulvalene Derivatives

HO O S S S S O OH

Andrei S. Batsanov, Niels Svenstrup, Jesper Lau, Jan Becher, Martin R. Bryce, Judith A.K. Howard

1203 The Formation of Gas Phase Benzyl Radicals during the Reaction of Toluene and Nitrous Oxide over Li-MgO and Sr-La<sub>2</sub>O<sub>3</sub> Coupling Catalysts

Mingting Xu, Jack H. Lunsford

i

## 1205 Metal-Ammonium Cooperativity in Phosphodiester Hydrolysis

Endre Kövári, Jutta Heitker, Roland Krämer

## 1207 New Fire Suppression Mechanism of Perfluoroalkylamines

 $(CF_3)_3N$   $H_2O$  OH  $H_2O$  OH  $CF_3OH$ 

Haruhiko Fukaya, Taizo Ono, Takashi Abe

## 1209 Prop-2-ynyl Alcohol as a Precursor to the $\eta^1$ -Ethenyl Ligand

Joseph M. O'Connor, Kristin Hiibner

# 1211 High Activity of an Fe-tfda (tfda = 2-aminomethyltetrahydrofuran-N,N-diacetic acid) Complex for Hydroxylation at the Aromatic and Alkane Rings of 2'-Deoxyguanosine in the Presence of Hydrogen Peroxide

Yuzo Nishida, Sayo Ito

1213 Diepoxy[15]annulenones undergo Photochemical Carbonyl-O/Divinyl ether-O Transportation Rearrangements: Mechanistic Probing of the Rearrangement Sequences Facilitated by <sup>13</sup>C/<sup>17</sup>O NMR Spectroscopy

Haru Ogawa, Yuko Ohokubo, Yasuyoshi Nogami, Yuko Kato, Toshitaka Koga, Taiji Imoto

The three oxygen atoms of diepoxy[15]annulenone 1 are transposable in the fifteen membered ring *via* sequential rearrangement on irradiation.

## 1215 Liquid-crystalline Gold(I)-Carbene Complexes

$$C_nH_{2n+1}O$$

$$OC$$

$$C_mH_{2n+1}O$$

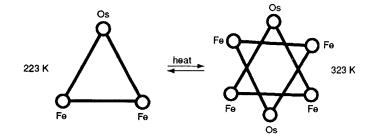
$$C = AuCI$$

Rie Ishii, Takeshi Kaharu, Nadine Pirio, Shi-Wei Zhang, Shigetoshi Takahashi

1217 Charge Polarization in Photoexcited Alkoxysubstituted Biphenyls: Formation of Biphenyl Quinone Methides

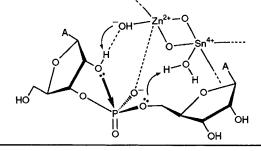
Yijian Shi, Peter Wan

1219 Dynamic Disorder in [Fe<sub>2</sub>Os(CO)<sub>12</sub>]. Structural Evidence of the Metal Triangle Rotation



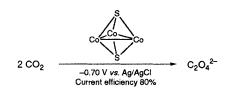
Dario Braga, Louis J. Farrugia, Fabrizia Grepioni, Andrew Senior

1221 Synergetic Catalysis by Two Non-lanthanide Metal Ions for Hydrolysis of Diribonucleotides



Makoto Irisawa, Naoya Takeda, Makoto Komiyama

1223 Remarkable Decrease in Overpotential of Oxalate Formation in Electrochemical CO<sub>2</sub> Reduction by a Metal-Sulfide Cluster



Yoshinori Kushi, Hirotaka Nagao, Takanori Nishioka, Kiyoshi Isobe, Koji Tanaka

1225 A New Organic Superconductor, λ-BETS<sub>2</sub>GaBrCl<sub>3</sub> [BETS = bis(ethylenedithio)tetraselenafulvalene]

10<sup>2</sup> BETS

BETS

0 100 T/K 200 300 GaBrCl<sub>3</sub>

Hayao Kobayashi, Hideto Tomita, Toshio Naito, Hisashi Tanaka, Akiko Kobayashi, Taro Saito

 $\begin{array}{ll} 1227 & [\textit{cis-Pt}(C_6F_5)_2(C\equiv CPh)_2]^{2-} \text{ as a Double Alkynyl} \\ & Transfer \, Reagent. \, \, Synthesis \, and \, \, Characterization \\ & \text{ of the } Ir(III)\text{-Pt}(II) \, \, Tweezer \, \, Complex} \\ & \left\{[(\eta^5\text{-}C_5Me_5)(PEt_3)Ir(C\equiv CPh)_2]Pt(C_6F_5)_2\right\} \end{array}$ 

C<sub>6</sub>F<sub>5</sub> CPh

C<sub>6</sub>F<sub>5</sub> CPh

C<sub>6</sub>F<sub>5</sub> CPh

C<sub>6</sub>F<sub>5</sub> Pt C

C<sub>6</sub>F<sub>5</sub> Pt C

PEt<sub>3</sub>

Ph

Ph

Ph

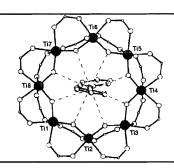
Jesús R. Berenguer, Juan Forniés, Elena Lalinde, Francisco Martínez

#### 1229 Novel Extended $\pi$ -Redox Cage-like Systems and their Conformational Versatility

Philippe Hascoat, Dominique Lorcy, Albert Robert, Kamal Boubekeur, Patrick Batail, Robert Carlier, André Tallec

#### 1231 An Octameric Titanium Oxo Metallacycle with **Host-Guest Interactions**

Hazel Barrow, David A. Brown, Nathaniel W. Alcock, Howard J. Clase, Malcolm G. H. Wallbridge



# 1233 Mono- and $N^1,N^7$ -Dialkylation of 1,4,7,10-Tetraazacyclododecane via Silicon Protection

Annaïg Roignant, Isabelle Gardinier, Hélène Bernard, Jean-Jacques Yaouanc, Henri Handel

#### 1235 Facile Synthesis of Vinyl Copolymers with Optical Activity Arising from the Configuration of Stereogenic Carbon Atoms in the Main Chain

I. H. Donnelly, P. Kambouris, D. C. Nonhebel, D. C. Sherrington

 $R^1 = (1S)-endo-(-)-bornyl or (1R,2S,5R)-(-)-menthyl$ 

#### 1237 An Iterative Synthetic Approach to Nanometrescale Molecular Ribbons

Stefan Breidenbach, Stefan Ohren, Martin Nieger,

$$EtO_2C \longrightarrow \begin{matrix} Tos & CO_2Et \\ EtO_2C \longrightarrow \begin{matrix} Tos & Tos$$

#### Non-classical [14] Metaheterophanes Containing Betaine Units. Synthesis, NMR Spectroscopy and X-Ray Crystallography

Fritz Vögtle

Ermitas Alcalde, Montserrat Alemany, Lluïsa Pérez-García, Matías L. Rodriguez

1241 Observations on the Reaction of Xanthate Esters with 4-Methyl(difluoroiodo)benzene: a New Method for the Conversion of Alcohols to Alkyl Fluorides

Mark J. Koen, Frederic Le Guyader, William B. Motherwell

1243 High Chirality Transfer in Chiral Selenimides *via* [2,3]Sigmatropic Rearrangement

NMe<sub>2</sub>  $Me^{-1}H$  Fe  $Se \equiv (S,R)-Fc*Se$   $Me^{-1}H$   $NMe_2$   $NMe_2$ 

Yoshiaki Nishibayashi, Takashi Chiba, Kouichi Ohe, Sakae Uemura

1245 The First Example of Enantioselective Carbenoid Addition to Organochalcogen Atoms: Application to [2,3]Sigmatropic Rearrangement of Allylic Chalcogen Ylides

Yoshiaki Nishibayashi, Kouichi Ohe, Sakae Uemura

i, cat. Cu<sup>I</sup>: CuOTf (5 mol%) + bisoxazoline (5 mol%) ii, cat. Rh<sup>II</sup>; Rh<sub>2</sub>(5S-MEPY)<sub>4</sub> (1 mol%)

1247 Metal-catalysed Enantiospecific Aerobic Oxidation of Cyclobutanones

Carsten Bolm, Gunther Schlingloff

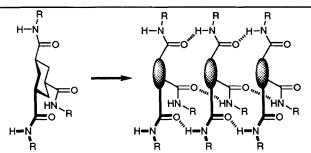
Optically active  $\gamma$ -butyrolactones with up to 95% e.e. are obtained by metal-catalysed aerobic oxidation.

1249 5-Methyl-1-phenylpyrrolo[3,4-d]borepin: a Polarized Aromatic Molecule

Yoshikazu Sugihara, Ryuta Miyatake, Ichiro Murata, Akira Imamura

Compound **3b** is a polar aromatic system, whose properties confirm our guide for construction of stable heteroaromatics.

1251 Hydrogen-bonding Control of Molecular Aggregation: Self-complementary Subunits lead to Rod-shaped Structures in the Solid State



Erkang Fan, Ji Yang, Steven J. Geib, Timothy C. Stoner, Michael D. Hopkins, Andrew D. Hamilton

#### 1253 Stereodynamics of Neutral Six-coordinate Silicon Chelates: Evidence for Two Non-dissociative Rate Processes

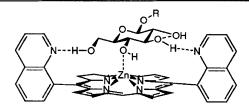
 $2 \text{Me}_2 \text{NN} = \text{C}(\text{R}) \text{OSiMe}_3 + \text{PhSiX}_3$   $R = \text{C} \text{NNMe}_2$   $\text{OSIMAR} \text{NNMe}_2$  Ph  $R = \text{C} \text{NNMe}_2$  Ph  $\text{NNMe}_2$  Ph  $\text{NNMe}_2$   $\text{NNMe}_2$   $\text{NNMe}_2$   $\text{NNMe}_2$   $\text{NNMe}_2$   $\text{NNMe}_2$  OO,O)-1,2-shift  $\text{R} = \text{Me, CH}_2 \text{Ph, Ph, CF}_3 \quad \text{X} = \text{CI, F}$ 

Inna Kalikhman, Daniel Kost, Morton Raban

# 1255 Formation of Bicyclic Azepines by Intramolecular Trapping of Didehydroazepines

Shigeru Murata, Masaki Miwa, Hideo Tomioka

#### 1257 Molecular Recognition of Carbohydrates by Functionalized Zinc Porphyrins

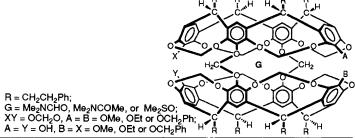


Tadashi Mizutani, Takeshi Murakami, Noriyoshi Matsumi, Takuya Kurahashi, Hisanobu Ogoshi

One of the possible structures of a glucopyranoside-porphyrin complex.

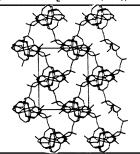
#### 1259 Comparisons of Activation Energies for Dimethyl Sulfoxide Rotations in the Inner Phase of Seven Carcerands

Siavash K. Kurdistani, Timothy A. Robbins, Donald J. Cram

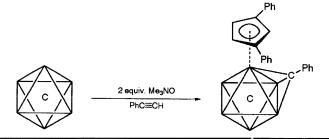


1261 Synthesis and Structure of a Novel Openframework Gallium Phosphate [Me<sub>2</sub>NH-(CH<sub>2</sub>)<sub>2</sub>NHMe<sub>2</sub>]<sup>2+</sup>[Ga<sub>4</sub>P<sub>5</sub>O<sub>20</sub>H]<sup>2-</sup>·H<sub>2</sub>O

A. M. Chippindale, R. I. Walton, C. Turner



Oligomerisation of Phenylacetylene at a Polynuclear Site; the Molecular Structure of  $[Ru_6C(CO)_{12}(\mu_2\text{-}CO)(\eta^5\text{-}C_5H_3Ph_2)(\mu_3\text{-}CPh)]$ 



Jane L. Haggitt, Brian F. G. Johnson, Alexander J. Blake, Simon Parsons

1265 Linear Face-sharing Trioctahedral [Mo<sub>3</sub>I<sub>12</sub>]<sup>3-</sup> by Spontaneous thf Loss from [MoI<sub>4</sub>(thf)<sub>2</sub>]<sup>-</sup>: Structure, Bonding and Magnetic Properties

I(12)
I(3)
I(13)
I(13)
I(13)
I(13)
I(14)
I(15)
I(15)
I(16)
I(17)
I(17)
I(17)
I(18)
I(19)
I(19)
I(19)
I(11)
I(19)
I(11)
I(19)
I(11)
I

James C. Fettinger, Sundeep P. Mattamana, Charles J. O'Connor, Rinaldo Poli, Ghadi Salem

1267 Stable Carbenes as Strong Bases

Roger W. Alder, Paul R. Allen, Stuart J. Williams

1269 Use of Trimethylamine N-Oxide in the Controlled Air-oxidation of Metal Carbonyl Complexes;
Synthesis and Crystal Structure of a Novel Organometallic Oxo Complex of Dimolybdenum

Joanne C. Stichbury, Martin J. Mays, Paul R. Raithby, Moira-Ann Rennie, Michael R. Fullalove

 $R = R' = CO_2Me$  or Ph;  $R = CO_2Me$ , R' = H; R = Ph, R' = H

1271 Asymmetric Diels-Alder Reactions of TMHDacrylate using TiCl<sub>4</sub>·(Ar<sub>n</sub>Hg)<sub>m</sub> Complexed Lewis Acids

> Isao Kadota, Katsumi Kobayashi, Naoki Asao, Yoshinori Yamamoto

1273 Palladium- and Platinum-catalysed Addition of Aldehydes with Allylstannanes

Hiroyuki Nakamura, Naoki Asao, Yoshinori Yamamoto

1275 Structure and Origin of Two Triterpene-derived Aromatic Hydrocarbons in Messel Shale

Tetrahymanol Hopanoids

Philippe Schaeffer, Jean-M. Trendel, Pierre Albrecht

1277 Unique Structural Features in Silver(I) Dithioether Complexes: the Single-crystal Structures of  $[Ag_n(PhSCH_2CH_2CH_2SPh)_{2n}](BF_4)_n \cdot 0.5nH_2O$  and [Ag<sub>n</sub>(MeSCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>SMe)<sub>n</sub>](BF<sub>4</sub>)<sub>n</sub>

> Jane R. Black, Neil R. Champness, William Levason, Gillian Reid

1279 Bioactive Surfactants containing a β-Lactam **Group: Synthesis and Properties** 

> Laurence Molina, Angelo Perani, Maria-Rosa Infante, Maria-Angeles Manresa, Michel Maugras, Samuel Achilefu, Marie-José Stebe, Claude Selve

CH<sub>2</sub>OH CH<sub>2</sub>OH type i Type I  $\beta$ -Lactams:  $R = C_8H_{17}$ ,  $C_{10}H_{21}$ C<sub>6</sub>F<sub>13</sub>C<sub>2</sub>H<sub>4</sub>, C<sub>8</sub>F<sub>17</sub>C<sub>2</sub>H<sub>4</sub>, Type II  $\beta$ -Lactams: Z = O, NH and  $R^1 = C_8H_{17}$ ,

C  $_{10}$ H $_{21}$ , C  $_{12}$ H $_{25}$ , PhCH $_2$  A new route to  $\beta$ -lactams type I and II affords biocompatible compounds that have both surface and antibiotic activity.

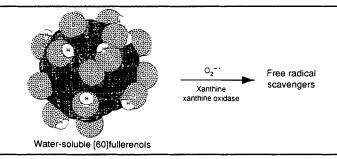
1281 On the Production of an Aqueous Colloidal Solution of Fullerenes

> Grigoriy V. Andrievsky, Marina V. Kosevich, Oleh M. Vovk, Vadim S. Shelkovsky, Lyudmila A. Vashchenko

A stable finely dispersed colloidal water solution of fullerenes C<sub>60</sub> and  $C_{70}$  with particle sizes smaller than 0.22 µm is produced by ultrasonic treatment of a mixture of a toluene-fullerenes solution and water. A potential application of the colloidal solution in the studies of fullerene interactions with biomolecules is demonstrated.

1283 Free Radical Scavenging Activity of Water-soluble **Fullerenols** 

Long Y. Chiang, Fung-Jou Lu, Jaw-Town Lin



1285  $nido-[\{(C_5Me_5)Ir\}B_3H_7\{(PPh_3)_2(CO)Os\}], closo \begin{array}{l} [\{(C_5Me_5)Ir\}B_4H_6\{(PPh_3)_2(CO)Os\}] \text{and } \textit{pileo-} \\ [\{(PPh_3)COHIr\}B_5H_5\{(PPh_3)_2(CO)Os\}] \text{: a Unique} \end{array}$ Homologous Series of Iridaosmaborane Cluster Types

> Jonathan Bould, Nigam P. Rath, Lawrence Barton

1287 A Novel Facile Synthesis of Dihalogenoruthenium(IV) Porphyrins

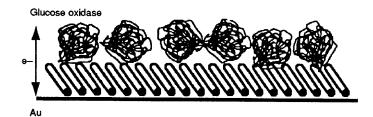
Zeev Gross, Claudia M. Barzilay

Ar = 2,6-dimethylphenyl, X = Cl, Br

1289 Gaining Control over Molecular Threading: Benefits of Second Coordination Sites and Aqueous-Organic Interfaces in Rotaxane Synthesis

Alexander G. Kolchinski, Daryle H. Busch, Nathaniel W. Alcock

1293 Direct Electron Transfer Reactions of Glucose Oxidase Immobilised at a Self-assembled Monolayer



Li Jiang, Calum J. McNeil, Jonathan M. Cooper

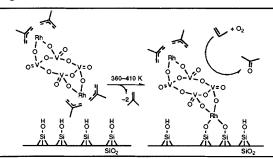
1297 Stereoselective Synthesis of Substituted 1,3,5-Hexatrienes from Diallylic Sulfones

$$R^{1} \xrightarrow{R^{2}} S_{2} \xrightarrow{R^{6}} R^{4} \xrightarrow{CBr_{2}F_{2}} R^{1} \xrightarrow{R^{2}} R^{6}$$

Xiao-Ping Cao, Tze-Lock Chan, Hak-Fun Chow, Jingren Tu

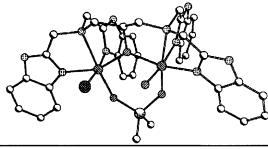
1,3,5-Hexatrienes can be synthesized in excellent yields and with good stereoselectivity from diallylic sulfones employing a modified Ramberg–Bäcklund reaction.

1301 Molecular Modelling of Supported Metal Catalysts: SiO<sub>2</sub>-grafted [ $\{(\eta^3-C_4H_7)_2Rh\}_2V_4O_{12}$ ] and [ $\{Rh(C_2Me_5)\}_4V_6O_{19}$ ] are Catalytically Active in the Selective Oxidation of Propene to Acetone



Kazuhiro Takahashi, Masatsugu Yamaguchi, Takafumi Shido, Hiroko Ohtani, Kiyoshi Isobe, Masaru Ichikawa

## 1305 The First Diferric Model Compound for the Uteroferrin-Arsenato Complex



Burkhard Eulering, Friedhelm Ahlers, Frank Zippel, Michael Schmidt, Hans-Friedrich Nolting, Bernt Krebs

#### Corrigenda

1309 Synthetic Receptors with Preorganized Cavities that Complex Prednisolone-21-acetate

Peter Timmerman, Erik A. Brinks, Willem Verboom, David N. Reinhoudt

## 1309 Intercalation of Nitric Oxide into Double-layered Cuprate Superstructure

Masato Machida, Hirotaka Murakami, Takeshi Kitsubayashi, Tsuyoshi Kijima

1309 Observations on Selectivity Reversal during Chiral Auxiliary-directed Asymmetric Nucleophile Additions to Arene–Manganese Tricarbonyl Complexes

Anthony J. Pearson, Maria C. Milletti, Ping Y. Zhu

1309 Scission of Ethyne into Two Methylidyne Ligands: C≡C vs. C−H Bond Activation

Harry Adams, Louise J. Gill, Michael J. Morris

#### **AUTHOR INDEX**

Abe, Hitoshi, 1197 Abe, Takashi, 1207 Achilefu, Samuel, 1279 Adams, Harry, 1309 Ahlers, Friedhelm, 1305 Albrecht, Pierre, 1275 Alcalde, Ermitas, 1239 Alcock, Nathaniel W., 1231, 1289 Alder, Roger W., 1267 Alemany, Montserrat, 1239 Allen, Paul R., 1267 Alper, Howard, 1199 Andrievsky, Grigoriy V., 1281 Asao, Naoki, 1271, 1273 Barrow, Hazel, 1231 Barton, Lawrence, 1285 Barzilay, Claudia M., 1287 Batail, Patrick, 1229 Batsanov, Andrei S., 1201 Becher, Jan, 1201 Berenguer, Jesús R., 1227 Bernard, Hélène, 1233 Black, Jane R., 1277 Blake, Alexander J., 1263 Bolm, Carsten, 1247 Boubekeur, Kamal, 1229 Bould, Jonathan, 1285 Braga, Dario, 1219 Breidenbach, Stefan, 1237 Brinks, Erik A., 1309 Brown, David A., 1231 Bryce, Martin R., 1201 Busch, Daryle H., 1289 Cao, Xiao-Ping, 1297 Carlier, Robert, 1229 Champness, Neil R., 1277 Chan, Tze-Lock, 1297 Chiang, Long Y., 1283 Chiba, Takashi, 1243 Chippindale, A. M., 1261 Chow, Hak-Fun, 1297 Clase, Howard J., 1231 Cooper, Jonathan M., 1293 Cram, Donald J., 1259 Crudden, Cathleen, 1199 Donnelly, I. H., 1235 Eulering, Burkhard, 1305 Fan, Erkang, 1251 Farrugia, Louis J., 1219 Fettinger, James C., 1265 Forniés, Juan, 1227 Fukaya, Haruhiko, 1207

Fullalove, Michael R., 1269

Gardinier, Isabelle, 1233 Geib, Steven J., 1251 Gill, Louise J., 1309 Grepioni, Fabrizia, 1219 Gross, Zeev, 1287 Haggitt, Jane L., 1263 Hamilton, Andrew D., 1251 Handel, Henri, 1233 Harayama, Takashi, 1197 Hascoat, Philippe, 1229 Heitker, Jutta, 1205 Hiibner, Kristin, 1209 Hopkins, Michael D., 1251 Howard, Judith A.K., 1201 Ichikawa, Masaru, 1301 Imamura, Akira, 1249 Imoto, Taiji, 1213 Infante, Maria-Rosa, 1279 Irisawa, Makoto, 1221 Ishii, Rie, 1215 Isobe, Kiyoshi, 1223, 1301 Itani, Junko, 1197 Ito, Sayo, 1211 Jiang, Li, 1293 Johnson, Brian F. G., 1263 Kadota, Isao, 1271 Kaharu, Takeshi, 1215 Kalikhman, Inna, 1253 Kambouris, P., 1235 Kashino, Setsuo, 1197 Kato, Yuko, 1213 Khumtaveeporn, Kanjai, 1199 Kijima, Tsuyoshi, 1309 Kitsubayashi, Takeshi, 1309 Kobayashi, Akiko, 1225 Kobayashi, Hayao, 1225 Kobayashi, Katsumi, 1271 Koen, Mark J., 1241 Koga, Toshitaka, 1213 Kolchinski, Alexander G., Komiyama, Makoto, 1221 Kosevich, Marina V., 1281 Kost, Daniel, 1253 Kövári, Endre, 1205 Krämer, Roland, 1205 Krebs, Bernt, 1305 Kurahashi, Takuya, 1257 Kurdistani, Siavash K., 1259 Kushi, Yoshinori, 1223 Lalinde, Elena, 1227 Lau, Jesper, 1201

Le Guyader, Frederic, 1241 Levason, William, 1277

Lin, Jaw-Town, 1283 Lorcy, Dominique, 1229 Lu, Fung-Jou, 1283 Lunsford, Jack H., 1203 Machida, Masato, 1309 McNeil, Calum J., 1293 Manresa, Maria-Angeles, 1279 Martínez, Francisco, 1227 Masunari, Chieko, 1197 Matsumi, Noriyoshi, 1257 Mattamana, Sundeep P., 1265 Maugras, Michel, 1279 Mays, Martin J., 1269 Milletti, Maria C., 1309 Miwa, Masaki, 1255 Miyatake, Ryuta, 1249 Mizutani, Tadashi, 1257 Molina, Laurence, 1279 Morris, Michael J., 1309 Motherwell, William B., 1241 Murakami, Hirotaka, 1309 Murakami, Takeshi, 1257 Murata, Ichiro, 1249 Murata, Shigeru, 1255 Nagao, Hirotaka, 1223 Naito, Toshio, 1225 Nakamura, Hiroyuki, 1273 Nieger, Martin, 1237 Nishibayashi, Yoshiaki, 1243, 1245 Nishida, Yuzo, 1211 Nishioka, Takanori, 1223 Nogami, Yasuyoshi, 1213 Nolting, Hans-Friedrich, 1305 Nonhebel, D. C., 1235 O'Connor, Charles J., 1265 O'Connor, Joseph M., 1209 Ogawa, Haru, 1213 Ogoshi, Hisanobu, 1257 Ohe, Kouichi, 1243, 1245 Ohokubo, Yuko, 1213 Ohren, Stefan, 1237 Ohtani, Hiroko, 1301 Ono, Taizo, 1207 Parsons, Simon, 1263 Pearson, Anthony J., 1309 Perani, Angelo, 1279 Pérez-García, Lluïsa, 1239 Pirio, Nadine, 1215 Poli, Rinaldo, 1265 Raban, Morton, 1253 Raithby, Paul R., 1269 Rath, Nigam P., 1285

Reid, Gillian, 1277

Reinhoudt, David N., 1309 Rennie, Moira-Ann, 1269 Robbins, Timothy A., 1259 Robert, Albert, 1229 Rodriguez, Matías L., 1239 Roignant, Annaïg, 1233 Saito, Taro, 1225 Salem, Ghadi, 1265 Schaeffer, Philippe, 1275 Schlingloff, Gunther, 1247 Schmidt, Michael, 1305 Selve, Claude, 1279 Senior, Andrew, 1219 Shelkovsky, Vadim S., 1281 Sherrington, D. C., 1235 Shi, Yijian, 1217 Shido, Takafumi, 1301 Stebe, Marie-José, 1279 Stichbury, Joanne C., 1269 Stoner, Timothy C., 1251 Sugihara, Yoshikazu, 1249 Svenstrup, Niels, 1201 Takahashi, Kazuhiro, 1301 Takahashi, Shigetoshi, 1215 Takeda, Naoya, 1221 Tallec, André, 1229 Tanaka, Hisashi, 1225 Tanaka, Koji, 1223 Timmerman, Peter, 1309 Tomioka, Hideo, 1255 Tomita, Hideto, 1225 Trendel, Jean-M., 1275 Tu, Jingren, 1297 Turner, C., 1261 Uemura, Sakae, 1243, 1245 Vashchenko, Lyudmila A., 1281 Verboom, Willem, 1309 Vögtle, Fritz, 1237 Vovk, Oleh M., 1281 Wallbridge, Malcolm G. H., 1231 Walton, R. I., 1261 Wan, Peter, 1217 Williams, Stuart J., 1267 Xu, Mingting, 1203 Yamaguchi, Masatsugu, 1301 Yamamoto, Yoshinori, 1271, 1273 Yang, Ji, 1251 Yaouanc, Jean-Jacques, 1233 Zhang, Shi-Wei, 1215 Zhu, Ping Y., 1309 Zippel, Frank, 1305

### **COPYRIGHT LICENCE**

Since April 1st 1994 all authors submitting work for publication in Royal Society of Chemistry journals have been required to sign an exclusive copyright licence, to formalise the agreement within the Society. The simplified copyright form reproduced overleaf replaces that published with the Instructions for Authors in Issue No. 1.(January) 1995. The form may be photocopied. All future submissions of papers for publication should be accompanied by a completed form, without which publication cannot proceed.

#### Notes on Copyright for Contributors to the Journals of the Royal Society of Chemistry ("the RSC")

These notes apply to the following RSC primary journals:

1) Journal of the Chemical Society:

Chemical Communications

**Dalton Transactions** 

Faraday Transactions

Perkin Transactions 1

Perkin Transactions 2

- 2) The Analyst
- 3) Analytical Proceedings
- 4) Journal of Analytical Atomic Spectrometry
- 5) Journal of Materials Chemistry
- 6) Faraday Discussions
- 7) Journal of Chemical Research

IMPORTANT: Please complete and return to the RSC the following Copyright Licence. The RSC will not publish any contribution until it has received a duly completed Copyright Licence.

*Note 1* These Notes accompany and should be read alongside the RSC's Copyright Licence ("the Copyright Licence", attached).

Note 2 It is our policy to require authors to grant to the RSC an exclusive licence in respect of their contributions to the RSC's primary journals. We therefore ask you to complete the Copyright Licence and return it to us so that we are able to publish your paper.

We have three main reasons for requiring this Licence:

- (a) We require it as our authority to publish.
- (b) It helps us to protect the material we publish against unauthorised copying and other misuse.
- (c) It ensures that requests from third parties to republish all or part of the material we publish can be efficiently dealt with. Such requests are increasingly significant as electronic delivery media become more important.

*Note 3* If you are an employee of the US Government and your contribution was written in that capacity the Copyright Licence will take effect only to the extent allowed by US law.

Note 4 If you are an employee of the British Government and your contribution was written in that capacity then the Copyright Licence will take effect as a *non*-exclusive licence and copyright in your contribution will be reserved to the Crown.

Note 5 Even though the Copyright Licence is exclusive, we will agree to any reasonable request which you (or the copyright owner, if you do not own the copyright) make to us in writing for permission to republish your contribution. However, we will require such republication to be accompanied by a suitable acknowledgement of first publication by the RSC.

Note 6 If we notify you (or the copyright owner, if you do not own the copyright) in writing that we will not be publishing your contribution then the Copyright Licence will immediately terminate.

Note 7 The RSC holds personal information on a computerised database for publications administration purposes. We may from time to time send you material relevant to your research interests, to provide information about the RSC's products, or possibly to seek your advice on new products. If you do not wish to receive this or remain on our mailing list please contact the Journals Administrative Officer.

Paper Number:....(RSC's use)

	COPYRIGHT LICENCE
lark (title and brief description	the paper or other contribution submitted):
ork (title and brief descriptio	the paper or other contribution submitted):
ork (title and brief descriptio	the paper or other contribution submitted):
ork (title and brief descriptio	the paper or other contribution submitted):
ork (title and brief descriptio	the paper or other contribution submitted):

If the Author does not own the copyright in the Work, state who the Owner is (giving name and address) and state why the Author does not own the copyright in the Work (eg the Author wrote the Work in the course of employment by the Owner):

If the Author is the Owner then, where used below, "the Owner" means the Author.

1. In consideration of the RSC evaluating the Work for publication by the RSC (and publishing the Work if it so decides) the Owner grants to the RSC the exclusive right and licence throughout the world to edit, adapt, translate, reproduce and publish the Work in all formats, in all media and by all means (whether now existing or in future devised).

Such licence is for the full term of copyright in the Work throughout the world (including all renewals, extensions and reversions).

Such licence is freely transferable by the RSC and includes the right to sub-license.

- 2. The Owner warrants that:
- (a) the Work is the original work of the Author and not copied (in whole or in part) from any other work or matter or (if the Work includes copyright works of persons other than the Author) the Work is substantially the original work of the Author and all necessary permissions have been obtained for use of such copyright works of such other persons.
- (b) the Work has not been and will not prior to publication by the RSC be published.
- (c) the exercise of the rights granted to the RSC by this Licence will not infringe the copyright of any person or result in any breach of confidentiality or the breach of any contract or of any law.

- 3. Notwithstanding anything to the contrary contained in this Licence:
- (a) this Licence shall take effect as a non-exclusive licence in respect of any parts of the Work as were written by an Author in the course of employment by the British Government.
- (b) this Licence shall take effect only to the extent permitted by the laws of the United States of America if and to the extent that the Work or any part of the Work was written by an Author in the course of employment by the United States Government.
- 4. The RSC will agree to any reasonable request submitted to it in writing by the Owner for republication of the Work, but provided that the Owner ensures that any such republication is accompanied by an acknowledgement (in a form acceptable to the RSC) of first publication of the Work by the RSC.
- 5. If the RSC notifies the Owner in writing that it will not be publishing the Work then this Licence shall forthwith and automatically terminate (and all rights granted shall revert to the Owner).
- 6. This Licence shall be governed in all respects by English law.

SIGNED by the Owner or	by someone duly	authorised to	sign for the
Owner:			

Signed	:	
$\mathcal{C}$		

Name :

Date