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IN THIS ISSUE

ISSN 1144-0546 CODEN NJCHES 31(1) 1-180 (2007)



Cover

For its 30th anniversary, NJC features a molecular capsule whose two halves are held together by a belt of zinc ions. The cover highlights different forms of zinc, including the alchemical depiction (Image © Murray Robertson 1999–2006). Cover design by Scott Dalgarno and Gérard Calleja.

CHEMICAL SCIENCE

C1

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Chemical Science

January 2007/Volume 4/Issue 1 www.rsc.org/chemicalscience

EDITORIAL

15

Happy New Year from NJC

Denise Parent and Sarah Ruthven, NJC Editors, reflect on 2006 and the developments for 2007.



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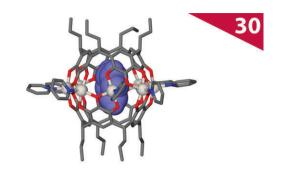
LETTERS

17

Robust and stable pyrogallol[4]arene molecular capsules facilitated *via* an octanuclear zinc coordination belt

Nicholas P. Power, Scott J. Dalgarno and Jerry L. Atwood*

30th Anniversary article: The first metal coordinated pyrogallol[4]arene encapsulating dimer has been synthesised and shows high nuclearity with respect to Zn^{II} , arranged as a polar coordination belt.



21

Nucleic acids in two dimensions: layers of base pairs linked by carboxylate

Eva Corral, Huub Kooijman, Anthony L. Spek and Jan Reedijk*

The formation of a planar 2D hydrogen-bonded network between DNA bases and formate residues is reported, leading to unprecedented parallel sheets of DNA analogues.



PAPERS

25

Molecular tectonics: generation of 1-D interdigitated and 2-D interwoven helical silver coordination networks by oligoethylene glycol based tectons bearing two benzonitrile moieties

Julien Bourlier, Mir Wais Hosseini,* Jean-Marc Planeix and Nathalie Kyritsakas

In the presence of silver cation, oligoethylene glycol based tectons bearing two benzonitrile units lead to 1-D and 2-D helical metallo-organic architectures.

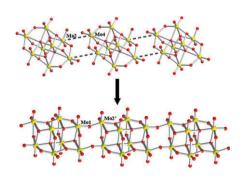


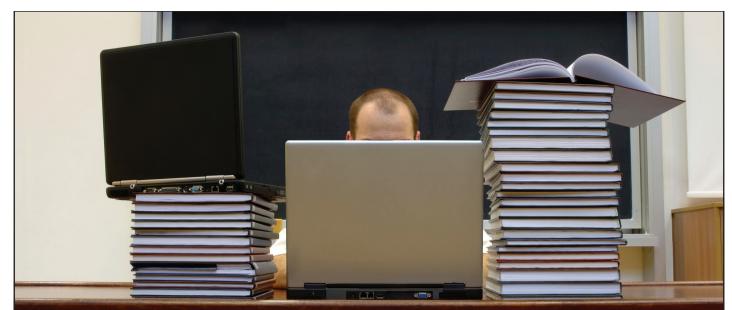
33

Sequential transformations in assemblies based on octamolybdate clusters and 1,2-bis(4-pyridyl)ethane

Reinaldo Atencio,* Alexander Briceño, Pedro Silva, José A. Rodríguez and Jonathan C. Hanson

The four novel hybrid molybdenum oxide assemblies $[Mo_8O_{26}][H_2bpe]_2$ (1), $\{[Mo_8O_{26}(\mu\text{-bpe})][H_2bpe]_2\}_n$ (2), $[Mo_8O_{26}(Hbpe)_2][H_2bpe]$ (3), and $\{[Mo_8O_{26}][H_2bpe]_2\}_n$ (4) are involved in sequential transformation processes under hydrothermal conditions.





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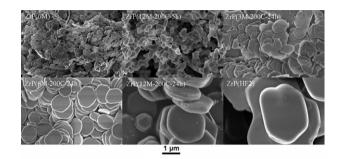
1063

39

Preparation of α-zirconium phosphate nanoplatelets with wide variations in aspect ratios

Luyi Sun, Woong J. Boo, Hung-Jue Sue* and Abraham Clearfield*

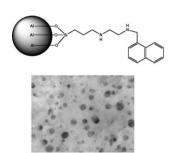
α-ZrP with varying lateral dimensions were prepared *via* three different approaches, which can be exfoliated to prepare polymer nanocomposites for different applications and structure-property relationship studies.



Naphthalene-containing polyamines supported in nanosized boehmite particles

Ricardo Aucejo, Pilar Díaz, Enrique García-España,* Javier Alarcón,* Estefanía Delgado-Pinar, Francisco Torres, Conxa Soriano and M. Carmen Guillem

Naphthalene polyamines have been attached to boehmite nanoparticles. The photochemical characteristics of the supported materials are compared with those of the non-supported materials.



52

Computational design of Brønsted neutral organic superbases—[3]iminoradialenes and quinonimines are important synthetic targets

Ines Despotović, Zvonimir B. Maksić* and Robert Vianello

A combination of [3]radialene and quinone fragments possessing imino nitrogen as a basic centre leads to highly basic compounds.



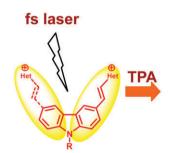
the gas-phase proton affinities (kcal/mol)

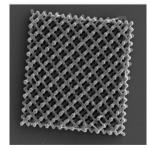
63

Carbazole-based 1D and 2D hemicyanines: synthesis, two-photon absorption properties and application for two-photon photopolymerization 3D lithography

Jie Gu, Wang Yulan, Wei-Qiang Chen, Xian-Zi Dong, Xuan-Ming Duan* and Satoshi Kawata

Carbazole based hemicyanines with large two-photon absorption cross sections were synthesized and successfully used for 3D microlithography as a highly efficient photoinitiator of two-photon polymerization.





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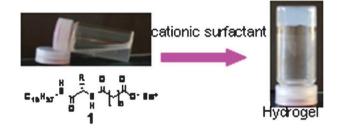
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Cationic surfactant-triggered formation of a supramolecular hydrogel by a negatively charged L-valine derivative

Masahiro Suzuki,* Teruaki Sato, Hirofusa Shirai and Kenji Hanabusa

L-Valine derivative (1) has been found to function as a cationic surfactant-triggered hydrogelator: it only forms a hydrogel in the presence of a cationic surfactant.

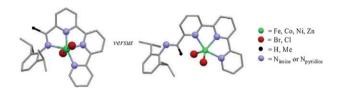


75

Factors affecting imine coordination in (iminoterpyridine) MX_2 (M = Fe, Co, Ni, Zn): synthesis, structures, DFT calculations and ethylene oligomerisation studies

Yohan D. M. Champouret, Jean-Didier Maréchal, Rajinder K. Chaggar, John Fawcett, Kuldip Singh, Feliu Maseras and Gregory A. Solan*

The lability of the imine donor in a series of (iminoterpyridine) MX_2 complexes has been probed; both the nature of M and the imino-carbon substituent prove influential.

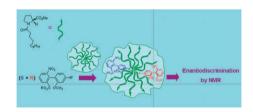


86

Discrimination of the enantiomers of new biphenylic derivatives in chiral micellar aggregates

Francesca Ceccacci, Luisa Giansanti, Giovanna Mancini,* Paolo Mencarelli and Alessandro Sorrenti

Chiral discrimination might occur far from the stereogenic centres.

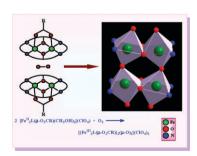


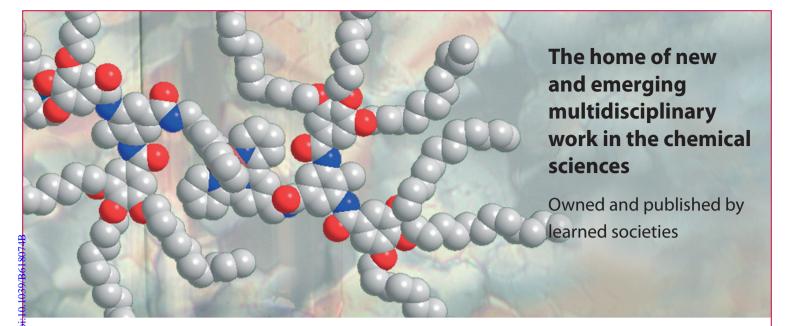
93

Formation of oxo-bridged tetrairon(III) complexes mediated by oxygen activation. Structure, spectroscopy, magnetism and electrochemistry

Sujit K. Dutta, Meenakshi Ghosh, Papu Biswas, Ulrich Flörke, Cristoph Saal, Wolfgang Haase and Kamalaksha Nag*

The dinuclear iron(II) complexes $[Fe^{II}{}_2L(\mu\text{-}O_2CR)]^+$ activate oxygen to produce the oxo-bridged tetrairon(III) complexes $[\{Fe^{III}{}_2L(\mu\text{-}O_2CR)\}_2(\mu\text{-}O)_2](ClO_4)_2$.





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Weak paramagnetism in compounds of the type Cp'₂Yb(bipy) Marc D. Walter, Madeleine Schultz, Richard A. Andersen (USA)

A phen-terpy conjugate whose chelate coordination axes are orthogonal to one another and its zinc complex

Benoît Champin, Valérie Sartor, Jean-Pierre Sauvage (France)

A catalyst for an acetal hydrolysis reaction from a dynamic combinatorial library

Laurent Vial, Jeremy K. M. Sanders, Sijbren Otto (UK)

The first total synthesis of aeruginosamide *Zhiyong Chen, Tao Ye (China)*

Molecular knots, links, and fabrics: prediction of existence and suggestion of a synthetic route

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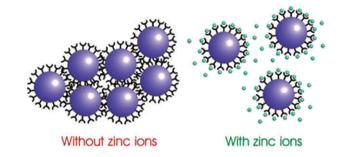


102

Stabilization of terpyridine covered gold nanoparticles by metal ions complexation

Marco Montalti.* Luca Prodi. Nelsi Zaccheroni. Matteo Beltrame, Tamara Morotti and Silvio Quici

Zinc cations prevent the aggregation of functionalized gold nanoparticles.

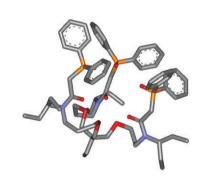


109

Tripodal (N-alkylated) CMP(O) and malonamide ligands: synthesis, extraction of metal ions, and potentiometric studies

Dominik Jańczewski, David N. Reinhoudt, Willem Verboom,* Elżbieta Malinowska, Mariusz Pietrzak, Clément Hill and Cécile Allignol

Introduction of N-alkyl substituents to C-pivot based tripodal ligands gives rise to an improved extraction behavior toward Am^{3+} and Eu^{3+} .



121

Substitution of allylic acetates with sodium paratoluenesulfinate in aqueous media using allylpalladium chloride dimer and a water-soluble ligand as the catalytic system; electrospray ionisation mass spectrometry analysis

Carole Chevrin, Jean Le Bras, Anna Roglans, Dominique Harakat and Jacques Muzart*

Substitution seems to involve a cationic (η^1 -allyl) (η^3 -allyl)palladium^{IV} intermediate as the key step.

$$\begin{array}{c} \text{OAc} \quad [(\eta^3\text{-allyl})\text{PdCl}]_2 \\ \text{Ph} & \frac{L_H}{H_2\text{O/MeOH}} \\ \text{L_H = hydrosoluble ligand} & \text{ESI-MS analysis} \Longrightarrow \text{Pd}^{\text{IV}} \, ? \end{array}$$

127

'GaI': A new reagent for chemo- and diastereoselective C-C bond forming reactions

Shaun P. Green, Cameron Jones,* Andreas Stasch and Richard P. Rose

The reactivity of "GaI" towards a range of α-functionalised ketones has been examined for the first time. Of most interest are the reactions of this reagent with α -alkoxy ketones which lead to diastereoselctive aldol coupling reactions and the formation of novel trifunctional products containing three contiguous stereocentres (e.g. see picture).

135

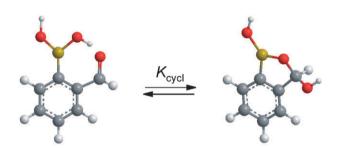


Influence of ligand backbone flexibility in group 4 metal complexes of tetradentate mixed tertiary amine/alkoxide ligands

J. K. Day, R. E. Baghurst, R. R. Strevens, M. E. Light, M. B. Hursthouse, B. F. Stengel, I. A. Fallis and S. Aldridge*

The contrasting reactivities of $[HOCH(^{\prime}Bu)CH_{2}N(R)CH_{2}]_{2}$ $(H_{2}L^{1}: R_{2} = CH_{2}CH_{2}CH_{2}$ and $H_{2}L^{2}: R_{2} = Me_{2})$ towards group 4 alkoxides illustrate the crucial role of ligand backbone flexibility in complex formation.

144

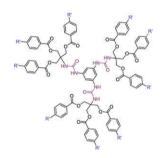


A tautomeric equilibrium between functionalized 2-formylphenylboronic acids and corresponding 1,3-dihydro-1,3-dihydroxybenzo[c][2,1]oxaboroles

Sergiusz Luliński,* Izabela Madura, Janusz Serwatowski, Halina Szatyłowicz and Janusz Zachara

An unprecedented chain—ring tautomeric rearrangement of functionalized 2-formylphenylboronic leads to the formation of corresponding 1,3-dihydro-1,3-dihydroxybenzo[c][2,1]oxaboroles.

155

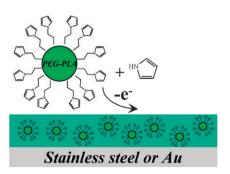


Synthesis and characterisation of peripherally functionalised dendritic molecules

Sarah J. Atkinson, Vicky-June Ellis, Sue E. Boyd and Christopher L. Brown*

A family of dendritic macromolecules has been prepared utilising the facile and versatile coupling reaction occurring between amines and isocyanates.

163



A novel electrochemically synthesized biodegradable thin film of polypyrrole–polyethyleneglycol–polylactic acid nanoparticles

Galit Shustak, Mariusz Gadzinowski, Stanislaw Slomkowski, Abraham J. Domb and Daniel Mandler*

Electrodeposition of polypyrrole–PEG–PLA nanocomposite film on gold and stainless steel by electropolymerization of pyrrole and pyrrole-functionalized PEG–PLA nanoparticles.

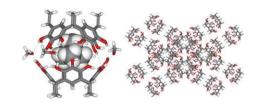


169

Complexation of C-methyl pyrogallarene with small quaternary and tertiary alkyl ammonium cations

Antti Åhman, Minna Luostarinen, Kari Rissanen and Maija Nissinen*

C-Methyl pyrogallarene forms dimeric capsule and 1:1 inclusion complexes with quaternary and tertiary alkylammonium cations in gas phase, solution and in solid state.



ADDITIONS AND CORRECTIONS

Sequential transformations in assemblies based on octamolybdate clusters and 1,2-bis(4-pyridyl)ethane

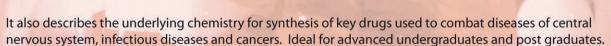
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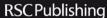
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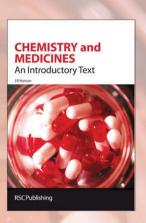


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AUTHOR INDEX

Åhman, Antti, 169 Alarcón, Javier, 44 Aldridge, Simon, 135 Allignol, Cécile, 109 Atencio, Reinaldo, 33 Atkinson, Sarah J., 155 Atwood, Jerry L., 17 Aucejo, Ricardo, 44 Baghurst, Rebecca E., 135 Beltrame, Matteo, 102 Biswas, Papu, 93 Boo, Woong J., 39 Bourlier, Julien, 25 Boyd, Sue E., 155 Briceño, Alexander, 33 Brown, Christopher L., 155 Ceccacci, Francesca, 86 Chaggar, Rajinder K., 75 Champouret, Yohan D. M., 75 Chen, Wei-Qiang, 63 Chevrin, Carole, 121 Clearfield, Abraham, 39 Corral, Eva, 21 Dalgarno, Scott J., Day, Joanne K., 135 Delgado-Pinar, Estefanía, 44 Despotović, Ines, 52

Díaz, Pilar, 44 Domb, Abraham J., 163 Dong, Xian-Zi, 63 Duan, Xuan-Ming, 63 Dutta, Sujit K., 93 Ellis, Vicky-June, 155 Fallis, Ian A., 135 Fawcett, John, 75 Flörke, Ulrich, 93 Gadzinowski, Mariusz, 163 García-España, Enrique, 44 Ghosh, Meenakshi, 93 Giansanti, Luisa, 86 Green, Shaun P., 127 Gu, Jie, 63 Guillem, M. Carmen, 44 Haase, Wolfgang, 93 Hanabusa, Kenji, 69 Hanson, Jonathan C., Harakat, Dominique, 121 Hill, Clément, 109 Hosseini, Mir Wais, 25 Hursthouse, Michael B., 135 Jańczewski, Dominik, 109 Jones, Cameron, 127 Kawata, Satoshi, 63 Kooijman, Huub, 21

Kyritsakas, Nathalie, 25 Le Bras, Jean, 121 Light, Mark E., 135 Luliński, Sergiusz, 144 Luostarinen, Minna, 169 Madura, Izabela, 144 Maksić, Zvonimir B., 52 Malinowska, Elżbieta, 109 Mancini, Giovanna, 86 Mandler, Daniel, 163 Maréchal, Jean-Didier, 75 Maseras, Feliu, 75 Mencarelli, Paolo, 86 Montalti, Marco, 102 Morotti, Tamara, 102 Muzart, Jacques, 121 Nag, Kamalaksha, 93 Nissinen, Maija, 169 Pietrzak, Mariusz, 109 Planeix, Jean-Marc, 25 Power, Nicholas P., Prodi, Luca, 102 Quici, Silvio, 102 Reedijk, Jan, 21 Reinhoudt, David N., 109 Rissanen, Kari, 169 Rodríguez, José A., 33

Roglans, Anna, 121 Rose, Richard P., 127 Saal, Cristoph, 93 Sato, Teruaki, 69 Serwatowski, Janusz, 144 Shirai, Hirofusa, 69 Shustak, Galit, 163 Silva, Pedro, 33 Singh, Kuldip, 75 Slomkowski, Stanislaw, 163 Solan, Gregory A., 75 Soriano, Conxa, 44 Sorrenti, Alessandro, 86 Spek, Anthony L., 21 Stasch, Andreas, 127 Stengel, Bruno F., 135 Strevens, Robert R., 135 Sue, Hung-Jue, 39 Sun, Luyi, 39 Suzuki, Masahiro, 69 Szatyłowicz, Halina, 144 Torres, Francisco, 44 Verboom, Willem, 109 Vianello, Robert, 52 Yulan, Wang, 63 Zaccheroni, Nelsi, 102 Zachara, Janusz, 144

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