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IN THIS ISSUE

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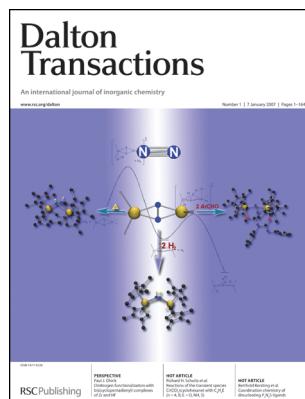


Cover

See: Khayzuran S. J. Iqbal and Peter J. Cragg, pp. 26–32.

An artificial ion channel with a calixarene core selectively transports potassium through a phospholipid bilayer.

Image reproduced by permission of Peter J. Cragg from *Dalton Trans.*, 2007, 26–32.



Inside cover

See: Paul J. Chirik, pp. 16–25.

The cover art depicts various functionalization reactions available for side-on bound zirconium and hafnium dinitrogen compounds.

Image reproduced by permission of Paul J. Chirik from *Dalton Trans.*, 2007, 16–25.

CHEMICAL BIOLOGY

B1

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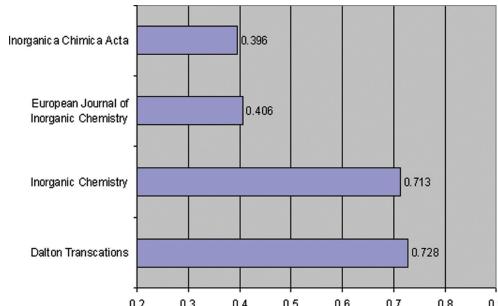
EDITORIAL

13

Dalton Transactions, embracing the future!

Jamie Humphrey and Paul Walton

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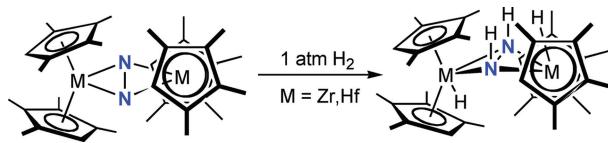
PERSPECTIVE

16

Dinitrogen functionalization with bis(cyclopentadienyl) complexes of zirconium and hafnium

Paul J. Chirik*

The outcome, kinetics and mechanism of functionalization reactions of zirconocene and hafnocene complexes bearing activated, side-on dinitrogen ligands with non-polar and polar reagents are the focus of this Perspective.



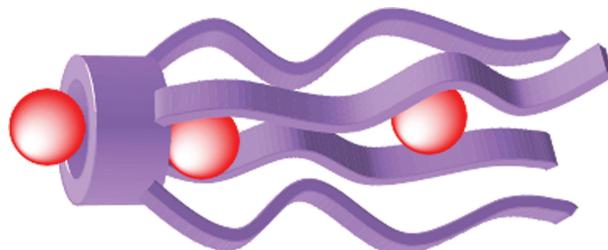
FRONTIER

26

Transmembrane ion transport by calixarenes and their derivatives

Khayzuran S. J. Iqbal and Peter J. Cragg*

Transmembrane ion transport is a vital aspect of bioinorganic chemistry. The role of calixarene-based models in our understanding of this process is discussed and areas of further study are proposed.



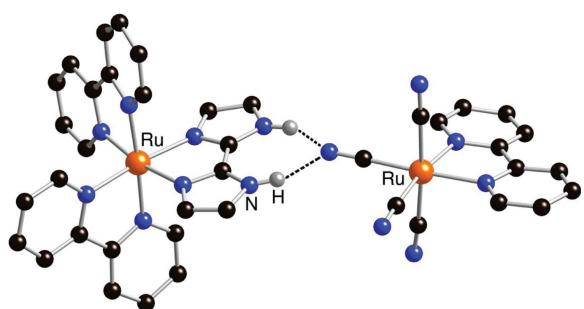
COMMUNICATIONS

33


Hydrogen-bonded assemblies of ruthenium(II)-biimidazole complex cations and cyanometallate anions: structures and photophysics

Sofia Derossi, Harry Adams and Michael D. Ward*

The complex cations $[\text{RuL}_2(\text{H}_2\text{biim})]^{2+}$ ($\text{L} = \text{bipy}, 4,4'\text{-tBu}_2\text{-bipy}$) interact with cyanometallate anions *via* a chelating hydrogen-bonding interaction between the biimidazole N–H donors in the cation and a cyanide lone pair in the anion; photoinduced electron transfer between hydrogen-bonded components occurs in one case.

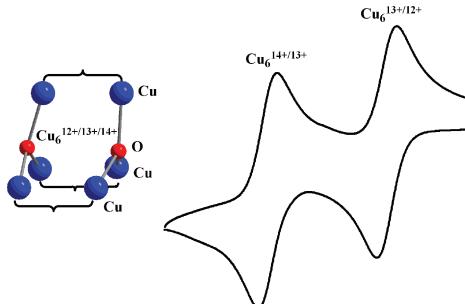


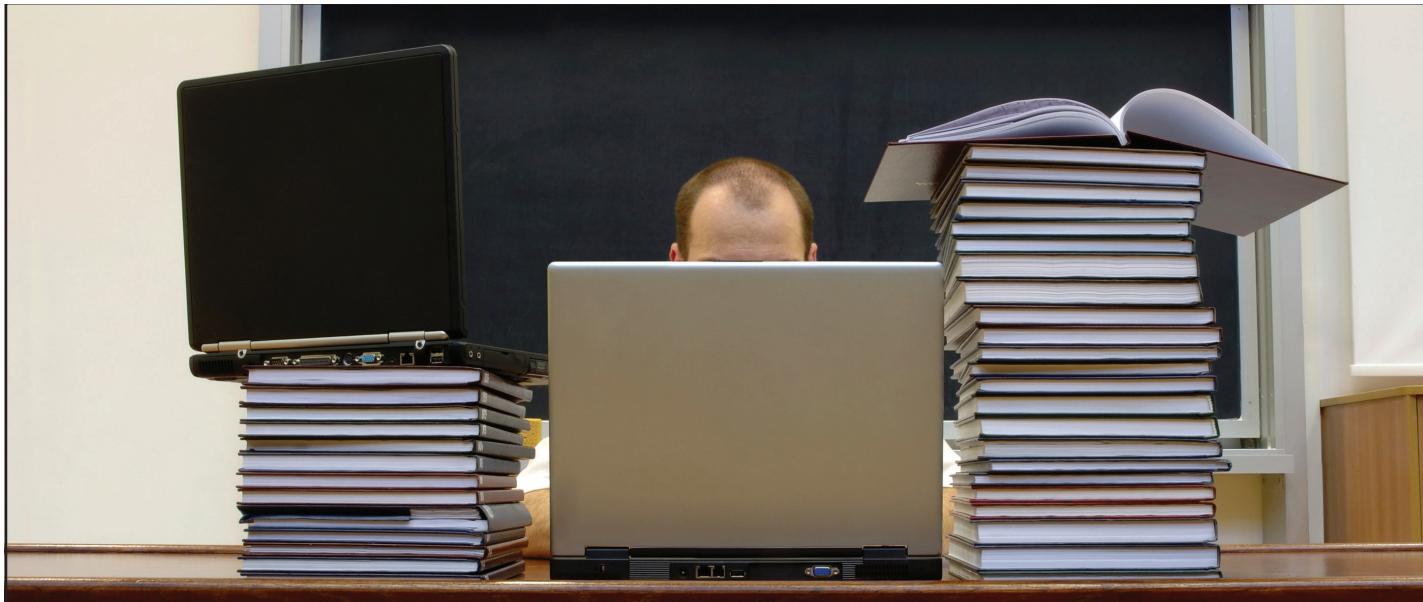
37


Trigonal-prismatic Cu^{II}_6 -pyrazolato cages: structural and electrochemical study, evidence of charge delocalisation

Gellert Mezei, Marlyn Rivera-Carrillo and Raphael G. Raptis*

A new trigonal-prismatic hexanuclear complex consisting of two $\text{Cu}_3(\mu_3\text{-O})$ units allows the electronic communication of all six metal atoms and the electrochemical formation of mixed-valent $\text{Cu}^{\text{II}}/\text{Cu}^{\text{III}}$ species.





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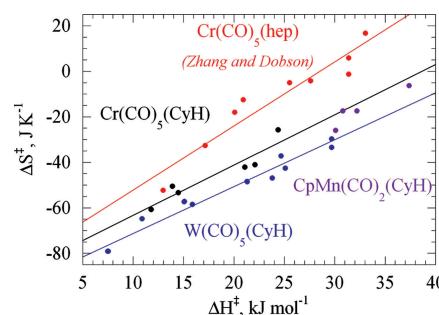
PAPERS

41

Reactions of the transient species $\text{Cr}(\text{CO})_5(\text{cyclohexane})$ with $\text{C}_4\text{H}_n\text{E}$ ($n = 4, 8$; E = O, NH, S) studied by time-resolved IR absorption spectroscopy

Lena Biber, Dana Reuvenov, Taliya Revzin, Tomer Sinai, Adva Zahavi and Richard H. Schultz*

Time-resolved IR absorption spectroscopy is used to investigate the title reactions. The results are discussed in terms of the relative reactivities of the various ligands and in comparison with analogous reactions of other alkane-solvated transition-metal intermediates.

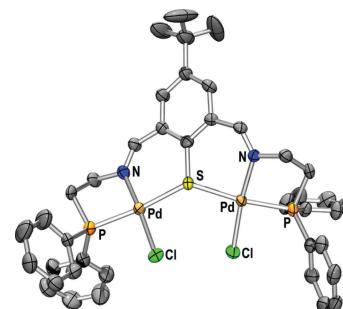


52

Coordination chemistry of dinucleating $\text{P}_2\text{N}_2\text{S}$ ligands: preparation and characterization of cationic palladium complexes

Gabriel Siedle, Paul-Gerhard Lassahn, Vasile Lozan, Christoph Janiak and Berthold Kersting*

The coordination chemistry of dinuclear Pd^{II} complexes supported by pentadentate $\text{N}_2\text{P}_2\text{S}$ ligands is reported. Results concerning the catalytic activity of the dichloro complex **4** in the vinyl-addition polymerisation of norbornene are described.

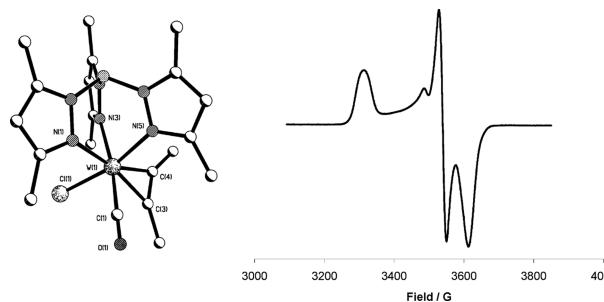


62

The d^4/d^3 redox pairs $[\text{MX}(\text{CO})(\eta\text{-RC}\equiv\text{CR})\text{Tp}]^z$ ($z = 0$ and 1): structural consequences of electron transfer and implications for the inverse halide order

C. J. Adams, I. M. Bartlett, S. Carlton, N. G. Connolly*, D. J. Harding, O. D. Hayward, A. G. Orpen, E. Patron, C. D. Ray and P. H. Rieger

X-Ray, ESR spectroscopic and DFT studies on $[\text{MX}(\text{CO})(\eta\text{-RC}\equiv\text{CR})\text{Tp}]^z$ ($\text{X} = \text{halide}$, $z = 0$ and 1) define the HOMO of the neutral complex and provide insight into the inverse halide order observed for $z = 0$ but disrupted for $z = 1$.

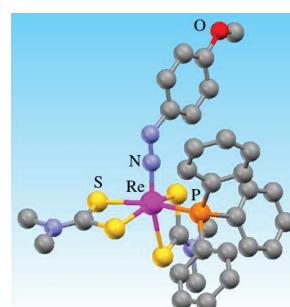


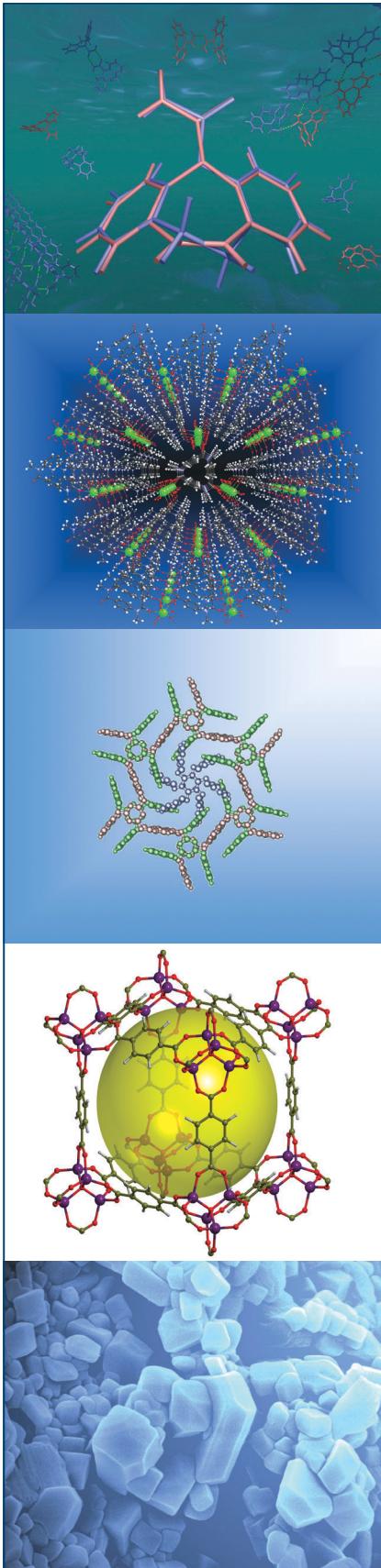
73

Rhenium diazenide ternary complexes with dithiocarbamate ligands: towards new rhenium radiopharmaceuticals

Andrew R. Cowley, Jonathan R. Dilworth*, Paul S. Donnelly and Susan J. Ross

The synthesis and characterisation of new rhenium aryl diazenide complexes of the type $[\text{Re}(\text{NNAr})(\text{dtc})_2(\text{PPh}_3)]$ is described. Importantly with respect to potential application in the development of rhenium radiopharmaceuticals, the synthesis is achieved from perrhenate.





10 good reasons to read *CrystEngComm*

In situ crystallization of ionic liquids with melting points below –25 °C

Neil Winterton et al., CrystEngComm, 2006, 8, 742

Synthesis and crystal structures of inorganic—organic hybrids incorporating an aromatic amine with a chiral functional group

David G. Billing and Andreas Lemmerer, CrystEngComm, 2006, 8, 686

Coordination bonds and strong hydrogen bonds giving a framework material based on a 4- and 8-connected net in $[\text{Ca}(\text{Co}(\text{en})(\text{oxalato})_2)_2]_n$

Lars Öhrström et al., CrystEngComm, 2006, 8, 666

New metal—organic frameworks and supramolecular arrays assembled with the bent ditopic ligand 4,4-diaminodiphenylmethane

Davide M. Proserpio et al., CrystEngComm, 2006, 8, 696

Making crystals from crystals: three solvent-free routes to the hydrogen bonded co-crystal between 1,1'-di-pyridyl-ferrocene and anthranilic acid

Fabrizia Grepioni et al., CrystEngComm, 2007, 9, DOI: 10.1039/b613569b

Multiple-decked Gd(III) complexes induced by hydrogen bonds depending on anions

Moo-Jin Jun et al., CrystEngComm, 2007, 9, DOI: 10.1039/b614511f

$\text{Ni}_2(\text{R}^*\text{COO})_4(\text{H}_2\text{O})(4,4'\text{-bipy})_2$ —a robust homochiral quartz-like network with large chiral channels

Zhen-Feng Chen et al., CrystEngComm, 2007, 9, DOI: 10.1039/b613047j

Homo- and heterometallic coordination polymers from the f elements

Chris Cahill et al., CrystEngComm, 2007, 9, DOI: 10.1039/b615696g

Roles of I \cdots I and Ag \cdots I interactions on the self-assembly of Ag(I) complexes containing 2-amino-5-iodopyrimidine; formation of the unique Ag \cdots I \cdots I \cdots Ag interaction

Jhy-Der Chen et al., CrystEngComm, 2006, 8, 841

An unprecedented bridging $[\text{Ag}_2(\text{NO}_3)_6]^{4-}$ anion as a component of an infinite silver(I) molecular ladder incorporating a dinuclear cationic silver complex of a bis-dipyridylamine ligand

Leonard F. Lindoy et al., CrystEngComm, 2006, 8, 748

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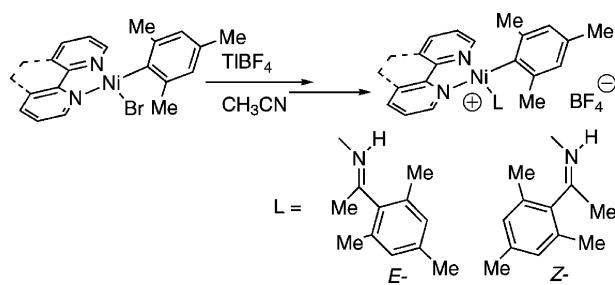
PAPERS

83

The insertion reaction of acetonitrile on aryl nickel complexes stabilized by bidentate N,N'-chelating ligands

Rosa M. Ceder,* Guillermo Muller, Matías Ordinas and Juan Ignacio Ordinas

The use of a potentially labile ligand such as acetonitrile to prepare ionic single component catalysts of nickel and palladium containing a σ -M-aryl bond and N,N'-chelating ligands is shown to be not always reliable. The formation of an inert imine ligand after an insertion and a protonation reaction is described.

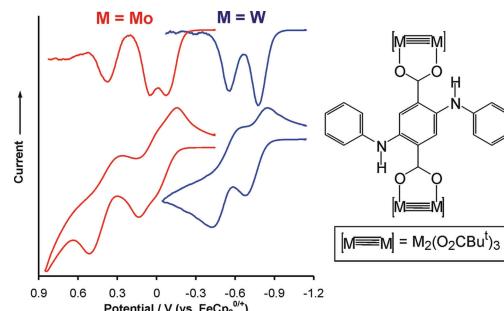


91

2,5-Dianilinoterephthalate bridged MM quadruply bonded complexes of molybdenum and tungsten

Malcolm H. Chisholm* and Nathan J. Patmore

Reaction between 2,5-dianilinoterephthalic acid and $M_2(O_2CBu^t)_4$ gives $[Bu^tCO_2]_2[M_2\{\mu-1,4-(CO_2)_2-2,5-(NHPh)_2C_6H_2\}]$, **1** ($M = Mo$) and **2** ($M = W$), for which electrochemistry, EPR and electronic absorption spectroscopy demonstrate upon oxidation the SOMO is metal based, and the mixed-valence cations are class II and III for **1**⁺ and **2**⁺, respectively.

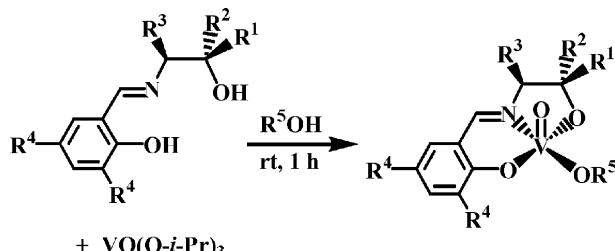


97

Synthesis, characterization, and structures of oxovanadium(V) complexes of Schiff bases of β -amino alcohols as tunable catalysts for the asymmetric oxidation of organic sulfides and asymmetric alkynylation of aldehydes

Sheng-Hsiung Hsieh, Ya-Pei Kuo and Han-Mou Gau*

A series of oxovanadium(V) complexes of Schiff bases of amino alcohols were prepared. ¹H NMR studies of the complexes reveal two isomers in solution: either the *endo/exo* pair or the monomer/dimer pair.

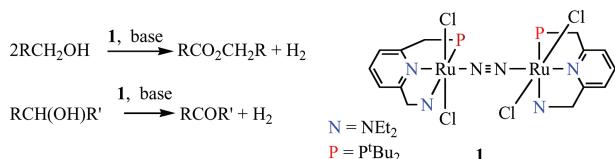


107

Electron-rich, bulky PNN-type ruthenium complexes: synthesis, characterization and catalysis of alcohol dehydrogenation

Jing Zhang, Mark Gandelman, Linda J. W. Shimon and David Milstein*

The new, X-ray characterized, electron rich, bulky PNN complex **1**, in the presence of a catalytic amount of base, catalyzes the dehydrogenation of primary alcohols to esters with hydrogen evolution. Secondary alcohols are converted to ketones.



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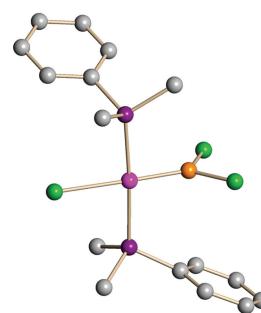
PAPERS

114

Synthesis and reactivity of dichloroboryl complexes of platinum(II)

Jonathan P. H. Charmant, Cheng Fan,
Nicholas C. Norman* and Paul G. Pringle*

The reaction between $[\text{Pt}(\text{nbe})_3]$ (nbe = norbornene), two equivalents of selected phosphines PR_3 , and 1 equivalent of BCl_3 affords the *trans* platinum dichloroboryl species $[\text{PtCl}(\text{BCl}_2)(\text{PMe}_3)_2]$, $[\text{PtCl}(\text{BCl}_2)(\text{PPh}_3)_2]$, $[\text{PtCl}(\text{BCl}_2)(\text{PMePh}_2)_2]$ and $[\text{PtCl}(\text{BCl}_2)(\text{PM}_2\text{Ph})_2]$. Reactivity studies with $[\text{PtCl}(\text{BCl}_2)(\text{PMe}_3)_2]$ demonstrate Lewis acidity at the boron centre and B–Cl substitution chemistry.

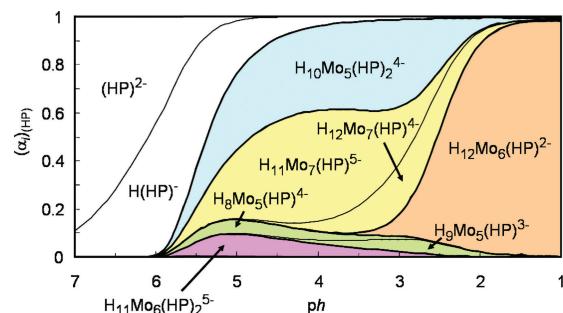


124

An equilibrium analysis of the aqueous $\text{H}^+ \text{MoO}_4^{2-} - (\text{HP})\text{O}_3^{2-}$ and $\text{H}^+ \text{MoO}_4^{2-} - (\text{HP})\text{O}_3^{2-} - \text{HPO}_4^{2-}$ systems

Masato Hashimoto,* Ingegärd Andersson and
Lage Pettersson*

Equilibrium analyses were performed in both systems by potentiometric titrations and ^{31}P NMR in 0.600 M $\text{Na}(\text{Cl})$ medium at 25 °C. Formation constants of the species found in both systems are given as well as ^{31}P chemical shifts and proposed anion structures.

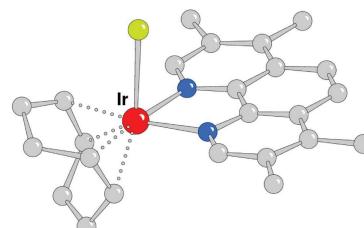


133

Evaluation of the donor ability of phenanthrolines in iridium complexes by means of synchrotron radiation photoemission spectroscopy and DFT calculations

Corrado Crotti,* Erica Farnetti, Serena Filipuzzi,
Mauro Stener, Ennio Zangrandi and Paolo Moras

Synchrotron radiation XPS measurements of Ir 4f, N 1s and I 4d core levels for the compounds $\text{Ir}(\text{cod})(\text{N}-\text{N})\text{X}$ (cod = 1,5-cyclooctadiene; $\text{N}-\text{N}$ = 1,10-phenanthroline and substituted derivatives; X = Cl, I) are reported, together with the results obtained by DFT ΔSCF calculations.

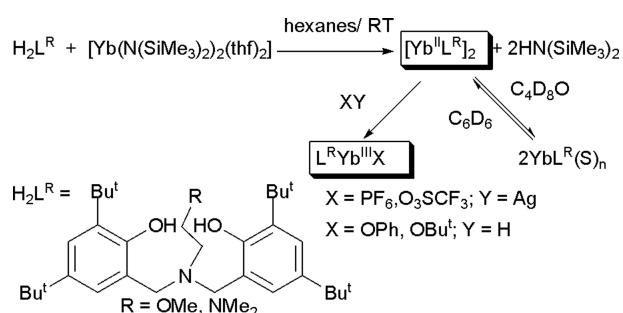


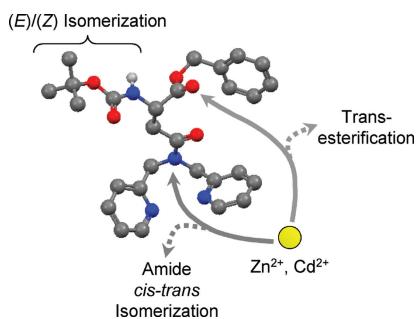
143

Synthesis, structure and oxidation of new ytterbium(II) bis(phenolate) compounds and their catalytic activity towards ε-caprolactone

Ewan E. Delbridge,* Divine T. Dugah, Chassidy R. Nelson,
Brian W. Skelton and Allan H. White

A number of ytterbium bis(phenolate) compounds have been prepared and characterized. Two divalent Yb(II) bis(phenolate) compounds were oxidized by a series of alcohols or silver salts to afford a variety of heteroleptic Yb(III) compounds. These were tested for their catalytic activity towards the ring-opening polymerization of ϵ -caprolactone.





Transesterification and amide *cis–trans* isomerization in Zn and Cd complexes of the chelating amino acid ligand Boc–Asp(Dpa)–OBz

Nicole Niklas, Achim Zahl and Ralf Alsfasser*

Boc–Asp(Dpa)–OBz is a side chain modified amino acid ligand with three functional carbonyl groups. Coordination of Zn(II) and Cd(II) ions triggers rotation about the tertiary carboxamide C–N bond and facilitates transesterification from benzyl to methyl ester. The Boc protecting group gives rise to (E)/(Z) isomers in the free ligand and its complexes.

AUTHOR INDEX

- Adams, Christopher J., 62
- Adams, Harry, 33
- Alsfasser, Ralf, 154
- Andersson, Ingegård, 124
- Bartlett, Ian M., 62
- Biber, Lena, 41
- Carlton, Susannah, 62
- Ceder, Rosa M., 83
- Charmant, Jonathan P. H., 114
- Chirik, Paul J., 16
- Chisholm, Malcolm H., 91
- Connelly, Neil G., 62
- Cowley, Andrew R., 73
- Cragg, Peter J., 26
- Crotti, Corrado, 133
- Delbridge, Ewan E., 143
- Derossi, Sofia, 33
- Dilworth, Jonathan R., 73
- Donnelly, Paul S., 73
- Dugah, Divine T., 143
- Fan, Cheng, 114
- Farnetti, Erica, 133
- Filipuzzi, Serena, 133
- Gandelman, Mark, 107
- Gau, Han-Mou, 97
- Harding, David J., 62
- Hashimoto, Masato, 124
- Hayward, Owen D., 62
- Hsieh, Sheng-Hsiung, 97
- Humphrey, Jamie, 13
- Iqbal, Khayzuran S. J., 26
- Janiak, Christoph, 52
- Kersting, Berthold, 52
- Kuo, Ya-Pei, 97
- Lassahn, Paul-Gerhard, 52
- Lozan, Vasile, 52

- Mezei, Gellert, 37
- Milstein, David, 107
- Moras, Paolo, 133
- Muller, Guillermo, 83
- Nelson, Cassidy R., 143
- Niklas, Nicole, 154
- Norman, Nicholas C., 114
- Ordinas, Juan Ignacio, 83
- Ordinas, Matías, 83
- Orpen, A. Guy, 62
- Patmore, Nathan J., 91
- Patron, Elena, 62
- Pettersson, Lage, 124
- Pringle, Paul G., 114
- Raptis, Raphael G., 37
- Ray, Christopher D., 62
- Reuvenov, Dana, 41
- Revzin, Taliya, 41
- Rieger, Philip H., 62
- Rivera-Carrillo, Marlyn, 37
- Ross, Susan J., 73
- Schultz, Richard H., 41
- Shimon, Linda J. W., 107
- Siedle, Gabriel, 52
- Sinai, Tomer, 41
- Skelton, Brian W., 143
- Stener, Mauro, 133
- Walton, Paul, 13
- Ward, Michael D., 33
- White, Allan H., 143
- Zahavi, Adva, 41
- Zahl, Achim, 154
- Zangrandi, Ennio, 133
- Zhang, Jing, 107

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