

## Contents

### Regular papers

**Agustín Galindo, Diego del Río, Carlo Mealli, Andrea Ienco, Carles Bo**

*J. Organomet. Chem.* 689 (2004) 2847

Folded 2,5-diazapent-3-ene metallacycle in ene-diamido group 4 metal compounds: DFT and AIM analyses

The electronic implications for the folding of the five-membered 2,5-diazapent-3-ene metallacycle moiety in ene-diamido Group 4 metal compounds has been analyzed by DFT and AIM methods.



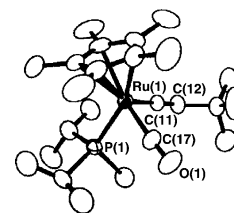
M = Group 4 metal

**Manuel Jiménez-Tenorio, M. Dolores Palacios, M. Carmen Puerta, Pedro Valerga**

*J. Organomet. Chem.* 689 (2004) 2853

Activation of alkynes by  $\{[\text{Cp}^*\text{Ru}(\text{CO})(\text{PMe}^i\text{Pr}_2)]^+\}$ : X-ray crystal structures of  $[\text{Cp}^*\text{Ru}=\text{C}=\text{CH}^i\text{Bu}(\text{CO})(\text{PMe}^i\text{Pr}_2)][\text{BAr}'_4]$  and  $[\text{Cp}^*\text{Ru}(\text{CO})_2(\text{PMe}^i\text{Pr}_2)][\text{BAr}'_4]$

The complex  $[\text{Cp}^*\text{Ru}\{\text{OCMe}_2\}(\text{CO})(\text{PMe}^i\text{Pr}_2)][\text{BAr}'_4]$  (**2**,  $\text{Ar}'_4 = 3,5\text{-C}_6\text{H}_3(\text{CF}_3)_2$ ) reacts with  $\text{HCCPh}$  at  $-40^\circ\text{C}$  in  $\text{CD}_2\text{Cl}_2$  furnishing the  $\pi$ -alkyne adduct  $[\text{Cp}^*\text{Ru}(\eta^2\text{-HC}\equiv\text{CPh})(\text{CO})(\text{PMe}^i\text{Pr}_2)][\text{BAr}'_4]$  (**3**), which rearranges to the vinylidene complex  $[\text{Cp}^*\text{Ru}=\text{C}=\text{CHPh}(\text{CO})(\text{PMe}^i\text{Pr}_2)][\text{BAr}'_4]$  (**4a**) when the temperature is raised to  $25^\circ\text{C}$ .

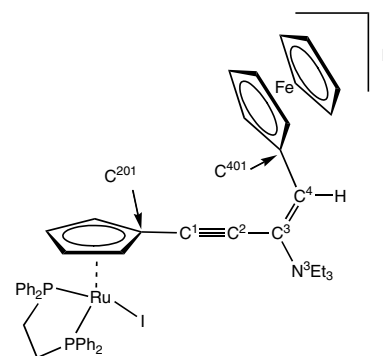


**Michael I. Bruce, Frédéric de Montigny, Martyn Jevric, Claude Lapinte, Brian W. Skelton, Mark E. Smith, Allan H. White**

*J. Organomet. Chem.* 689 (2004) 2860

Synthesis, structures and some reactions of  $\text{Ru}(\text{C}\equiv\text{CC}\equiv\text{CFc})(\text{PP})\text{Cp}$  (PP = dppm, dppe) and related compounds

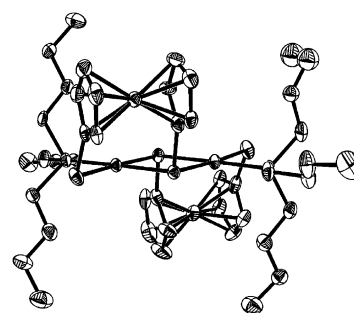
The compound  $\text{Ru}(\text{C}=\text{CC}=\text{CFc})(\text{dppe})\text{Cp}$  reacts with  $\text{Co}_2(\text{CO})_6(\text{L}_2)$  [ $\text{L}_2 = (\text{CO})_2$ , dppm] to add the  $\text{Co}_2(\text{CO})_4(\text{L}_2)$  group to the outer  $\text{C}\equiv\text{C}$  triple bond, whereas tetracyanoethene adds to either  $\text{C}\equiv\text{C}$  triple bond. The reaction of  $\text{RuCl}(\text{dppe})\text{Cp}$  with  $\text{HC}\equiv\text{CC}\equiv\text{CFc}$  carried out in a  $\text{thf}/\text{NEt}_3$  mixture in the presence of  $\text{Na}[\text{BPh}_4]$  gave  $[\text{Ru}\{\text{C}\equiv\text{CC}(\text{NEt}_3)=\text{CHFc}\}(\text{dppe})\text{Cp}]\text{BPh}_4$  which reacts with  $\text{I}_2$  to give  $[\text{Ru}(\text{dppe})\{\eta\text{-C}_5\text{H}_4\text{C}\equiv\text{CC}(\text{NEt}_3)=\text{CHFc}\}]\text{I}_3$ .



**Martin J. Brown, John F. Corrigan***J. Organomet. Chem.* 689 (2004) 2872

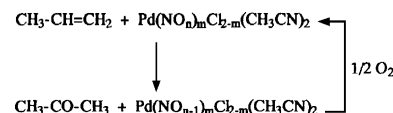
Synthesis, characterization and electrochemistry of ferrocenylselenolate bridged palladium(II) and platinum(II) complexes

The dimeric ferrocenyl-selenolate complexes of Pd and Pt,  $[\{\mu\text{-}\eta^1\text{-Fe}(\eta^5\text{-C}_5\text{H}_4\text{Se})_2\}M(\text{P}^n\text{Bu}_3)_2]_2$  ( $M = \text{Pd}$  **2**,  $\text{Pt}$  **3** shown), and the monomeric ferrocenyl(bis-selenolate) complex of platinum,  $[\{\eta^2\text{-Fe}(\text{C}_5\text{H}_4\text{Se})_2\}\text{Pt}(\text{P}^n\text{Bu}_3)_2]$  **4**, have been prepared from 1,1'-bis(trimethylsilylseleno)ferrocene **1** and  $\text{trans-}M\text{Cl}_2(\text{P}^n\text{Bu}_3)_2$  and  $\text{cis-PtCl}_2(\text{P}^n\text{Bu}_3)_2$ , respectively. Complexes **2** and **3** contain two edge-sharing, square-planar metal centres forming a planar  $M_2Se_2$  four-membered ring and exhibit two one-electron redox waves indicating electronic communication between the two Fe centers.

**Irene E. Beck, Anatoli V. Golovin, Vladimir A. Likhonov, Elena V. Gusevskaya***J. Organomet. Chem.* 689 (2004) 2880

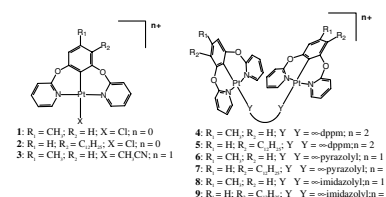
Propylene oxidation by palladium nitro and nitrate complexes: in situ NMR and IR studies

The mechanism of the propylene oxidation by  $\text{Pd}(\text{NO})_n\text{Cl}_{2-m}(\text{CH}_3\text{CN})_2$  complexes ( $n = 2; m = 0, 1, 2$ ) in chloroform solutions has been studied by  $^1\text{H}$  NMR and IR spectroscopy. Various new organopalladium intermediates have been observed and monitored in situ. In the presence of dioxygen, which re-oxidizes the nitrosyl groups, the acetone formation becomes a catalytic reaction with respect to both palladium and nitrogen.

**Chiu Brenda Ka-Wen, Lam Michael Hon-Wah, Lee Derek Yiu-Kin, Wong Wai-Yeung***J. Organomet. Chem.* 689 (2004) 2888

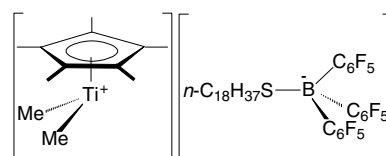
Synthesis, characterization and spectroscopic studies of cyclometalated platinum(II) complexes containing *meta*-bis(2-pyridoxy)-benzene

A series of mononuclear and binuclear cyclometalated platinum(II) complexes containing new "pincer-like" terdentate *meta*-bis(2-pyridoxy)benzene ligands have been synthesized, characterized and their spectroscopic properties studied.

**Kainthan Rajesh Kumar, Anca Penciu, Mark J. Drewitt, Michael C. Baird***J. Organomet. Chem.* 689 (2004) 2900

Isobutene-isoprene copolymerization initiated by  $[\text{Cp}^*\text{MMe}_2][(\text{n-C}_{18}\text{H}_{37}\text{E})\text{-B}(\text{C}_6\text{F}_5)_3]$  ( $M = \text{Ti}, \text{Hf}; \text{E} = \text{O}, \text{S}$ ) and related compounds

The highly electrophilic borane  $\text{B}(\text{C}_6\text{F}_5)_3$  reacts with  $\text{n-C}_{18}\text{H}_{37}\text{SH}$  ( $\text{E} = \text{O}, \text{S}$ ) to form the acidic 1:1 adducts  $(\text{n-C}_{18}\text{H}_{37}\text{EH})\text{B}(\text{C}_6\text{F}_5)_3$  ( $\text{E} = \text{O}, \text{S}$ ) which react with  $\text{Cp}^*\text{MMe}_3$  ( $M = \text{Ti}, \text{Hf}$ ) to give the unstable complexes  $[\text{Cp}^*\text{MMe}_2][(\text{n-C}_{18}\text{H}_{37}\text{E})\text{B}(\text{C}_6\text{F}_5)_3]$ ; these are very good initiators for the copolymerization of isobutene with isoprene.

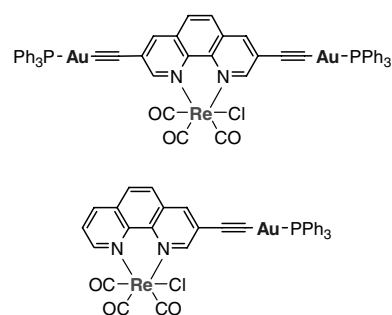


**Youhei Yamamoto, Michito Shiotsuka,  
Satoru Onaka**

*J. Organomet. Chem.* 689 (2004) 2905

Luminescent rhenium(I)–gold(I) heterometallics linked by ethynylphenanthrolines

The first luminescent rhenium(I)–gold(I) heterometallics, *fac*-Re{phen≡Au(PPh<sub>3</sub>)}-(CO)<sub>3</sub>Cl and *fac*-Re{(PPh<sub>3</sub>)Au≡phen≡Au(PPh<sub>3</sub>)}(CO)<sub>3</sub>Cl, have been prepared and these heterometallics have shown the phosphorescence from the <sup>3</sup>MLCT excited state because of the efficient intramolecular energy transfer from the Au unit to the Re unit.

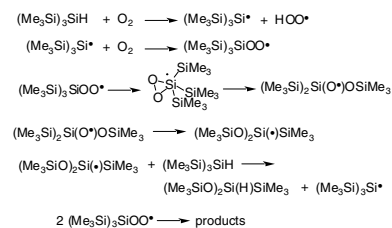


**Andriy B. Zaborovskiy, Daria S. Lutsyk,  
Ruslan E. Prystansky, Vladimir I. Kopylets,  
Vitaliy I. Timokhin,  
Chrysostomos Chatgililoglu**

*J. Organomet. Chem.* 689 (2004) 2912

A mechanistic investigation of (Me<sub>3</sub>Si)<sub>3</sub>SiH oxidation

O<sub>2</sub> abstracts hydrogen from (Me<sub>3</sub>Si)<sub>3</sub>SiH spontaneously, initiating a radical chain oxidation of this silane. The resulting silyl radical adds to oxygen to form a peroxy radical that undergoes three consecutive unimolecular steps. Evidence is provided that the rate determining step is the formation of a dioxiran-like pentacoordinated silyl radical.

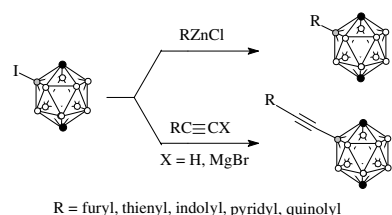


**Irina P. Beletskaya, Vladimir I. Bregadze,  
Vasily A. Ivushkin, Pavel V. Petrovskii,  
Igor B. Sivaev, Stefan Sjöberg,  
Galina G. Zhigareva**

*J. Organomet. Chem.* 689 (2004) 2920

New B-substituted derivatives of *m*-carborane, *p*-carborane, and cobalt bis(1,2-dicarbollide) anion

The Pd-catalyzed cross-coupling reactions of B–I bond in *m*- and *p*-carboranes and cobalt bis(1,2-dicarbollide) anion with organomagnesium and organozinc compounds were studied. Carboranyl derivatives of furan, thiophene, indole, pyridine and quinoline were synthesized. 2-Pyridylethynyl and 3-quinolyethynyl derivatives of *p*-carborane were prepared by Pd-catalyzed cross-coupling reactions using corresponding alkynes or their magnesium derivatives.

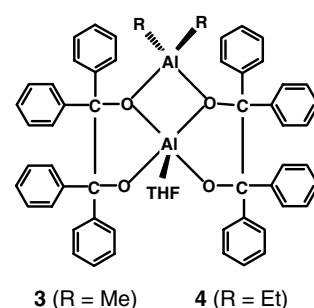


**Wanda Ziemkowska, Szymon Kucharski,  
Aleksandra Kołodziej,  
Romana Anulewicz-Ostrowska**

*J. Organomet. Chem.* 689 (2004) 2930

Reactions of alkylalane diolates with water synthesis, characterisation and  $\epsilon$ -caprolactone polymerisation activity of novel alane benzopinacolates

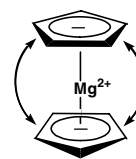
Reaction of trinuclear alane benzopinacolates [R<sub>3</sub>Al<sub>3</sub>(OC(C<sub>6</sub>H<sub>5</sub>)<sub>2</sub>C(C<sub>6</sub>H<sub>5</sub>)<sub>2</sub>O)<sub>2</sub>] [R = Me (1), R = Et (2)] with water results in an elimination of R<sub>3</sub>Al and formation of unusual binuclear products [R<sub>2</sub>Al<sub>2</sub>(THF)(OC(C<sub>6</sub>H<sub>5</sub>)<sub>2</sub>C(C<sub>6</sub>H<sub>5</sub>)<sub>2</sub>O)<sub>2</sub>] [3 (R = Me), 4 (R = Et)]. Compounds 3 and 4 demonstrate catalytic activity in ring-opening polymerisation (ROP) of  $\epsilon$ -CL.



**Horst Kunkely, Arnd Vogler***J. Organomet. Chem.* 689 (2004) 2940

Optical properties of bis(cyclopentadienyl)-magnesium: excimer-type luminescence of the bis(cyclopentadienyl) ligand frame

The electronic spectra of solid  $\text{MgCp}_2$  (Cp = cyclopentadienyl) show features which indicate the presence of intramolecular interligand interactions. The fluorescence of  $\text{MgCp}_2$  ( $\lambda_{\text{max}} = 363$  nm) undergoes a considerable Stokes shift which is apparently caused by a bonding attraction between both Cp rings in the excited state. An additional phosphorescence of the  $(\text{Cp}^-)_2$  fragment ( $\lambda_{\text{max}} = 535$  nm) appears at 77 K.

Excitation  $\lambda_{\text{max}} = 240$  nm

Fluorescence 363

Phosphorescence 535

Corrigendum . . . . .	2944
Book reviews . . . . .	2945

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