

## Contents

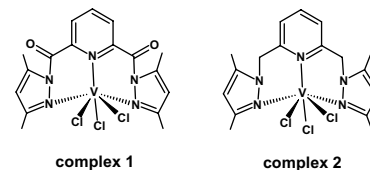
### Communication

Hanna S. Abbo, Selwyn F. Mapolie,  
James Darkwa, Salam J.J. Titinchi

*J. Organomet. Chem.* 692 (2007) 5327

Bis(pyrazolyl)pyridine vanadium(III) complexes as highly active ethylene polymerization catalysts

The novel mononuclear vanadium complexes (**1** and **2**) bearing  $N^{\wedge}N^{\wedge}N$ -tridentate (pyrazolyl-pyridine) ligands when activated with  $AlEtCl_2$  produce single-site catalysts that polymerize ethylene affording high density polyethylene with fairly narrow molecular weight distribution.



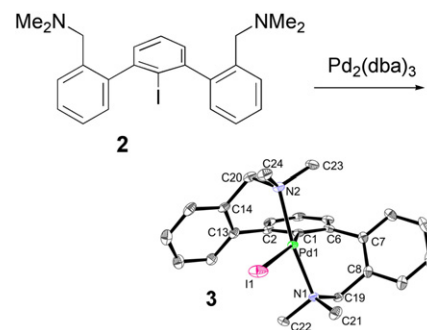
### Regular Papers

Liqing Ma, Stephen D. Wobser,  
John D. Protasiewicz

*J. Organomet. Chem.* 692 (2007) 5331

A new platform for NCN dimethylamino pincer complexes: Synthesis and structural studies

NCN dimethylamino pincer complex **3** has been produced by oxidative addition of the C–I bond of the ligand precursor 2,6-(2-{ $Me_2NCH_2$ } $C_6H_4$ ) $_2C_6H_3I$  (**2**). The structure analysis of **2** reveals a *syn*-conformation of the donor atoms in the solid state, while the solid state structure of **3** shows *anti* disposition of the donor atoms. NMR spectroscopic studies of **3** suggest an equilibrium between **3** and a cationic dinuclear species in  $CDCl_3$  solution.

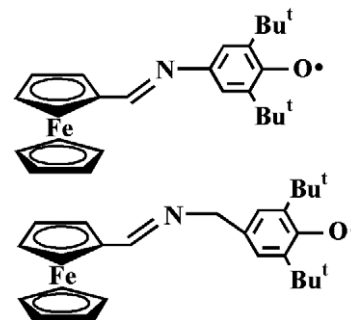


N.N. Meleshonkova, D.B. Shpakovsky,  
A.V. Fionov, A.V. Dolganov, T.V. Magdesieva,  
E.R. Milaeva

*J. Organomet. Chem.* 692 (2007) 5339

Synthesis and redox properties of novel ferrocenes with redox active 2,6-di-*tert*-butylphenol fragments: The first example of 2,6-di-*tert*-butylphenoxyl radicals in ferrocene system

Novel Schiff bases of ferrocenecarboxaldehyde bearing sterically hindered 2,6-di-*tert*-butylphenol fragments have been synthesized and characterized. The oxidation of these compounds by  $PbO_2$  in solution leads to the formation of phenoxyl radicals studied by EPR spectroscopy. The redox properties of ferrocenes with 2,6-di-*tert*-butylphenol and phenyl groups were studied using cyclic voltammetry.

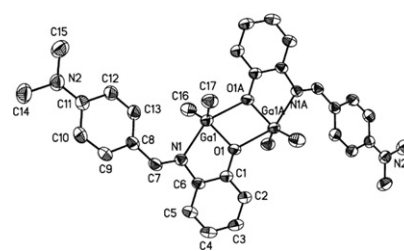


**Yingzhong Shen, Yan Wang, Yiyang Zhang,  
Ye Li, Xian Tao, Huihua Xu**

*J. Organomet. Chem.* 692 (2007) 5345

Synthesis, characterization and luminescence study of dimethyl[2-(arylmethyleneimino)phenolato]gallium complexes: Crystal structure of dimethyl[*N*-(4-*N,N'*-dimethylamino)phenylmethyleneiminophenolato]gallium

Three dimethylgallium complexes of type  $\text{Me}_2\text{GaL}$  [ $\text{L} = 2\text{-methoxyphenylmethyleneiminophenolato}$  (**1**), *N*-(4-*N,N'*-dimethylamino)phenylmethyleneiminophenolato (**2**), *N*-(2-naphthyl)methyleneiminophenolato (**3**), have been synthesized. The solid structure of **2** has been determined by X-ray analysis. The electroluminescent properties of **1–3** have been measured. The maximum emission wavelengths are in the range of 305 and 320 nm.

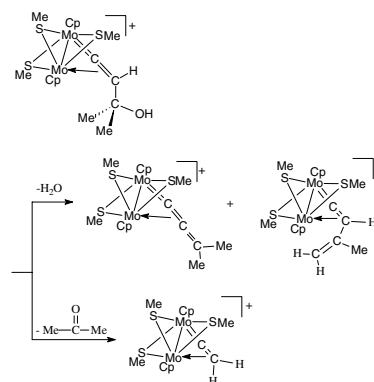


**Wilfried-Solo Ojo, Jean-François Capon,  
Alan Le Goff, François Y. Pétilion,  
Philippe Schollhammer, Jean Talarmin,  
Kenneth W. Muir**

*J. Organomet. Chem.* 692 (2007) 5351

Activation of propargylic alcohols by dimolybdenum tris( $\mu$ -thiolate) complexes: Influence of the substituents R in  $\text{HC}\equiv\text{CCR}_2(\text{OH})$ -vinylidene/allenylidene transformation. Reactivity of allenylidene complexes

Activation of the dimethylpropargylic alcohol by a dimolybdenum tris( $\mu$ -thiolate) compound leads to the formation of  $\mu$ -alkenylvinylidene,  $\mu$ -vinylidene,  $\mu$ -allenylidene and  $\mu$ -3-isopropylvinylidene derivatives *via* the  $\mu$ -alkynol,  $\mu$ -hydroxyalkynyl and  $\mu$ -3-hydroxyvinylidene species, successively.

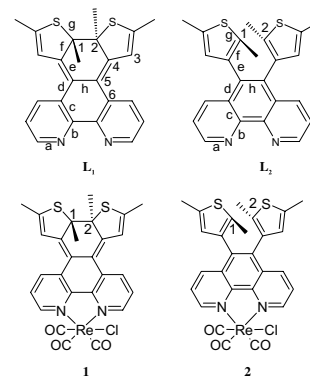


**Li-Li Shi, Yi Liao, Liang Zhao, Zhong-Min Su,  
Yu-He Kan, Guo-Chun Yang,  
Shuang-Yang Yang**

*J. Organomet. Chem.* 692 (2007) 5368

Theoretical studies on the electronic structure and spectral properties of versatile diarylethene-containing 1,10-phenanthroline ligands and their rhenium(I) complexes

A DFT/TDDFT study on versatile diarylethene-containing 1,10-phenanthroline ligands ( $\text{L}_1$  and  $\text{L}_2$ ) and their rhenium(I) complexes  $[\text{Re}(\text{CO})_3(\text{L})\text{Cl}]$  (**1** and **2**) has been carried out. The electronic structures and spectral properties of these systems were theoretically explained.

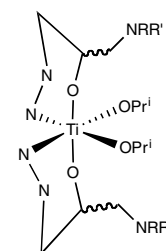


**Alexey Zazybin, Sean Parkin,  
Folami T. Ladipo**

*J. Organomet. Chem.* 692 (2007) 5375

Synthesis, characterization, and ethylene polymerization behavior of  $[(\text{RR}'\text{-admpzp})_2\text{-Ti}(\text{OPr}^i)_2]$  complexes ( $\text{RR}'\text{-admpzp} = 1\text{-dialkylamino-3-(3,5-dimethyl-pyrazol-1-yl)-propan-2-olate}$ )

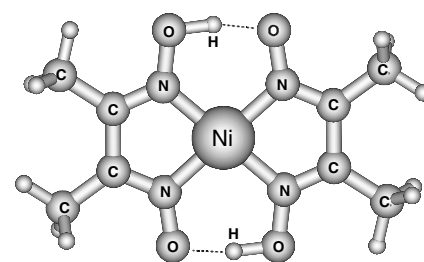
$[(\text{RR}'\text{-admpzp})_2\text{Ti}(\text{OPr}^i)_2]$  (**2a–c**) are pseudo-octahedral complexes that contain  $\text{RR}'\text{-admpzp}$  ligand  $\kappa^2\text{-O,N}$ (pyrazolyl)-coordinated to the titanium center. In solution, **2a–c** adopt isomeric structures that are in dynamic equilibrium. At 23 °C, **2a–c**/1000 MAO catalyst systems furnished high molecular weight polyethylene with narrow molecular weight distributions ( $M_w/M_n = 2.7\text{--}2.8$ ). At 100 °C, **2a–c**/MAO exhibit increased polymerization activity at 100 °C and **2c**/1000 MAO produced polyethylene with molecular weight distribution ( $M_w/M_n = 2.1$ ) close to that found for single-site catalysts.



**Attila Kovács***J. Organomet. Chem.* 692 (2007) 5383

Theoretical study of the strong intramolecular hydrogen bond and metal–ligand interactions in group 10 (Ni, Pd, Pt) bis(dimethylglyoximate) complexes

A comparative analysis of the structural and bonding characteristics of bis(dimethylglyoximate) complexes of group 10 transition metals ( $M(dmg)_2$ , where  $M = Ni, Pd$  and  $Pt$ ) is provided on the basis of quantum chemical (DFT) computations.

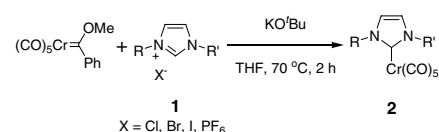


**Seongjin Kim, Soo Young Choi,  
Young Tak Lee, Kang Hyun Park,  
Helmut Sitzmann, Young Keun Chung**

*J. Organomet. Chem.* 692 (2007) 5390

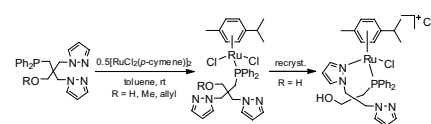
Synthesis of chromium *N*-heterocyclic carbene complexes using chromium Fischer carbenes as a source of chromium carbonyls

Chromium Fischer carbene complexes,  $[Cr\{=O\}Me(R)\}(CO)_5]$  have been utilized as a source of chromium carbonyls in the synthesis of chromium NHC complexes. Using the synthetic method, chromium complexes of various NHC ligands were isolated in reasonable yields. Moreover, the method can be employed for the synthesis of molybdenum and tungsten NHC compounds.

**Weiqliang Tan, Xiaodan Zhao, Zhengkun Yu***J. Organomet. Chem.* 692 (2007) 5395

Synthesis and structural characterization of ruthenium(II) complexes bearing phosphine-pyrazolyl based tripod ligands

Phosphine-pyrazolyl based tripod ligands  $ROCH_2C(CH_2Pz)_2(CH_2PPh_2)$  and the new type of Ru(II) complexes  $[Ru(\eta^6-p\text{-cymene)Cl}_2](L)$  (**6–8**) were synthesized and structurally characterized. Complex (**6**,  $R = H$ ) underwent dissociation in  $CH_2Cl_2/MeCN$  to give complex  $[RuCl(\eta^6-p\text{-cymene})\{\kappa^2(P,N)\text{-}Ph_2PCH_2C(CH_2OH)(CH_2Pz)_2\}][Cl]$  (**9**). Complexes **6–9** have demonstrated potential catalytic activity in the transfer hydrogenation of acetophenone.

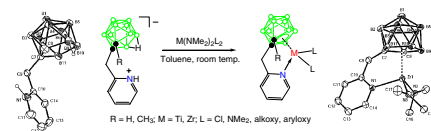


**Jong-Dae Lee, Young-Joo Lee, Ki-Chul Son,  
Won-Sik Han, Minserk Cheong, Jaejung Ko,  
Sang Ook Kang**

*J. Organomet. Chem.* 692 (2007) 5403

Synthesis, characterization, and reactivity of new types of constrained geometry group 4 metal complexes derived from picolyl-substituted dicarbollide ligand systems

A series of CGC-type group 4 metal complexes,  $(Dcab^{P'})ML_2$  ( $M = Ti, Zr$ ;  $L = Cl, NMe_2, O^iPr, OAr$ ), were easily prepared by reaction of the 2-pyridylmethyl dicarbollide ligand with suitable group 4 metal reagents. Structural studies of the resulting complexes verified the formation of a CGC-type geometry with the typical  $\eta^5; \eta^1$ -type bonding interaction between the aminodicarbollide ligand and the metal atom.

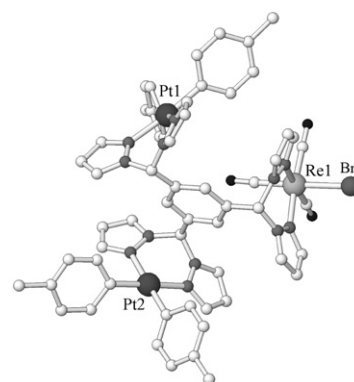


**Daniel L. Reger, Russell P. Watson,  
Mark D. Smith**

*J. Organomet. Chem.* 692 (2007) 5414

Syntheses and structural characterization of heterometallic bis(pyrazolyl)methane complexes of rhenium and platinum

The heterometallic complexes  $\{\mu\text{-}1,3,5\text{-}[\text{CH}(\text{pz})_2]_3\text{C}_6\text{H}_3\}\text{[Re}(\text{CO})_3\text{Br][Pt}(p\text{-tolyl})_2\}_2$  and  $\{\mu\text{-}1,3,5\text{-}[\text{CH}(\text{pz})_2]_3\text{C}_6\text{H}_3\}\text{[Re}(\text{CO})_3\text{Br}]_2\text{[Pt}(p\text{-tolyl})_2\}$  are prepared by the sequential, selective incorporation of different metal centers using arene-linked, third-generation bis(pyrazolyl)methane ligands. In the solid state structures of both complexes the “homobimetallic” groups are oriented on opposite sides of the linking arene ring.

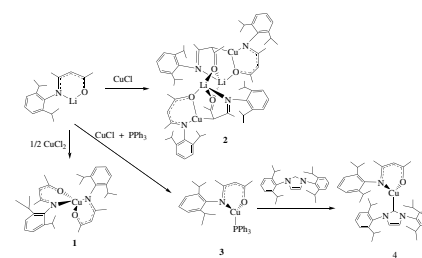


**Shih-Hsien Hsu, Chen-Yi Li, Yi-Wen Chiu,  
Mei-Chun Chiu, Yu-Ling Lien, Pei-Cheng Kuo,  
Hon Man Lee, Jui-Hsien Huang,  
Cheu-Pyeng Cheng**

*J. Organomet. Chem.* 692 (2007) 5421

Synthesis and characterization of Cu(I) and Cu(II) complexes containing ketiminate ligands

A series of Cu(I) and Cu(II) complexes 1–4 by using lithium salt of bulky ketiminate ligand,  $\text{Li}[\text{OC}(\text{Me})\text{CHC}(\text{Me})\text{N}(\text{Ar})]$  was synthesized. The weaker Cu(I)–P bonding in complex 3 can be replaced by Cu(I)–NHC bonding as showed in complex 4.

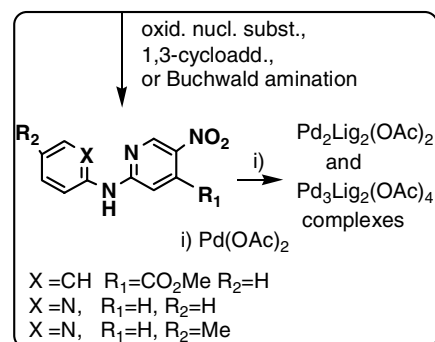


**Freddy Tjosaas, Anne Fiksdahl**

*J. Organomet. Chem.* 692 (2007) 5429

Palladium complexes of *N*-aryl-2-pyridylamines

The preparation of a series of Pd<sup>II</sup> complexes of *N*-aryl-2-pyridylamines is described. The complexes have been characterised spectroscopically, and NMR and ESI-MS have been used for determination of the complex compositions. <sup>1</sup>H and <sup>13</sup>C NMR characterisation of individual *cis* and *trans* isomers of bis-dentate acetato-bridged dimeric complexes are reported.

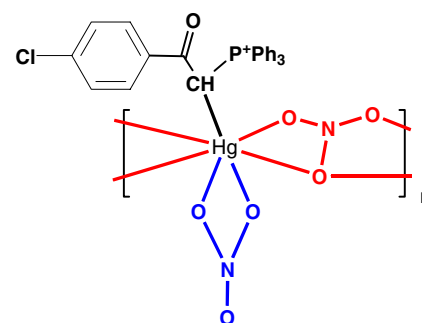


**Seyyed Javad Sabounchei, Hassan Nemattalab,  
Hamid Reza Khavasi**

*J. Organomet. Chem.* 692 (2007) 5440

Synthesis and characterization of new nitrate-bridged polymeric complexes of mercury(II) with phosphorus ylides

Reaction of phosphorus ylides of the type  $\text{X-C}_6\text{H}_4\text{-COCH}=\text{PAr}_3$  ( $\text{X} = \text{Cl}$  and  $\text{NO}_2$ ;  $\text{Ar} = \text{phenyl}$  and *p*-tolyl) with  $\text{Hg}(\text{NO}_3)_2 \cdot \text{H}_2\text{O}$  yields polymeric complexes. X-ray crystal structure analysis of  $[\text{Hg}(\text{ClC}_6\text{H}_4\text{C}(\text{O})\text{CHPPH}_3)(\text{NO}_3)(\mu\text{-NO}_3)]_n \cdot (\text{DMSO})_m$  shows that the 1:1 complex adopts the non-centrosymmetric polymeric structure in the solid state with  $\text{NO}_3^-$  anion bridges.

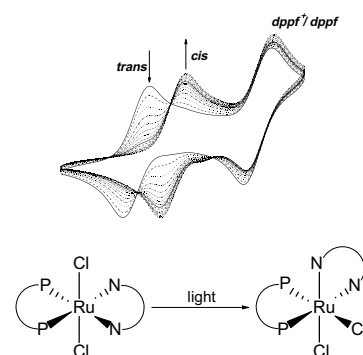


**Túlio F. Gallatti, André L. Bogado, Gustavo Von Poelsitz, Javier Ellena, Eduardo E. Castellano, Alzir A. Batista, Márcio P. de Araujo**

*J. Organomet. Chem.* 692 (2007) 5447

Heterobimetallic [Ru(II)/Fe(II)] complexes: On the formation of *trans*- and *cis*-[RuCl<sub>2</sub>(dppf)(diimines)]

The synthesis and characterization of *trans/cis*-[RuCl<sub>2</sub>(dppf)(diimines)], dppf = 1,1'-bis-(diphenylphosphino)ferrocene; diimines = 2,2'-bipyridine (*trans/cis*-(**1**)), 4,4'-dimethyl-2,2'-bipyridine (*trans/cis*-(**2**)) and 1,10-phenanthroline (*cis*-(**3**)) are presented. The *trans*-isomer readily isomerizes to the *cis*-isomer when exposed to light and this process was followed by cyclic voltammetry and UV-vis. Transfer-hydrogenation reactions for reduction of acetophenone were conducted.

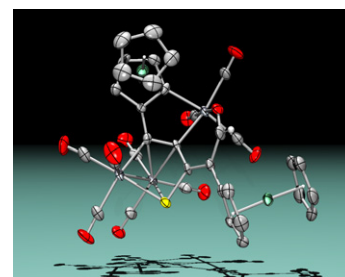


**Esther Delgado, Elisa Hernández, Ángel Nievas, María Villa, Avelino Martín, Beatriz Alonso**

*J. Organomet. Chem.* 692 (2007) 5453

Synthesis, characterization and reactivity studies of the new compound [Os<sub>3</sub>(CO)<sub>9</sub>(μ<sub>3</sub>-η<sup>2</sup>,η<sup>3</sup>,η<sup>3</sup>-{C<sub>5</sub>H<sub>5</sub>-FeC<sub>3</sub>H<sub>3</sub>CCC(S)C(Fe)CHO})]

Compound [Os<sub>3</sub>(CO)<sub>9</sub>(μ<sub>3</sub>-η<sup>2</sup>,η<sup>3</sup>,η<sup>3</sup>-{C<sub>5</sub>H<sub>5</sub>-FeC<sub>3</sub>H<sub>3</sub>CCC(S)C(Fe)CHO})] was obtained and the structure was established by X-ray crystallography. In addition, reactivity studies have been carried out.

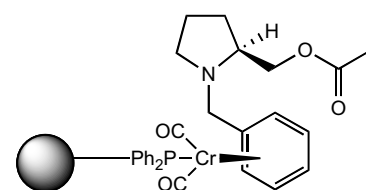


**Jane Li, Longfei Xie, Mustafa Guzel, Steven B. Heaton, Dong Ma, Amy E. Kallmerten, Graham B. Jones**

*J. Organomet. Chem.* 692 (2007) 5459

Exploiting π shielding interactions of η<sup>6</sup> arene chromium (0) complexes: New auxiliaries derived from the biogenic chiral pool

Highly selective chiral auxiliaries, designed on the basis of π shielding capability of arene chromium (0) complexes have been prepared from readily available building blocks. Cycloaddition diastereoselectivity as high as 99% was attainable using polymer-metal supported variants.

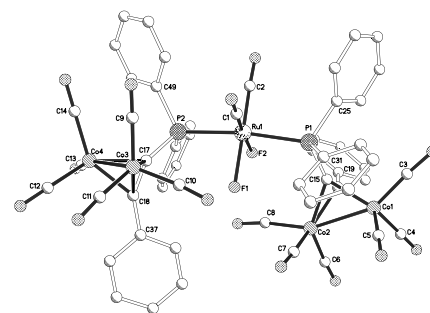


**Duncan A.J. Harding, Eric G. Hope, John Fawcett, Gregory A. Solan**

*J. Organomet. Chem.* 692 (2007) 5474

Alkynylphosphanes as supports for mixed-metal Co<sub>4</sub>M (M = Ru, Os) fluoride complexes: Syntheses, structures and thermolysis studies

The bifunctional nature of Ph<sub>2</sub>PC≡CPh has been exploited to prepare the fluoride-containing heterometallic clusters [MF<sub>2</sub>(CO)<sub>2</sub>(μ-η<sup>1</sup>:η<sup>2</sup>-PPh<sub>2</sub>CCPh)<sub>2</sub>{Co<sub>2</sub>(CO)<sub>6</sub>}<sub>2</sub>] [M = Ru, Os]; fluoride dissociation occurs on thermolysis (at 50 °C) of the ruthenium derivative while no reaction occurred with the osmium analogue.

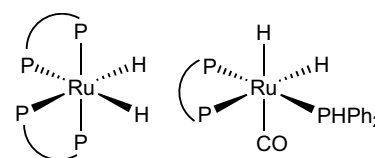


**Jorge Bravo, Jesús Castro,  
Soledad García-Fontán,  
M<sup>a</sup> Carmen Rodríguez-Martínez,  
Gabriele Albertin, Stefano Antoniutti,  
Alessandro Manera**

*J. Organomet. Chem.* 692 (2007) 5481

Preparation of hydride complexes of ruthenium with bidentate phosphite ligands

The synthesis of ruthenium dihydride complexes  $\text{RuH}_2(\text{P-P})_2$  stabilised by bidentate phosphite ligands is described. Carbonyl dihydride derivatives  $\text{RuH}_2(\text{CO})(\text{PPh}_2)(\text{P-P})$ , containing one secondary phosphine, is also reported. Spectroscopic and crystallographic data of new complexes are discussed.



$\text{P-P} = \text{Ph}_2\text{POCH}_2\text{CH}_2\text{OPPh}_2$  or  
 $(\text{CF}_3\text{CH}_2\text{O})_2\text{PN}(\text{CH}_3)\text{N}(\text{CH}_3)\text{P}(\text{OCH}_2\text{CF}_3)_2$

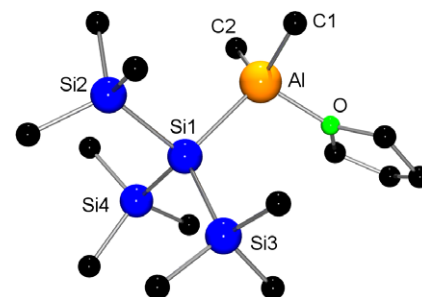
## Notes

**James D. Farwell, Peter B. Hitchcock,  
Michael F. Lappert**

*J. Organomet. Chem.* 692 (2007) 5492

Synthesis and characterisation of  $[\text{AlMe}_n\text{-}\{\text{Si}(\text{SiMe}_3)_3\}_{3-n}(\text{thf})]$  ( $n = 1$  or  $2$ )

The crystalline compounds  $[\text{AlMe}_n\{\text{Si}(\text{SiMe}_3)_3\}_{3-n}(\text{thf})]$  [ $n = 2$  (**1**) or  $1$  (**2**)] were prepared from the lithium silyl  $[\text{Li}\{\text{Si}(\text{SiMe}_3)_3\}(\text{thf})_3]$  (**A**) and the appropriate methylaluminium chloride  $[\text{AlCl}_{3-n}\text{Me}_n]$  in thf. Unlike **A** or a magnesium silyl  $[\text{Mg}\{\text{Si}(\text{SiMe}_3)_3\}_2(\text{thf})_2]$  (**B**), neither **1** nor **2** underwent an insertion reaction with an  $\alpha$ -H-free nitrile. The monomeric structure of compound **1** was confirmed by X-ray crystallography.

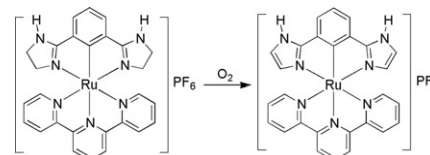


**Shusaku Maeda, Take-aki Koizumi,  
Takakazu Yamamoto, Koji Tanaka,  
Takaki Kanbara**

*J. Organomet. Chem.* 692 (2007) 5495

Aerobic oxidative dehydrogenation of coordinated imidazoline units of pincer ruthenium complex

A new pincer ruthenium complex (**1**) having a  $\kappa^3\text{NCN}$  pincer ligand with two imidazoline units and related ruthenium complexes were synthesized and characterized. The imidazoline units of **1** were oxidized in air to give an imidazole-ligated pincer complex (**2**). Results of the  $^1\text{H}$  NMR spectroscopic and cyclic voltammetric studies of the complexes indicate that the  $\sigma$ -donor character of the pincer ligand of **1** induces the Ru-promoted oxidative dehydrogenation of coordinated imidazoline moieties to imidazole units with oxygen in air.

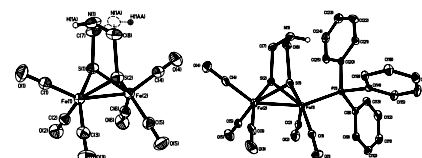


**Zhen Wang, Jian-Hui Liu, Cheng-Jiang He,  
Shi Jiang, Björn Åkermark, Li-Cheng Sun**

*J. Organomet. Chem.* 692 (2007) 5501

Azadithiolates cofactor of the iron-only hydrogenase and its  $\text{PR}_3$ -monosubstituted derivatives: Synthesis, structure, electrochemistry and protonation

The core structure  $(\mu\text{-SCH}_2)_2\text{NH}[\text{Fe}_2(\text{CO})_6]$  of Fe-only hydrogenases active site model and its two  $\text{PR}_3$ -monosubstituted complexes have been synthesized. Two of them further are determined by X-ray analysis. Protonation of complex **7** to form the N-protonated product occurs in an acetonitrile solution upon addition of triflic acid.

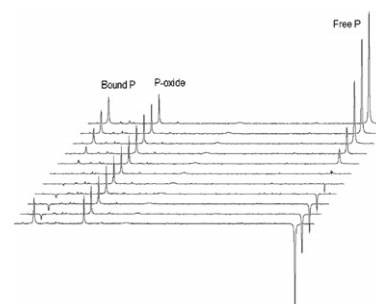


**Sharon Booyens, Andreas Roodt, Ola F. Wendt**

*J. Organomet. Chem.* 692 (2007) 5508

Kinetic investigation of a ruthenium metathesis catalyst

The complex  $[(\text{IMesH}_2)(\text{PPh}_2\text{Cy})\text{Cl}_2\text{Ru}=\text{CHPh}]$  is active in ring-closing metathesis and undergoes dissociative phosphine exchange.

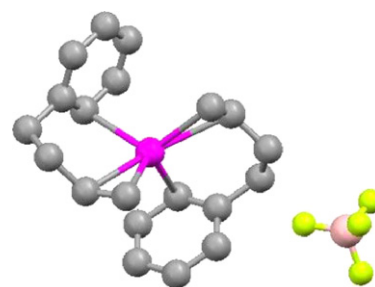


**D.R. Whitcomb, M. Rajeswaran**

*J. Organomet. Chem.* 692 (2007) 5513

The first chelating olefin: Solid-state structure of *bis*-( $\eta^1$ -4-phenyl- $\eta^2$ -1-butene)silver (I) tetrafluoroborate

A stable complex of 4-phenyl-1-butene with  $\text{Ag}^+$  has been isolated and characterized by solid-state structure. The *bis*-( $\eta^1$ -4-phenyl- $\eta^2$ -1-butene)silver tetrafluoroborate complex contains a pair of olefin ligands that chelate a single silver atom *via* both olefin and aromatic Ag–C bonds. This is the first chelated organometallic silver complex containing only Ag–C bonds.

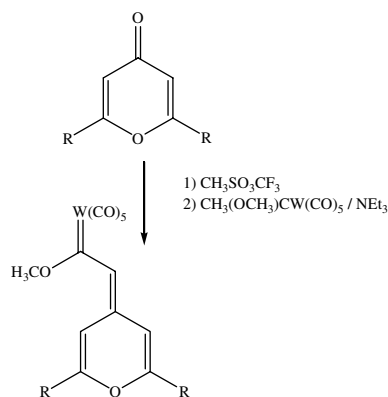


**J.-Y. Le Bihan, N. Faux, B. Caro, F. Robin-Le Guen, P. Le Poul**

*J. Organomet. Chem.* 692 (2007) 5517

Easy synthesis of heterocyclic carbene complexes by activation of chalcogenopyrones and benzopyrones to pyrylium salts and subsequent addition of carbanion of methoxy(methyl)pentacarbonyltungsten carbene complex

Methylenechalcogenopyran and benzopyran Fischer carbene complexes are obtained from commercially available chalcogenopyrones and benzopyrones and carbanion of methoxy(methyl)pentacarbonyl tungsten carbene complex. Activation of the carbonyl group by  $\text{CH}_3\text{SO}_3\text{CF}_3$  is the key of the carbene formation.



**Sung Jae Na, Bun Yeoul Lee, Nhat-Nguyen Bui, Sun-il Mho, Hye-Young Jang**

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A new dirhodium tetraacetate carbenoid: Synthesis, crystal structure and catalytic application

A dirhodium tetracarboxylate complex possessing a bulky carbene ligand (NHC) at the axial position was synthesized and characterized *via* NMR and X-ray crystallographic analysis. By introducing an electron rich carbene ligand, the enhanced catalytic activity of  $\text{Rh}_2(\text{OAc})_4(\text{NHC})$  for the allylic oxidation was observed.

