

## Subject Index of Volume 609

### Ab initio calculations

An 'atoms in molecules' (AIM) analysis of the dihydrogen bond in organometallic compounds, 53

### Acetylide

Reactivity of  $[\text{Re}(\eta^2\text{-H}_2)(\text{CO})_2\text{P}_3]^+$  cations with alkynes: preparation of vinylidene and propadienyldiene complexes, 10

### Additives

Methods of enhancement of reactivity and selectivity of sodium borohydride for applications in organic synthesis, 137

### AIM

An 'atoms in molecules' (AIM) analysis of the dihydrogen bond in organometallic compounds, 53

### Ansa-ligands

Bridging-terminal exchange in *ansa*-bridged tetrahydroborate niobocene compounds: a density functional study, 83

### Antiferromagnetic interaction

Synthesis, structure, ESI mass spectrum and magnetic property of a monocationic cluster complex of chromium-sulfide with a hydrido ligand  $[\text{Cr}_6\text{S}_8(\text{H})(\text{PEt}_3)_6](\text{BF}_4)$ , 184

### Azide

Sterically encumbered terphenyl substituted primary pnictanes  $\text{ArEH}_2$  and their metallated derivatives  $\text{ArE}(\text{H})\text{Li}$  ( $\text{Ar} = \text{-C}_6\text{H}_3\text{-2,6-Trip}_2$ ;  $\text{Trip} = 2,4,6\text{-triisopropylphenyl}$ ;  $\text{E} = \text{N, P, As, Sb}$ ), 152

### 1,4-Bis(trimethylsilyl)-1-buten-3-yne

Hydrosilylation of 1,4-bis(trimethylsilyl)-1-buten-3-yne using late transition metal hydrides as catalyst precursors, 130

### Borane

Synthesis and structure of  $[(\eta^5\text{-C}_5\text{Me}_5)\text{WCl}_2(\mu\text{-H})]_2$ . A dinuclear tungsten hydride with a double bond formed from the reaction of  $\text{BH}_3\cdot\text{THF}$  with  $(\eta^5\text{-C}_5\text{Me}_5)\text{WCl}_4$ , 77

### Boranes

Studies on the reactivity of  $\text{Nb}(\eta^5\text{-C}_5\text{H}_4\text{SiMe}_3)_2(\text{X})(\text{L})$ ,  $\text{X} = \text{H, Cl}$ ;  $\text{L} = \text{CNXyl, CNCy, CO}$  and  $\text{Nb}(\eta^5\text{-C}_5\text{H}_4\text{SiMe}_3)_2(\text{H})_3$  complexes toward the Lewis acids  $\text{B}(\text{C}_6\text{F}_5)_3$  and  $\text{BF}_3$ , 123

### Borohydride

Bridging-terminal exchange in *ansa*-bridged tetrahydroborate niobocene compounds: a density functional study, 83

### Boron

The clusters  $\text{HRu}_3\text{W}(\eta^5\text{-Cp})(\text{CO})_{11-x}(\text{PPh}_3)_x\text{BH}$  ( $x = 1, 2$ ): preparations, characterizations and the crystal structure of  $\text{HRu}_3\text{W}(\eta^5\text{-Cp})(\text{CO})_{10}(\text{PPh}_3)\text{BH}$ , 89

### Carbonyl cluster

Reaction of  $[\text{Os}_3\text{H}_2(\text{CO})_{10}]$  with the diyne  $\text{Me}_3\text{SiC}_2\text{C}_2\text{SiMe}_3$  and the reactivity of the products towards  $[\text{Co}_2(\text{CO})_8]$ : the X-ray structures of  $[\text{Os}_3(\mu\text{-H})(\text{CO})_{10}\{\mu\text{-}\eta^1\text{-}\eta^2\text{-HC}_2(\text{SiMe}_3)\text{-C}_2(\text{SiMe}_3)\}]$ ,  $[\text{Os}_3(\mu\text{-CO})(\text{CO})_9\{\mu_3\text{-}\eta^2\text{-Me}_3\text{SiC}_2\text{C}_2\text{SiMe}_3\}]$  and  $[\text{Os}_3(\mu\text{-H})(\text{CO})_9\{\mu_3\text{-}\eta^1\text{-}\eta^2\text{-}\mu\text{-}\eta^2\text{-Me}_3\text{SiC}_2\text{C}_2[\text{Co}_2(\text{CO})_6]\}]$ , 169

### Catalytic hydrosilylation

Hydrosilylation of 1,4-bis(trimethylsilyl)-1-buten-3-yne using late transition metal hydrides as catalyst precursors, 130

### Chromium sulfide

Synthesis, structure, ESI mass spectrum and magnetic property of a monocationic cluster complex of chromium-sulfide with a hydrido ligand  $[\text{Cr}_6\text{S}_8(\text{H})(\text{PEt}_3)_6](\text{BF}_4)$ , 184

### Cluster

The cluster dication  $[\text{H}_6\text{Ru}_4(\text{C}_6\text{H}_6)_4]^{2+}$  revisited: the first cluster complex containing an intact dihydrogen ligand?, 196

### Cluster complex

Synthesis, structure, ESI mass spectrum and magnetic property of a monocationic cluster complex of chromium-sulfide with a hydrido ligand  $[\text{Cr}_6\text{S}_8(\text{H})(\text{PEt}_3)_6](\text{BF}_4)$ , 184

### Clusters

The heteronuclear cluster  $\text{RuOs}_3(\mu\text{-H})(\text{CO})_{13}$  — a high yield synthesis, isomerism and a triphenylphosphine derivative, 104

The ligand  $[\text{Cp}_2\text{MoH}_2]$  in complexes with Ag–S bonds, 44

### Cobalt

Reaction of  $[\text{Os}_3\text{H}_2(\text{CO})_{10}]$  with the diyne  $\text{Me}_3\text{SiC}_2\text{C}_2\text{SiMe}_3$  and the reactivity of the products towards  $[\text{Co}_2(\text{CO})_8]$ : the X-ray structures of  $[\text{Os}_3(\mu\text{-H})(\text{CO})_{10}\{\mu\text{-}\eta^1\text{-}\eta^2\text{-HC}_2(\text{SiMe}_3)\text{-C}_2(\text{SiMe}_3)\}]$ ,  $[\text{Os}_3(\mu\text{-CO})(\text{CO})_9\{\mu_3\text{-}\eta^2\text{-Me}_3\text{SiC}_2\text{C}_2\text{SiMe}_3\}]$  and  $[\text{Os}_3(\mu\text{-H})(\text{CO})_9\{\mu_3\text{-}\eta^1\text{-}\eta^2\text{-}\mu\text{-}\eta^2\text{-Me}_3\text{SiC}_2\text{C}_2[\text{Co}_2(\text{CO})_6]\}]$ , 169

### Crystal structures

Binding modes of a mixed donor multidentate iminobisphosphane ligand to the triosmium cluster: the crystal structures of  $[\{\text{Os}_3(\text{CO})_{11}\}_2(\text{PNCHP})]$ ,  $[\text{Os}_3(\mu\text{-H})(\mu_3\text{-PNCP})(\text{CO})_7]$  and  $[\text{Os}_3(\mu\text{-H})(\mu_2\text{-PNCP})(\text{CO})_8]$ , 2

The ligand  $[\text{Cp}_2\text{MoH}_2]$  in complexes with Ag–S bonds, 44

### Cyclooctene

$\text{H}_2$  binding to and silane alcoholysis on an electrophilic  $\text{Mn}(\text{I})$  fragment with tied-back phosphite ligands. X-ray structure of a  $\text{Mn}-\text{CH}_2\text{Cl}_2$  complex, 95

### Dendritic molecule

$\text{Si}(\text{CH}_2\text{CH}_2\text{SnH}_3)_4$  — a unique organotin hydride featuring 12 SnH units in a dendritic molecule. Single-crystal X-ray structures of tetrakis(2-stannylethylene)silane and tetrakis[2-(triphenylstannyl)ethylene]silane, 189

### Density functional calculations

The cluster dication  $[\text{H}_6\text{Ru}_4(\text{C}_6\text{H}_6)_4]^{2+}$  revisited: the first cluster complex containing an intact dihydrogen ligand?, 196

### Dichloromethane

$\text{H}_2$  binding to and silane alcoholysis on an electrophilic  $\text{Mn}(\text{I})$  fragment with tied-back phosphite ligands. X-ray structure of a  $\text{Mn}-\text{CH}_2\text{Cl}_2$  complex, 95

### Dihydrogen

$\text{H}_2$  binding to and silane alcoholysis on an electrophilic  $\text{Mn}(\text{I})$  fragment with tied-back phosphite ligands. X-ray structure of a  $\text{Mn}-\text{CH}_2\text{Cl}_2$  complex, 95

The effect of ancillary ligands on intramolecular proton-hydride ( $\text{NH}\cdots\text{HIr}$ ) bonding in complexes of iridium(III), 110

## Dihydrogen complexes

Synthesis and properties of the 16-electron complex  $[(C_5Me_5)RuCl(PMe^iPr_2)]$  and of half-sandwich ruthenium hydrido complexes containing bulky monodentate phosphine ligands, 161

The kinetics and mechanisms of reactions involving the dihydrogen complex  $trans-[FeH(H_2)(DPPE)_2]^+$  and related compounds, 29

## Dihydrogen ligand

The cluster dication  $[H_6Ru_4(C_6H_6)_4]^{2+}$  revisited: the first cluster complex containing an intact dihydrogen ligand?, 196

## Dinitrogen complexes

Synthesis and properties of the 16-electron complex  $[(C_5Me_5)RuCl(PMe^iPr_2)]$  and of half-sandwich ruthenium hydrido complexes containing bulky monodentate phosphine ligands, 161

## Dithio-ligands

The ligand  $[Cp_2MoH_2]$  in complexes with Ag–S bonds, 44

## Diyne

Reaction of  $[Os_3H_2(CO)_{10}]$  with the diyne  $Me_3SiC_2C_2SiMe_3$  and the reactivity of the products towards  $[Co_2(CO)_8]$ : the X-ray structures of  $[Os_3(\mu-H)(CO)_{10}\{\mu-\eta^1-\eta^2-HC_2(SiMe_3)-C_2(SiMe_3)\}]$ ,  $[Os_3(\mu-CO)(CO)_9\{\mu_3-\eta^2-Me_3SiC_2C_2SiMe_3\}]$  and  $[Os_3(\mu-H)(CO)_9\{\mu_3-\eta^1:\eta^2;\mu-\eta^2-Me_3SiC_2C_2[Co_2(CO)_6]\}]$ , 169

## Electronic spectroscopy–photoreactivity

Photodissociation and electronic spectroscopy of transition metal hydrides carbonyls: quantum chemistry and wave packet dynamics, 66

## Enhancement of reactivity

Methods of enhancement of reactivity and selectivity of sodium borohydride for applications in organic synthesis, 137

## Half-sandwich complexes

Synthesis and properties of the 16-electron complex  $[(C_5Me_5)RuCl(PMe^iPr_2)]$  and of half-sandwich ruthenium hydrido complexes containing bulky monodentate phosphine ligands, 161

## Halides

Studies on the reactivity of  $Nb(\eta^5-C_5H_4SiMe_3)_2(X)(L)$ ,  $X = H, Cl$ ;  $L = CNXylyl$ ,  $CNCy$ ,  $CO$  and  $Nb(\eta^5-C_5H_4SiMe_3)_2(H)_3$  complexes toward the Lewis acids  $B(C_6F_5)_3$  and  $BF_3$ , 123

## Heterobimetallic

Early lanthanide organometallic hydrides: electronic and steric control of the stability, 21

## Heterometallic cluster

The clusters  $HRu_3W(\eta^5-Cp)(CO)_{11-x}(PPh_3)_xBH$  ( $x = 1, 2$ ): preparations, characterizations and the crystal structure of  $HRu_3W(\eta^5-Cp)(CO)_{10}(PPh_3)BH$ , 89

## Heteronuclear

The heteronuclear cluster  $RuOs_3(\mu-H)_2(CO)_{13}$  — a high yield synthesis, isomerism and a triphenylphosphine derivative, 104

## Hydride

Activation of E–H ( $E = Sn, Si, S$ ) bonds by cyclooctadieneiridium pyridine-2-carboxylate and related compounds, 60

Early lanthanide organometallic hydrides: electronic and steric control of the stability, 21

Reactivity of  $[Re(\eta^2-H_2)(CO)_2P_3]^+$  cations with alkynes: preparation of vinylidene and propadienyldiene complexes, 10

The clusters  $HRu_3W(\eta^5-Cp)(CO)_{11-x}(PPh_3)_xBH$  ( $x = 1, 2$ ): preparations, characterizations and the crystal structure of  $HRu_3W(\eta^5-Cp)(CO)_{10}(PPh_3)BH$ , 89

The heteronuclear cluster  $RuOs_3(\mu-H)_2(CO)_{13}$  — a high yield synthesis, isomerism and a triphenylphosphine derivative, 104

## Hydride complexes

Silatranyl, hydride complexes of osmium(II) and osmium(IV): crystal structure of  $Os(Si\{OCH_2CH_2\}_3N)H_3(PPh_3)_3$ , 177

## Hydrides

Studies on the reactivity of  $Nb(\eta^5-C_5H_4SiMe_3)_2(X)(L)$ ,  $X = H, Cl$ ;  $L = CNXylyl$ ,  $CNCy$ ,  $CO$  and  $Nb(\eta^5-C_5H_4SiMe_3)_2(H)_3$  complexes toward the Lewis acids  $B(C_6F_5)_3$  and  $BF_3$ , 123

## Hydrido complexes

Synthesis and properties of the 16-electron complex  $[(C_5Me_5)RuCl(PMe^iPr_2)]$  and of half-sandwich ruthenium hydrido complexes containing bulky monodentate phosphine ligands, 161

## Hydrogen bonds

An 'atoms in molecules' (AIM) analysis of the dihydrogen bond in organometallic compounds, 53

## Iminophosphane

Binding modes of a mixed donor multidentate iminobisphosphane ligand to the triosmium cluster: the crystal structures of  $[Os_3(CO)_{11}]_2(PNCHP)$ ,  $[Os_3(\mu-H)(\mu_3-PNCP)(CO)_7]$  and  $[Os_3(\mu-H)(\mu_2-PNCP)(CO)_8]$ , 2

## Interstitial hydrido ligand

Synthesis, structure, ESI mass spectrum and magnetic property of a monocationic cluster complex of chromium-sulfide with a hydrido ligand  $[Cr_6S_8(H)(PET_6)(BF_4)]$ , 184

## Intramolecular N–H···Co bond

An intramolecular N–H···Co hydrogen bond and a structure correlation study of the pathway for protonation of the  $Co(CO)_3L^-$  anion ( $L = CO, PR_3$ ), 36

## Iridium

Activation of E–H ( $E = Sn, Si, S$ ) bonds by cyclooctadieneiridium pyridine-2-carboxylate and related compounds, 60

The effect of ancillary ligands on intramolecular proton–hydride ( $NH\cdots HIr$ ) bonding in complexes of iridium(III), 110

## Isomers

The heteronuclear cluster  $RuOs_3(\mu-H)_2(CO)_{13}$  — a high yield synthesis, isomerism and a triphenylphosphine derivative, 104

## Kinetic data

The kinetics and mechanisms of reactions involving the dihydrogen complex  $trans-[FeH(H_2)(DPPE)_2]^+$  and related compounds, 29

## Lanthanide

Early lanthanide organometallic hydrides: electronic and steric control of the stability, 21

## Lithiated pnictanes

Sterically encumbered terphenyl substituted primary pnictanes  $ArEH_2$  and their metallated derivatives  $ArE(H)Li$  ( $Ar = -C_6H_3-2,6-Trip_2$ ;  $Trip = 2,4,6-triisopropylphenyl$ ;  $E = N, P, As, Sb$ ), 152

## Manganese

$H_2$  binding to and silane alcoholysis on an electrophilic Mn(I) fragment with tied-back phosphite ligands. X-ray structure of a  $Mn-CH_2Cl_2$  complex, 95

## Mechanism

The kinetics and mechanisms of reactions involving the dihydrogen complex  $trans-[FeH(H_2)(DPPE)_2]^+$  and related compounds, 29

## Metal hydrides

An 'atoms in molecules' (AIM) analysis of the dihydrogen bond in organometallic compounds, 53

Synthesis and structure of  $[(\eta^5-C_5Me_5)WCl_2(\mu-H)]_2$ . A dinuclear tungsten hydride with a double bond formed from the reaction of  $BH_3\cdot THF$  with  $(\eta^5-C_5Me_5)WCl_4$ , 77

## Metallaboranes

Synthesis and structure of  $[(\eta^5\text{-C}_5\text{Me}_5)\text{WCl}_2(\mu\text{-H})]_2$ . A dinuclear tungsten hydride with a double bond formed from the reaction of  $\text{BH}_3\cdot\text{THF}$  with  $(\eta^5\text{-C}_5\text{Me}_5)\text{WCl}_4$ , 77

## Metallocenes

Studies on the reactivity of  $\text{Nb}(\eta^5\text{-C}_5\text{H}_4\text{SiMe}_3)_2(\text{X})(\text{L})$ ,  $\text{X} = \text{H}, \text{Cl}$ ;  $\text{L} = \text{CNXyl}$ ,  $\text{CNCy}$ ,  $\text{CO}$  and  $\text{Nb}(\eta^5\text{-C}_5\text{H}_4\text{SiMe}_3)_2(\text{H})_3$  complexes toward the Lewis acids  $\text{B}(\text{C}_6\text{F}_5)_3$  and  $\text{BF}_3$ , 123

## Metalloendramer

$\text{Si}(\text{CH}_2\text{CH}_2\text{SnH}_3)_4$  — a unique organotin hydride featuring 12 SnH units in a dendritic molecule. Single-crystal X-ray structures of tetrakis(2-stannylethylene)silane and tetrakis[2-(triphenylstanny)ethylene]silane, 189

## Molecular orbital

Bridging-terminal exchange in *ansa*-bridged tetrahydroborate niobocene compounds: a density functional study, 83

## Molecular structure

The cluster dication  $[\text{H}_6\text{Ru}_4(\text{C}_6\text{H}_6)_4]^{2+}$  revisited: the first cluster complex containing an intact dihydrogen ligand?, 196

## Molybdenum

The ligand  $[\text{Cp}_2\text{MoH}_2]$  in complexes with Ag–S bonds, 44

## Monocationic

Synthesis, structure, ESI mass spectrum and magnetic property of a monocationic cluster complex of chromium-sulfide with a hydrido ligand  $[\text{Cr}_6\text{S}_8(\text{H})(\text{PEt}_3)_6](\text{BF}_4)$ , 184

## Neodymium

Early lanthanide organometallic hydrides: electronic and steric control of the stability, 21

## Niobocene

Studies on the reactivity of  $\text{Nb}(\eta^5\text{-C}_5\text{H}_4\text{SiMe}_3)_2(\text{X})(\text{L})$ ,  $\text{X} = \text{H}, \text{Cl}$ ;  $\text{L} = \text{CNXyl}$ ,  $\text{CNCy}$ ,  $\text{CO}$  and  $\text{Nb}(\eta^5\text{-C}_5\text{H}_4\text{SiMe}_3)_2(\text{H})_3$  complexes toward the Lewis acids  $\text{B}(\text{C}_6\text{F}_5)_3$  and  $\text{BF}_3$ , 123

NMR  $T_1$  measurements

The cluster dication  $[\text{H}_6\text{Ru}_4(\text{C}_6\text{H}_6)_4]^{2+}$  revisited: the first cluster complex containing an intact dihydrogen ligand?, 196

## Octahedral core

Synthesis, structure, ESI mass spectrum and magnetic property of a monocationic cluster complex of chromium-sulfide with a hydrido ligand  $[\text{Cr}_6\text{S}_8(\text{H})(\text{PEt}_3)_6](\text{BF}_4)$ , 184

## Organotin dendrimer

$\text{Si}(\text{CH}_2\text{CH}_2\text{SnH}_3)_4$  — a unique organotin hydride featuring 12 SnH units in a dendritic molecule. Single-crystal X-ray structures of tetrakis(2-stannylethylene)silane and tetrakis[2-(triphenylstanny)ethylene]silane, 189

## Organotin hydride

$\text{Si}(\text{CH}_2\text{CH}_2\text{SnH}_3)_4$  — a unique organotin hydride featuring 12 SnH units in a dendritic molecule. Single-crystal X-ray structures of tetrakis(2-stannylethylene)silane and tetrakis[2-(triphenylstanny)ethylene]silane, 189

## Osmium

Reaction of  $[\text{Os}_3\text{H}_2(\text{CO})_{10}]$  with the diyne  $\text{Me}_3\text{SiC}_2\text{C}_2\text{SiMe}_3$  and the reactivity of the products towards  $[\text{Co}_2(\text{CO})_8]$ ; the X-ray structures of  $[\text{Os}_3(\mu\text{-H})(\text{CO})_{10}\{\mu\text{-}\eta^1\text{-}\eta^2\text{-HC}(\text{SiMe}_3)\text{-C}_2(\text{SiMe}_3)\}]$ ,  $[\text{Os}_3(\mu\text{-CO})(\text{CO})_9\{\mu_3\text{-}\eta^2\text{-Me}_3\text{SiC}_2\text{C}_2\text{SiMe}_3\}]$  and  $[\text{Os}_3(\mu\text{-H})(\text{CO})_9\{\mu_3\text{-}\eta^1\text{-}\eta^2\text{-}\mu\text{-}\eta^2\text{-Me}_3\text{SiC}_2\text{C}_2[\text{Co}_2(\text{CO})_6]\}]$ , 169

Silatranyl, hydride complexes of osmium(II) and osmium(IV): crystal structure of  $\text{Os}(\text{Si}\{\text{OCH}_2\text{CH}_2\}_3\text{N})\text{H}_3(\text{PPh}_3)_3$ , 177

The heteronuclear cluster  $\text{RuOs}_3(\mu\text{-H})_2(\text{CO})_{13}$  — a high yield synthesis, isomerism and a triphenylphosphine derivative, 104

## Osmium cluster

Binding modes of a mixed donor multidentate iminobisphosphane ligand to the triosmium cluster: the crystal structures of  $\{[\text{Os}_3(\text{CO})_{11}]_2(\text{PNCHP})\}$ ,  $[\text{Os}_3(\mu\text{-H})(\mu_3\text{-PNCP})(\text{CO})_7]$  and  $[\text{Os}_3(\mu\text{-H})(\mu_2\text{-PNCP})(\text{CO})_8]$ , 2

## Oxidative addition

Activation of E–H (E = Sn, Si, S) bonds by cyclooctadieneiridium pyridine-2-carboxylate and related compounds, 60

## Phosphine

The clusters  $\text{HRu}_3\text{W}(\eta^5\text{-Cp})(\text{CO})_{11-x}(\text{PPh}_3)_x\text{BH}$  ( $x = 1, 2$ ): preparations, characterizations and the crystal structure of  $\text{HRu}_3\text{W}(\eta^5\text{-Cp})(\text{CO})_{10}(\text{PPh}_3)\text{BH}$ , 89

## Phosphinic acid

Sterically encumbered terphenyl substituted primary pnictanes  $\text{ArEH}_2$  and their metallated derivatives  $\text{ArE}(\text{H})\text{Li}$  ( $\text{Ar} = \text{-C}_6\text{H}_3\text{-2,6-Trip}_2$ ;  $\text{Trip} = 2,4,6\text{-triisopropylphenyl}$ ; E = N, P, As, Sb), 152

## Phosphite

$\text{H}_2$  binding to and silane alcoholysis on an electrophilic Mn(I) fragment with tied-back phosphite ligands. X-ray structure of a Mn– $\text{CH}_2\text{Cl}_2$  complex, 95

## Platinum catalyst

Hydrosilylation of 1,4-bis(trimethylsilyl)-1-buten-3-yne using late transition metal hydrides as catalyst precursors, 130

## Pnictanes

Sterically encumbered terphenyl substituted primary pnictanes  $\text{ArEH}_2$  and their metallated derivatives  $\text{ArE}(\text{H})\text{Li}$  ( $\text{Ar} = \text{-C}_6\text{H}_3\text{-2,6-Trip}_2$ ;  $\text{Trip} = 2,4,6\text{-triisopropylphenyl}$ ; E = N, P, As, Sb), 152

## Propadienyldiene

Reactivity of  $[\text{Re}(\eta^2\text{-H}_2)(\text{CO})_2\text{P}_3]^+$  cations with alkynes: preparation of vinylidene and propadienyldiene complexes, 10

## Protonation pathway

An intramolecular N–H $\cdots$ Co hydrogen bond and a structure correlation study of the pathway for protonation of the  $\text{Co}(\text{CO})_3\text{L}^-$  anion ( $\text{L} = \text{CO}, \text{PR}_3$ ), 36

## Proton–hydride bond

The effect of ancillary ligands on intramolecular proton–hydride ( $\text{NH}\cdots\text{Hir}$ ) bonding in complexes of iridium(III), 110

## Pyridinethione

The effect of ancillary ligands on intramolecular proton–hydride ( $\text{NH}\cdots\text{Hir}$ ) bonding in complexes of iridium(III), 110

## Quantum chemistry

Photodissociation and electronic spectroscopy of transition metal hydrides carbonyls: quantum chemistry and wave packet dynamics, 66

## Rare earth

Early lanthanide organometallic hydrides: electronic and steric control of the stability, 21

## Reduction of organics

Methods of enhancement of reactivity and selectivity of sodium borohydride for applications in organic synthesis, 137

## Rhenium

Reactivity of  $[\text{Re}(\eta^2\text{-H}_2)(\text{CO})_2\text{P}_3]^+$  cations with alkynes: preparation of vinylidene and propadienyldiene complexes, 10

## Rhodium catalyst

Hydrosilylation of 1,4-bis(trimethylsilyl)-1-buten-3-yne using late transition metal hydrides as catalyst precursors, 130

## Ruthenium

Synthesis and properties of the 16-electron complex  $[(\text{C}_5\text{Me}_5)\text{-RuCl}(\text{PMe}_2\text{Pr}_2)]$  and of half-sandwich ruthenium hydrido complexes containing bulky monodentate phosphine ligands, 161

The cluster dication  $[\text{H}_6\text{Ru}_4(\text{C}_6\text{H}_6)_4]^{2+}$  revisited: the first cluster complex containing an intact dihydrogen ligand?, 196

The clusters  $\text{HRu}_3\text{W}(\eta^5\text{-Cp})(\text{CO})_{11-x}(\text{PPh}_3)_x\text{BH}$  ( $x = 1, 2$ ): preparations, characterizations and the crystal structure of  $\text{HRu}_3\text{W}(\eta^5\text{-Cp})(\text{CO})_{10}(\text{PPh}_3)\text{BH}$ , 89

- The heteronuclear cluster  $\text{RuOs}_3(\mu\text{-H})_2(\text{CO})_{13}$  — a high yield synthesis, isomerism and a triphenylphosphine derivative, 104
- Ruthenium catalyst  
Hydrosilylation of 1,4-bis(trimethylsilyl)-1-buten-3-yne using late transition metal hydrides as catalyst precursors, 130
- Samarium  
Early lanthanide organometallic hydrides: electronic and steric control of the stability, 21
- Silane  
 $\text{H}_2$  binding to and silane alcoholysis on an electrophilic Mn(I) fragment with tied-back phosphite ligands. X-ray structure of a  $\text{Mn-CH}_2\text{Cl}_2$  complex, 95
- Silatranyl complexes  
Silatranyl, hydride complexes of osmium(II) and osmium(IV): crystal structure of  $\text{Os}(\text{Si}\{\text{OCH}_2\text{CH}_2\}_3\text{N})\text{H}_3(\text{PPh}_3)_3$ , 177
- Silicon  
Activation of E–H (E = Sn, Si, S) bonds by cyclooctadieneiridium pyridine-2-carboxylate and related compounds, 60
- Silver  
The ligand  $[\text{Cp}_2\text{MoH}_2]$  in complexes with Ag–S bonds, 44
- Si–Sn dendrimer  
 $\text{Si}(\text{CH}_2\text{CH}_2\text{SnH}_3)_4$  — a unique organotin hydride featuring 12 SnH units in a dendritic molecule. Single-crystal X-ray structures of tetrakis(2-stannylethylene)silane and tetrakis[2-(triphenylstannyl)ethylene]silane, 189
- Sodium borohydride  
Methods of enhancement of reactivity and selectivity of sodium borohydride for applications in organic synthesis, 137
- SpyH  
The effect of ancillary ligands on intramolecular proton–hydride ( $\text{NH}\cdots\text{HIr}$ ) bonding in complexes of iridium(III), 110
- Sterically encumbered  
Sterically encumbered terphenyl substituted primary pnictanes  $\text{ArEH}_2$  and their metallated derivatives  $\text{ArE}(\text{H})\text{Li}$  (Ar =  $-\text{C}_6\text{H}_3-2,6\text{-Trip}_2$ ; Trip = 2,4,6-triisopropylphenyl; E = N, P, As, Sb), 152
- Structure correlation study  
An intramolecular N–H $\cdots$ Co hydrogen bond and a structure correlation study of the pathway for protonation of the  $\text{Co}(\text{CO})_3\text{L}^-$  anion (L = CO,  $\text{PR}_3$ ), 36
- Substitution  
The kinetics and mechanisms of reactions involving the dihydrogen complex  $\text{trans-}[\text{FeH}(\text{H}_2)(\text{DPPE})_2]^+$  and related compounds, 29
- Sulfur  
Activation of E–H (E = Sn, Si, S) bonds by cyclooctadieneiridium pyridine-2-carboxylate and related compounds, 60
- Terminal-bridge hydride exchange  
Bridging-terminal exchange in *ansa*-bridged tetrahydroborate niobocene compounds: a density functional study, 83
- Terphenyls  
Sterically encumbered terphenyl substituted primary pnictanes  $\text{ArEH}_2$  and their metallated derivatives  $\text{ArE}(\text{H})\text{Li}$  (Ar =  $-\text{C}_6\text{H}_3-2,6\text{-Trip}_2$ ; Trip = 2,4,6-triisopropylphenyl; E = N, P, As, Sb), 152
- Tin  
Activation of E–H (E = Sn, Si, S) bonds by cyclooctadieneiridium pyridine-2-carboxylate and related compounds, 60
- Transition metal hydrides carbonyls  
Photodissociation and electronic spectroscopy of transition metal hydrides carbonyls: quantum chemistry and wave packet dynamics, 66
- Trihydride  
The effect of ancillary ligands on intramolecular proton–hydride ( $\text{NH}\cdots\text{HIr}$ ) bonding in complexes of iridium(III), 110
- Tungsten  
Synthesis and structure of  $[(\eta^5\text{-C}_5\text{Me}_5)\text{WCl}_2(\mu\text{-H})]_2$ . A dinuclear tungsten hydride with a double bond formed from the reaction of  $\text{BH}_3\text{THF}$  with  $(\eta^5\text{-C}_5\text{Me}_5)\text{WCl}_4$ , 77
- Vinylidene  
Reactivity of  $[\text{Re}(\eta^2\text{-H}_2)(\text{CO})_2\text{P}_3]^+$  cations with alkynes: preparation of vinylidene and propadienyldiene complexes, 10
- Wavepacket dynamics  
Photodissociation and electronic spectroscopy of transition metal hydrides carbonyls: quantum chemistry and wave packet dynamics, 66
- X-ray crystal structure  
Reaction of  $[\text{Os}_3\text{H}_2(\text{CO})_{10}]$  with the diyne  $\text{Me}_3\text{SiC}_2\text{C}_2\text{SiMe}_3$  and the reactivity of the products towards  $[\text{Co}_2(\text{CO})_8]$ : the X-ray structures of  $[\text{Os}_3(\mu\text{-H})(\text{CO})_{10}\{\mu\text{-}\eta^1\text{-}\eta^2\text{-HC}_2(\text{SiMe}_3)\text{-C}_2(\text{SiMe}_3)\}]$ ,  $[\text{Os}_3(\mu\text{-CO})(\text{CO})_9\{\mu_3\text{-}\eta^2\text{-Me}_3\text{SiC}_2\text{C}_2\text{SiMe}_3\}]$  and  $[\text{Os}_3(\mu\text{-H})(\text{CO})_9\{\mu_3\text{-}\eta^1\text{-}\eta^2\text{-}\mu\text{-}\eta^2\text{-Me}_3\text{SiC}_2\text{C}_2[\text{Co}_2(\text{CO})_6]\}]$ , 169