Applied Organometallic Chemistry

(Appl. Organometal. Chem.)

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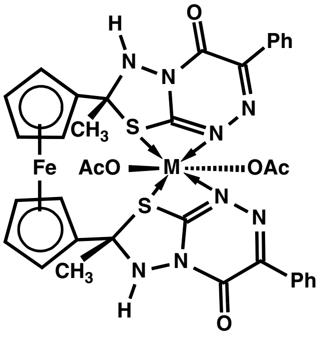
Section: Bioorganometallic Chemistry

A new ferrocenyl ligand, 1,1′-bis[(1-methyl-5-phenyl-4H-(1,3,4)-thiadiazolo (2,3-c)(1,2,4)triazin-4-one)]ferrocene was prepared from the reaction of 1,1′-diacetylferrocene with 4-amino-2,3-dihydro-6-phenyl-3-thioxo[1,2,4]triazin-5(4H)one. The ligand, L, forms 1 : 1 complexes with Mn(II), Fe(III), Co(II), Ni(II), Cu(II) and Zn(II) in good yield. Biological activity of the ligand and its complexes were carried out against *Escherichia coli, Staphylococcus aureus, Aspergillus niger, Cladosporium herbirum* and *Fusarium moniliformae*. The biological results indicated that the complexes are more active than the ligand.



M = Mn(II), Fe(III), Co(II), Ni(II) and Zn(II)

Proposed Structure of the octahedral complexes

M. M. Abd-Elzaher*, S. M. El-shiekh and M. Eweis . . . . 597 – 602

Biological studies of newly synthesized ferrocenyl complexes containing triazinone moiety

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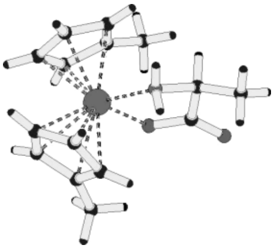
Eight new water soluble 1,1′-dimethylvanadocene amino acid complexes $[(MeCp)_2V(aa)]Cl$ have been prepared *via* the reaction of $(MeCp)_2VCl_2$ (2) with one equivalent of amino acid (aa). Complexes have been characterized by EPR, IR, Raman and X-ray spectroscopy, elemental analysis and mass spectrometry. Prepared compounds embody identical or slightly higher antiproliferative activity then corresponding unsubstituted vanadocene analogues.



P. Hana, V. Jaromír*, H. Jana, F. Božena, C. Ivana and E. Milan . . . . . . 603 – 609

1,1′-Dimethylvanadocene α-amino Acid Complexes: Synthesis, Characterization and Antimicrobial Behavior Toward Escherichia coli B

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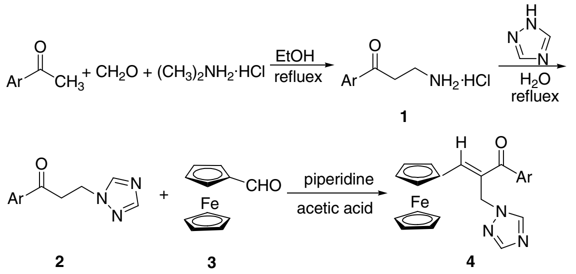
Fifteen new ferrocene derivatives containing 1*H*-1,2,4-triazole moiety were synthesized in various yields by the condensation of ferrocenecarboxaldehyde with 1-aryl-3-(1*H*-1,2,4-triazo-1-yl)-propen-1-ones in toluene. Their structures have been confirmed by ^{1}H NMR, IR, MS and elemental analysis. In addition, the crystal structure of **4l** was determined. The antifungal and plant growth regulatory activities of the title compounds were discussed.

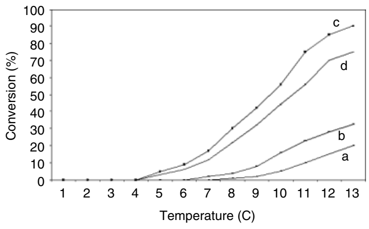


J. Liu, T. Liu, H. Dai, Z. Jin and J. Fang* 610–614

*Synthesis, structure and biological activity studies of 2-((1*H*-1,2,4-triazol-1-yl) methyl)-1-aryl)-3-ferrocenylprop-2-en-1-one derivatives.*

Section: Materials, Nanoscience and Catalysis

Ceria–zirconia mixed oxide was successfully synthesized via the sol–gel process at ambient temperature. The most stable cubic phase solid solutions were obtained in the Ce range above 50 mol%. The highest surface area was obtained from the mixed catalyst containing a ceria content of 90 mol% (200 m^2/g). $Ce_6Zr_4O_2$ exhibited the highest activity for the CO oxidation.



Decrease of catalytic activity with a decrease of Zr content in the cubic phase Ce-rich region.

M. Rumruangwong and S. Wongkasemjit* 615–625

Synthesis of ceria–zirconia mixed oxide from cerium and zirconium glycolates via sol–gel process and its reduction property

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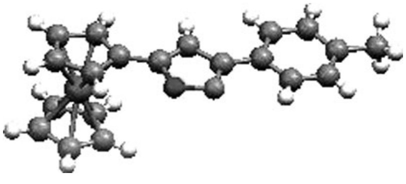
The synthesis of ferrocenyl-isoxazole derivatives is described. The structure of (η^5-C_5H_5) Fe(η^5-C_5H_4)$C_3HNOC_6H_4CH_3$ has been determined by single-crystal X-ray diffraction method. The electrochemical behaviors of the synthesized ferrocenyl-isoxazole derivatives have been studied.



Y. Shang*, C. Fan, M. Li and C. Zheng 626–631

Synthesis and properties study of novel ferrocenyl isoxazole derivatives

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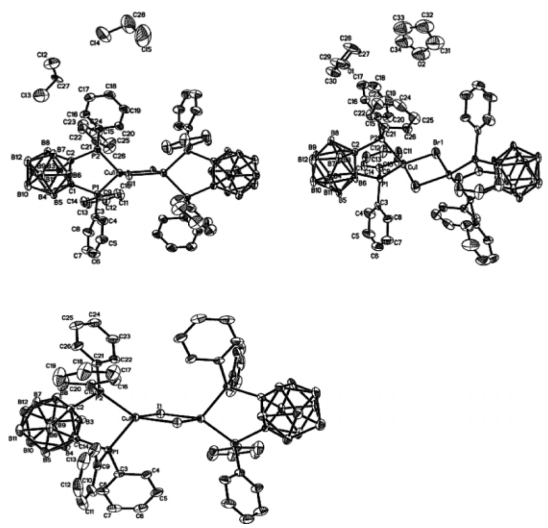
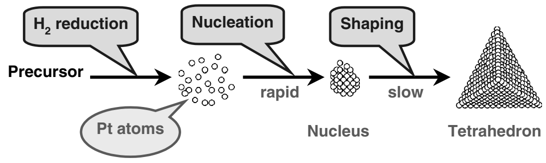
Three dinuclear copper(I) complexes $[Cu_2(\mu\text{-}X)_2(1,2\text{-}(PPh_2)_2\text{-}1,2\text{-}C_2B_{10}H_{10})_2]$(X = Cl,Br,I) with the similar di-μ-X-bridged structure, which contained the *closo* carborane diphosphine ligand, have been synthesized by the reactions of CuX(X = Cl, Br, I) with 1,2-Bis(diphenylphosphino)-1,2-dicarba-*closo*-dodecaborane in ethanol. The catalytic property of the complex for X = I was also investigated.



D. Zhang, J. Dou*, S. Gong, D. Li and D. Wang **632–637**

*Synthesis and Characterization of Three Dinuclear Copper(I) Complexes of 1,2-Bis(diphenylphosphino)-1,2-dicarba-*closo-*dodecaborane.*

Tetrahedral Pt nanocrystals with sizes of 3–10 nm were obtained in high selectivity by H_2-reduction of aqueous K_2PtCl_6 in the presence of poly(*N*-vinyl-2-pyrrolidone) (PVP) at moderate PVP : K_2PtCl_6 ratios. The co-existing round/spheroidal crystallites appear smaller than the tetrahedral ones in the systems. Careful examinations of the particle size and shape evolution of the crystallites during the crystal growth suggest that the tetradedral-shaped crystallites share the same type of nuclei with the round ones at the early stage of the crystal formation. Evolution of the tetrahedral shape happens in the later slow crystal growth.



Y.-T. Yu and B.-Q. Xu* **638–647**

Shape-controlled synthesis of Pt nanocrystals: an evolution of the tetrahedral shape

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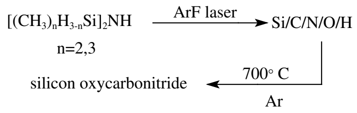
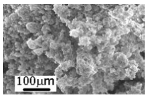
ArF laser irradiation of gaseous methyldisilazanes in excess of Ar affords chemical vapour deposition of solid amorphous nanostructured Si/C/N/H powder containing Si–X (X=C, H, O, N) bonds. This material heated to 700 °C yields silicon oxycarbonitride, whose structure consists of a network of O- and N-interconnected Si and C atoms.





J. Pola*, A. Galíková, Z. Bastl, J. Šubrt, K. Vacek, J. Brus and A. Ouchi* **648–655**

UV laser deposition of nanostructured Si/C/O/N/H from disilazane precursors and evolution to silicon oxycarbonitride

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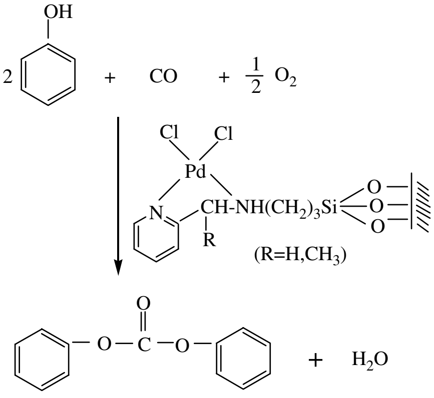
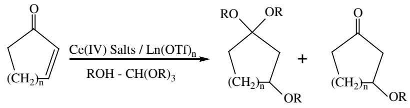
Heterogeneous palladium catalysts anchored on functionalized silica were prepared by sol-gel methods and their catalytic properties for the oxidative carbonylation of phenol to diphenyl carbonate (DPC) were investigated. The heterogeneous catalyst was more active and stable compared with traditional supported Pd-C catalyst under the same reaction conditions.



G.-Z. Fan, T. Li and G.-X. Li* . . 656–662

Oxidative carbonylation of phenol to diphenyl carbonate catalyzed by palladium complexes bridged with N,N*-ligands over functionalized silica*

Reaction of 2-cycloalkenone and α,β-unsaturated ketone with ammonium cerium(IV) nitrate (CAN), cerium(IV) sulfate (CS)-molecular sieve, or lanthanide triflates in alcohols gave the corresponding 1,1,3-trialkoxy acetal derivatives and β-alkoxyketone in good yields.

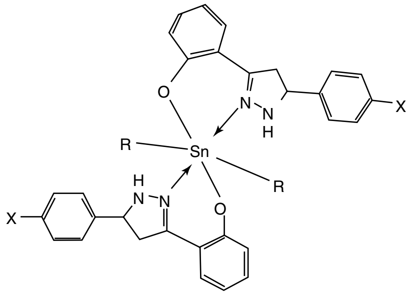


C. A. Horiuchi*, Y. Saitoh, T. Utsukihara, S. Takahashi, M. Matsushita, L. He, T. T. Takahashi, C. Hashimoto, T. Sugiyama and S. Nozaki 663–668

Reaction of α,β*-unsaturated ketones with cerium(IV) salts in alcohol*

Section: Main Group Metal Compounds

The bidentate behaviour of the pyrazoline ligands and distorted *trans*-octahedral structure around tin(IV) in diorganotin(IV) dipyrazolinates have been suggested. Some diorganotin(IV) dipyrazolinates exhibit higher antibacterial and antifungal effect than free ligand. Molecular structure of diorganotin(IV)3(2′-hydroxyphenyl)-5-(4-X-phenyl) pyrazolinates (where R = Me, Pr^n and Ph; X = −H, $-CH_3$, $-OCH_3$ and −Cl).



U. N. Tripathi*, G. Venubabu, M. Safi Ahmad, S. S. Rao Kolisetty and A. K. Srivastava 669–676

Synthesis, spectral and antimicrobial studies of diorganotin(IV)3(2′-hydroxyphenyl)-5-(4-substituted phenyl) pyrazolinates

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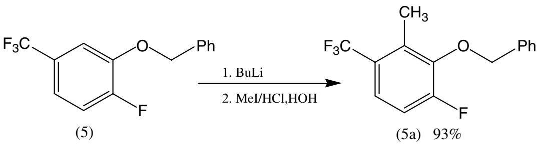
Lithiation of a series of aryl benzyl ethers has been studied. The formation of *ortho*, benzylic or dilithiated compounds has been observed depending on the type of substituents or organolithium reagent.



T. Kliś, J. Serwatowski* and D. Wójcik 677–682

A study on the metalation of fluorinated phenyl benzyl ethers

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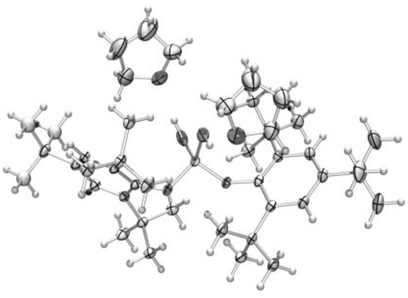
The hydrolytic stability of the sterically protected dichlorosilane $(Mes^*-O)_2SiCl_2$ was investigated. The resulting products have been identified by electrospray mass spectrometry and, in the case of $(Mes^*-O)_2Si(OH)_2$, the crystal structure could be obtained.



S. Spirk, M. Nieger, G. N. Rechberger and R. Pietschnig* 683–686

Formation and structural characterization of a sterically protected silicic acid diester

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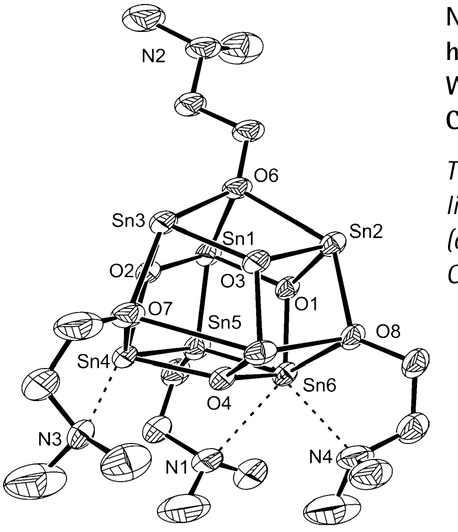
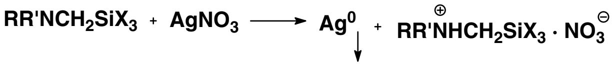
$Sn(dmae)_2$ ($dmaeH = Me_2NCH_2CH_2$-OH) is capable of forming 1 : 1 adducts with unsaturated metal centres such as $Cd(acac)_2$ and CdI_2, although Sn $(dmae)_2Cd(acac)_2$ fails to act as single-source precursors for mixed Sn–Cd oxide films. The structure of an hydrolysis product in the synthesis of $Sn(dmae)_2$, $Sn_6O_4(dmae)_4$, and that of the related cage $Sn_6O_4(OEt)_4$, are also reported.



N. Hollingsworth, G. A. Horley, M. Mazhar, M. F. Mahon, K. C. Molloy*, P. W. Haycock, C. P. Meyers and G. W. Critchlow 687–695

Tin(II) aminoalkoxides and heterobimetallic derivatives: the structures of $Sn_6(O)_4(dmae)_4$, $Sn_6(O)_4(OEt)_4$ and $[Sn(dmae)_2Cd(acac)_2]_2$



$$RR'NCH_2SiX_3 + AgNO_3 \longrightarrow \underset{\downarrow}{Ag^0} + RR'\overset{\oplus}{N}HCH_2SiX_3 \cdot NO_3^{\ominus}$$

The introduction of the organosilicon substituent into the α-position of an amino group results in cardinal change of the amine reactivity irrespectively of the coordination state of silicon. Amines $R_2NCH_2SiX_3$ ($R = Me$, Et, $PhCH_2$, CH_2SiX_3; $SiX_3 = SiMe_3$, $Si(OEt)_3$, $Si(OCH_2CH_2)_3N$) easily react with $AgNO_3$, to give the corresponding ammonium salts $(R_2NH^+CH_2SiX_3)NO_3^-$. At the same time, Ag(I) is reduced to Ag(0). The interaction of *N*-methyl-*N*,*N*-bis(silatranylmethyl)amine with $AgNO_3$ has been investigated by EPR spectroscopy. It was proven that the reaction involved a single electron transfer stage with the formation of cation radical of this amine. A mechanism of the reaction is proposed.

N. F. Lazareva*, T. I. Vakul'skaya, A. I. Albanov and V. A. Pestunovich.... 696–705

The reduction of Ag(I) by α-silylamines $R_2NCH_2SiX_3$

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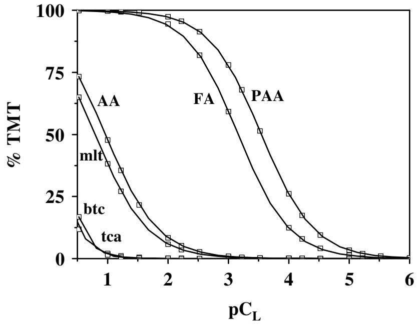
The sequestering capacity of naturally-occurring alginic and fulvic acids towards trimethyltin(IV) cation was calculated by using stability data of complex species formed in aqueous solution at the ionic strength and pH of natural waters. The obtained results, expressed as percentage of TMT complexes formed for different ligand concentrations, show that the sequestering capacity of fulvic acid (FA), similar to that of synthetic polyacrilate (PAA), is higher than that of alginic acid (AA) and much higher than that of low molecular weight carboxylate ligands.



A. Giacalone, A. Gianguzza*, A. Pettignano and S. Sammartano 706–717

Sequestration of organometallic compounds by natural organic matter. binding of trimethyltin(IV) by fulvic and alginic acids

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Book Review

R. O. Jenkins 718

Chemistry: an introduction for medical and health sciences

Book Review

M. Porter 719

Modern carbonyl olefination: methods and applications