Hungary Italy Germany Greece

Belgium France

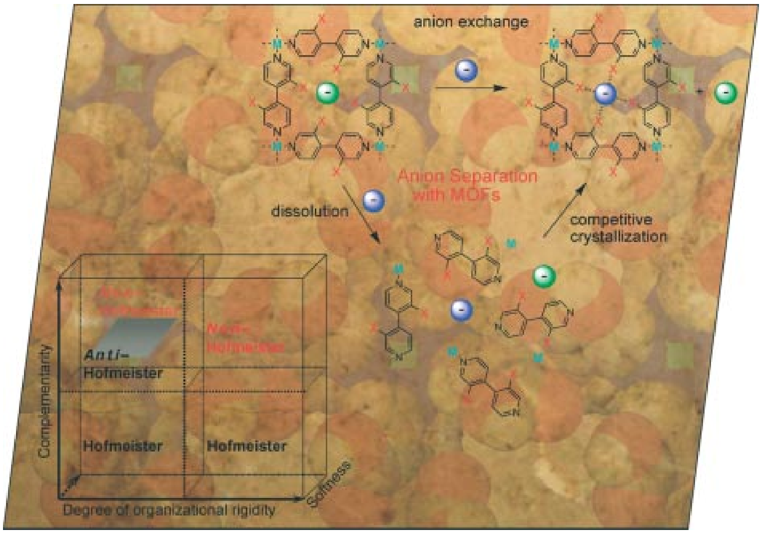
Sweden EUChemSoc Czech Republic

Austria Portugal Spain Netherlands

The EUChemSoc Societies have taken the significant step into the future by merging their traditional journals, to form two leading chemistry journals, the *European Journal of Inorganic Chemistry* and the *European Journal of Organic Chemistry.* Three further EUChemSoc Societies (Austria, Czech Republic and Sweden) are Associates of the two journals.

COVER PICTURE

The cover picture shows the concept of selective anion separation using metal–organic frameworks. Functionalization of the coordination polymers with hydrogen-bonding groups for specific anion binding and recognition results in highly selective separations by direct anion exchange or competitive crystallization processes. The diagram in the lower-left corner depicts a qualitative model for anion separation selectivity, captured in three orthogonal concepts: *complementarity* (strength and number of anion-binding interactions), *organizational rigidity* of the framework, and *softness* (or degree of covalency for anion binding). The solvation-controlled (Hofmeister) selectivity that is normally observed in anion separations can be reversed (anti-Hofmeister) or completely replaced by peak selectivity (non-Hofmeister) when rigid, structurally constrained frameworks having a sufficient number of complementary anion-binding groups are employed, or when the anion is bound with a strong degree of covalency (soft–soft interactions). The background shows a structurally rigid metal–organic framework functionalized with –COOH anion-binding groups that exhibit peak selectivity for the $Cl(H_2O)_4^-$ anionic cluster. Details are presented in the Microreview oyer on p. 1321 ff.



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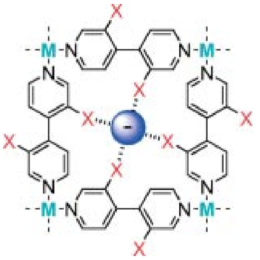
MICROREVIEW

Coordination Polymers

R. Custelcean,*
B. A. Moyer* .... **1321−1340**

Anion Separation with Metal−Organic Frameworks

Keywords: Anions / Crystal engineering / Host-guest systems / Molecular recognition



The application of metal-organic frameworks (MOFs) to anion separations with a special emphasis on anion selectivity is reviewed. Non-Hofmeister selectivity and shape recognition are observed in structurally constrained MOFs functionalized with hydrogen-bonding groups.

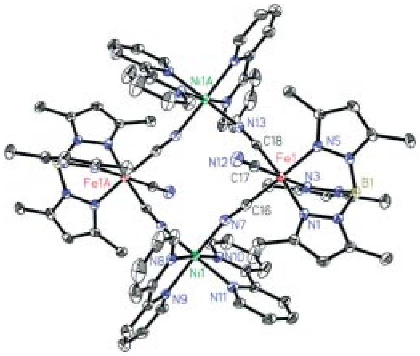
SHORT COMMUNICATIONS

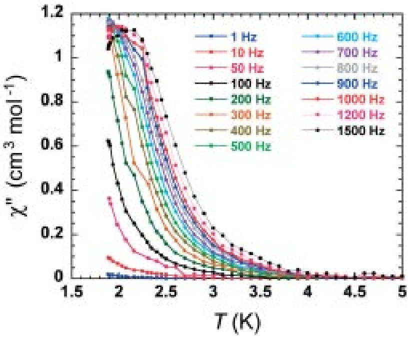
Magnetic Relaxation

D. Li, R. Clérac, G. Wang, G. T. Yee,
S. M. Holmes* .... **1341−1346**

Structural Distortion and Magnetic Behavior in Cyanide-Bridged $Fe^{III}_2Ni^{II}_2$ Complexes

Keywords: Cyanometalate / Magnetism / Single-molecule magnets / Pyrazolylborate / Magnetic relaxation





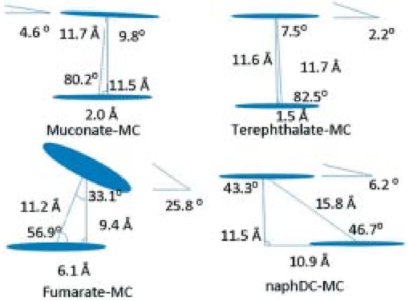
Magnetostructural comparisons between $\{[(Tp^*)Fe^{III}(CN)_3]_2[Ni^{II}(DMF)_4]_2[OTf]_2\}\cdot 2DMF$ (**1**) and the less symmetrical analog, an $S = 3$ cyanide-bridged complex, $\{[(Tp^*)Fe^{III}(CN)_3]_2[Ni^{II}(bipy)_2]_2[OTf]_2\}\cdot 2H_2O$ (**2**) show that, despite a non-planar $\{Fe^{III}_2Ni^{II}_2(\mu\text{-}CN)_4\}$ core and severely distorted Ni^{II} coordination environment in **2**, the magnetic properties of **1** and **2** are similar. This similarity suggests that the Ni^{II} centers play a minor role in determining the magnetization relaxation behavior of the clusters.

Metallacrown Hosts

C.-S. Lim, A. C. Van Noord, J. W. Kampf,
V. L. Pecoraro* .... **1347−1350**

Assessing Guest Selectivity within Metallacrown Host Compartments

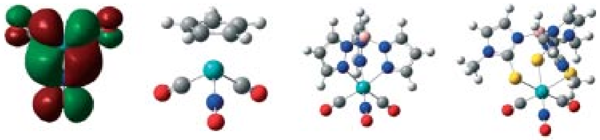
Keywords: Molecular compartment / Metallacrown / Selective recognition / Host−guest chemistry



The impact of the chemical properties and lengths of dicarboxylate guests that can be sequestered within chiral $\{Gd[15\text{-}MC\text{-}5]\}_2^{6+}$ compartments in the solid state was assessed.

FULL PAPERS

Molecular Orbital Calculations


$[Mo(CO)_2NO]^+$ $CpMo(CO)_2NO$ $TpMo(CO)_2NO$ $TmMo(CO)_2NO$

By investigating the hierarchical relationship between facially capping ligands (Cp/Tp/Tm) we can properly appreciate the qualities that a sulfur-donor system brings to the area of chemistry.

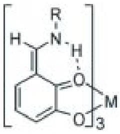
M. Schwalbe, P. C. Andrikopoulos, D. R. Armstrong, J. Reglinski,* M. D. Spicer* .... 1351−1360

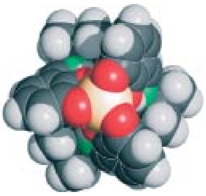
Structural and Theoretical Insights into Metal−Scorpionate Ligand Complexes

Keywords: Nitric oxide / Soft scorpionates / Molybdenum / Tungsten / Molecular orbital calculations

Understanding Self-Assembly

Chiral tripodal tris(iminocatecholato) ligands form mononuclear gallium(III) or titanium(IV) complexes. Electrostatic repulsion within the complex is compensated by protonation and by adopting an enaminone/chinomethine structure.





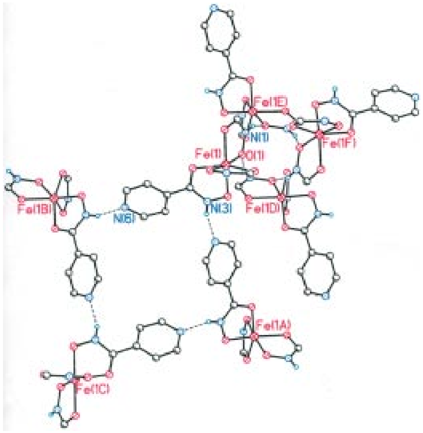
M. Albrecht,* S. Burk, R. Stoffel, A. Lüchow, R. Fröhlich, M. Kogej, C. A. Schalley .... 1361−1372

Protonation of Tris(iminocatecholato) Complexes of Gallium(III) and Titanium(IV)

Keywords: Coordination compounds / Helicates / Protonation / Self-assembly / Computational chemistry

Metal Pyridinehydroxamates

A series of metal pyridinehydroxamates all contain free N-donor atoms that endow them with the potential for use in the construction of pyridinehydroxamato-bridged supramolecular assemblies. The crystal structures of two iron(III) tris(pyridinehydroxamate) building blocks are found to have different packing systems.



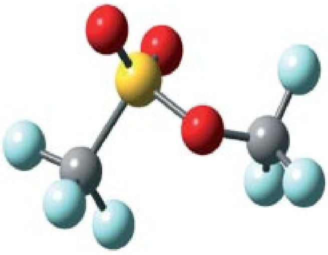
C. Mulcahy, K. A. Krot, D. M. Griffith, K. Yu. Suponitsky, Z. A. Starikova, C. J. Marmion* .... 1373−1380

Iron(III) Tris(pyridinehydroxamate)s and Related Nickel(II) and Zinc(II) Complexes: Potential Platforms for the Design of Novel Heterodimetallic Supramolecular Assemblies

Keywords: Iron / Hydroxamic acids / Speciation / Supramolecular chemistry / Crystal packing

Vibrational Properties

$CF_3SO_2OCF_3$ has been synthesised and its gas-phase structure determined from gas electron diffraction data. The infrared and the Raman spectra were obtained, and the observed bands were assigned. The experimental work was supported by theoretical calculations. The vibrational data along with the calculated theoretical force constants were used to define a scaled quantum mechanical force field for the studied molecule.



M. E. Tuttolomondo, P. E. Argañaraz, E. L. Varetti, S. A. Hayes, D. A. Wann, H. E. Robertson, D. W. H. Rankin, A. Ben Altabef* .... 1381−1389

Gas-Phase Structure and Vibrational Properties of Trifluoromethyl Trifluoromethanesulfonate, $CF_3SO_2OCF_3$

Keywords: Electron diffraction / IR spectroscopy / Raman spectroscopy / Structure elucidation / Ab initio calculations

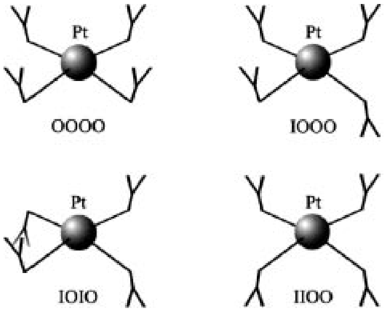
CONTENTS

Structural Tuning

W. Schiessl, R. Puchta,
Ž. D. Bugarčić, F. W. Heinemann,
R. van Eldik* 1390–1404

Systematic Counterion Tuning of the Solid-State Structure of $[Pt(thiourea)_4]^{2+}$

Keywords: Counter ion / Conformers / Crystal engineering



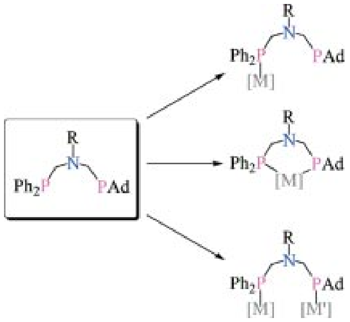
Seven $[Pt(TU)_4]X_n$ [X = Cl^-, I^-, $CF_3SO_3^-$, BPh_4^- and ClO_4^- (n = 2), and $S_2O_8^{2-}$ and SiF_6^{2-} (n = 1)] complexes were synthesized and their crystal structures determined. DFT calculations show that the possible limiting conformations have only moderate energy differences. The four limiting conformations for the $[Pt(TU)_4]^{2+}$ cation (OOOO, IOOO, IIOO, IOIO) could be experimentally realized solely by the use of the different counterions.

Ditertiary Phosphane Complexes

G. M. Brown, M. R. J. Elsegood, A. J. Lake,
N. M. Sanchez-Ballester, M. B. Smith,*
T. S. Varley, K. Blann* 1405–1414

Mononuclear and Heterodinuclear Metal Complexes of Nonsymmetric Ditertiary Phosphanes Derived from R_2PCH_2OH

Keywords: Late-transition metals / P ligands / Heterobimetallics / Coordination modes



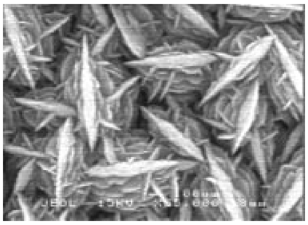
The synthesis of two new nonsymmetric ditertiary phosphanes and a study of their coordination chemistry at various late transition-metal centres are reported. All new compounds have been characterised by a combination of techniques including multinuclear NMR spectroscopy and single-crystal X-ray crystallography.

Thin Films

U. Qureshi, C. Blackman, G. Hyett,
I. P. Parkin* 1415–1421

Tungsten Oxide and Tungsten Oxide-Titania Thin Films Prepared by Aerosol-Assisted Deposition – Use of Preformed Solid Nanoparticles

Keywords: Tungsten oxide / Aerosol-assisted CVD / Thin films



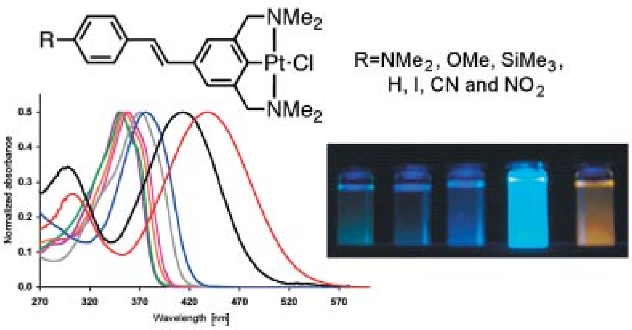
Aerosol-assisted deposition of an adhesive continuous WO_3 film was obtained from a solid nanoparticulate starting material suspended in toluene.

Pincer Pt^{II} Complexes

G. D. Batema, K. T. L. van de Westelaken,
J. Guerra, M. Lutz, A. L. Spek,
C. A. van Walree, C. de Mello Donegá,
A. Meijerink, G. P. M. van Klink,
G. van Koten* 1422–1435

Luminescent and Electronic Properties of Stilbenoid NCN-Pincer Pt^{II} Compounds

Keywords: Donor-acceptor systems / Luminescence / N-ligands / Platinum



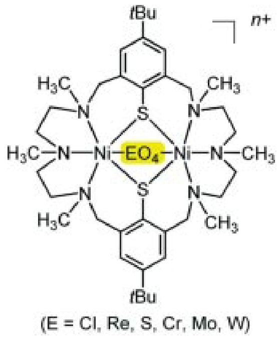
Tune in! A series of electronically tunable organometallic stilbenoid pincer platinum compounds were synthesized by a Horner–Wadsworth–Emmons reaction. By variation of the R substituent (see picture) the donor-acceptor properties of the molecule can be studied, which also changes the electronic density at the *para* situated platinum centre. By tuning the compounds, fluorescent metal complexes can be obtained.

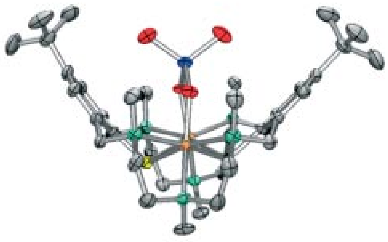
Anion Recognition

V. Lozan, B. Kersting* 1436–1443

Preparation and Characterization of Dinuclear Ni^{II} Amine-Thiophenolate Complexes Coligated by EO_4^- (E = Cl, Re) and EO_4^{2-} Oxoanions (E = S, Cr, Mo, W)

Keywords: Dinuclear complexes / Macrocyclic ligands / Oxoanions

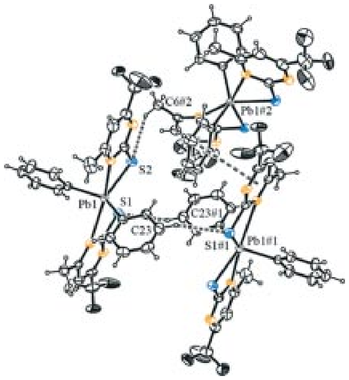




The macrocyclic $[(LMe)Ni_2]^{2+}$ complex binds doubly charged EO_4^{2-} ions (E = S, Cr, Mo, W) more strongly than uninegative EO_4^- species (E = Cl, Re).

Heterocyclic Thione Ligands

The preparation and structures of diorganotin(IV) and diphenyllead(IV) compounds with pyrimidine-2-thionate ligands are described. All the complexes synthesised have a distorted octahedral structure.



A. Rodríguez, A. Sousa-Pedrares, J. A. García-Vázquez,* J. Romero, A. Sousa, U. Russo 1444–1456

Synthesis and Structural Characterisation of Diorganotin(IV) and Diphenyllead(IV) Complexes of Pyrimidine-2-thionate Derivatives

Keywords: Tin / Lead / N,S ligands / NMR spectroscopy / Moessbauer spectroscopy