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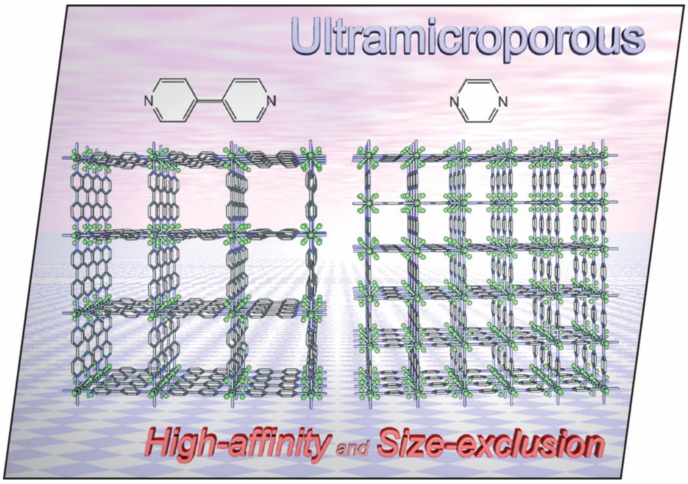
A union formed by chemical societies in Europe (ChemPubSoc Europe) has taken the significant step into the future by merging their traditional journals, to form two leading chemistry journals, the *European Journal of Inorganic Chemistry* and the *European Journal of Organic Chemistry*. Three further members of ChemPubSoc Europe (Austria, Czech Republic and Sweden) are Associates of the two journals.

COVER PICTURE

The cover picture shows two crystal structures of porous coordination polymers, $[Cu(SiF_6)(4,4'\text{-}bpy)_2]_n$ and $[Zn(SiF_6)(pyz)_2]_n$ (4,4′-bpy = 4,4′-bipyridine, pyz = pyrazine), which have been generated from square-grid coordination polymers that are cross-linked by μ-SiF_6 anions. Although typical bridging ligands such as 4,4′-bpy and 1,4-benzenedicarboxylate produce open octahedral coordination polymers with micropores, such micropores need to be further narrowed to become ultramicropores (< 7 Å) for separation and purification of smaller gas molecules. We have succeeded in obtaining the ultramicroporous coordination polymer $[Zn(SiF_6)(pyz)_2]_n$ with 4.5 ± 4.5 Å^2 pores by simply replacing 4,4′-bpy in $[M(SiF_6)(4,4'\text{-}bpy)_2]_n$ ($M = Zn^{2+}, Cu^{2+}$) with pyz. The ultramicropores of $[Zn(SiF_6)(pyz)_2]_n$ adsorb Me_2CO rather than *i*PrOH, showing the size-exclusive effect. Additionally, this compound shows a sharp uptake in H_2 adsorption at 77 K, because the interaction potential is expected to be strong as a result of the synergistic effect of the neighbouring pore walls. Details are discussed in the article by K. Uemura et al. on p. 2329ff.



CONTENTS

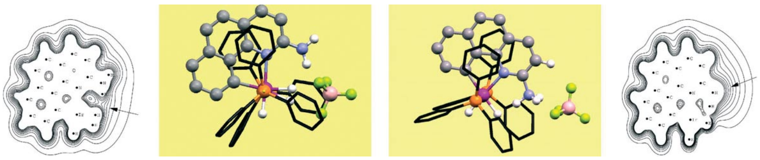
MICROREVIEW

Ion-Pairing

E. Clot* **2319–2328**

Ion-Pairing in Organometallic Chemistry: Structure and Influence on Proton Transfer from a Computational Perspective

Keywords: Ion pairs / Density functional calculations / Anions / Cations / Proton transfer



Ion-pairing is not solely the result of electrostatic interaction between a positive and a negative charge. Specific geometries for ion pairs may result from H-bonding interactions and could influence the thermodynamics and/or kinetics in organometallic chemistry.

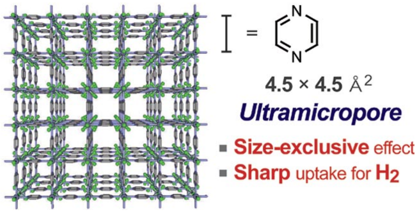
FULL PAPERS

Porous Coordination Polymers

K. Uemura,* A. Maeda, T. K. Maji, P. Kanoo, H. Kita **2329–2337**

Syntheses, Crystal Structures and Adsorption Properties of Ultramicroporous Coordination Polymers Constructed from Hexafluorosilicate Ions and Pyrazine

Keywords: Microporous materials / Metal–organic frameworks / Adsorption / Copper / Zinc



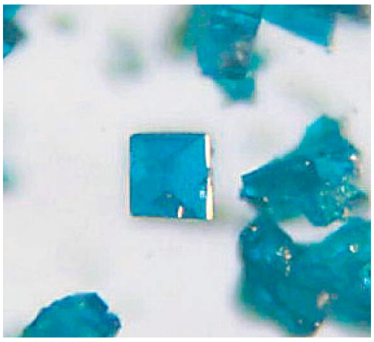
Hexafluorosilicate/pyrazine bridging porous coordination polymers with 4.5×4.5^{2} ultramicropores were synthesized and characterized. They show a size-exclusive effect and a sharp uptake in H_2 adsorption.

Metal–Organic Frameworks

C. G. Carson, K. Hardcastle, J. Schwartz, X. Liu, C. Hoffmann, R. A. Gerhardt, R. Tannenbaum* **2338–2343**

Synthesis and Structure Characterization of Copper Terephthalate Metal–Organic Frameworks

Keywords: Microporous materials / Coordination polymers / Crystal engineering / Magnetic properties / Carboxylate ligands / Metal-organic frameworks



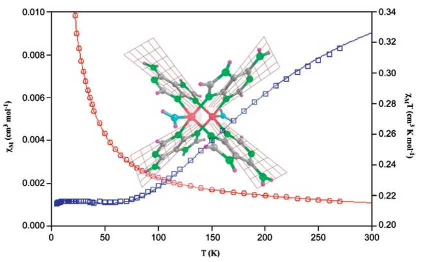
Gram quantities of copper terephthalate can be synthesized solvothermally in dmf in a matter of hours. The resulting product has crystallizes in the *C*2/*m* space group. When thermally activated, it exhibits the high surface area and magnetic properties associated with similar frameworks.

Windmill Copper(II) Complexes

J. Cepeda, O. Castillo,* J. P. García-Terán, A. Luque,* S. Pérez-Yáñez, P. Román **2344–2353**

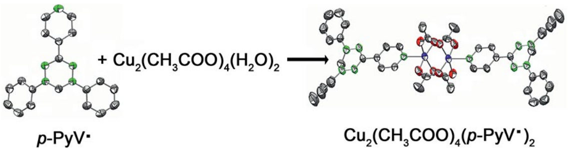
Supramolecular Architectures and Magnetic Properties of Self-Assembled Windmill-Like Dinuclear Copper(II) Complexes with Purine Ligands

Keywords: Nitrogen heterocycles / Copper / Magnetic properties / Density functional calculations / Supramolecular chemistry



Three dimeric $[Cu_2(\mu\text{-purine derivative})_4]$ entities were employed in the construction of supramolecular architectures from their self-assembly process. DFT calculations were carried out to evaluate the correlation of the exchange value with several structural parameters and the nature of the bridging ligand.

Copper-Verdazyl Complex



Pyridyl-substituted verdazyl (*p*-PyV) and the binuclear copper complex [$Cu_2(OCOCH_3)_4$(*p*-PyV)$_2$] are synthesized and structurally characterized. Their magnetic properties are studied by ESR spectroscopy and by measuring their temperature-dependent magnetic susceptibility.

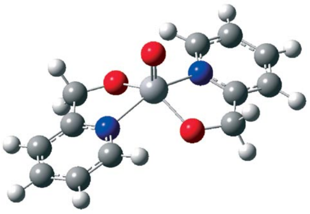
A. V. Yakovenko, S. V. Kolotilov, O. Cador, S. Golhen, L. Ouahab,* V. V. Pavlishchuk* .... 2354−2361

Structure, Spectral and Magnetic Properties of 3-(*p*-Pyridyl)-1,5-diphenylverdazyl (*p*-PyV) and the Binuclear Copper(II) Radical Complex [$Cu_2(OCOCH_3)_4$(*p*-PyV)$_2$]

Keywords: Radicals / Copper / X-ray diffraction / EPR spectroscopy / Magnetic properties

Vanadium Coordination Chemistry

Di(pyridin-2-yl) ligands form with the $V^{IV}O^{2+}$ ion mono- and bis-chelated complexes with (N_{pyr}, N_{pyr}), (N_{pyr}, CO) and (N_{pyr}, O^-) coordination. The amino acid derivatives promote the deprotonation and coordination of the amide nitrogen to give $[VOLH_{-1}]^+$ and $[VOLH_{-2}]$ species. The structures of the complexes and their EPR parameters are predicted through DFT methods.



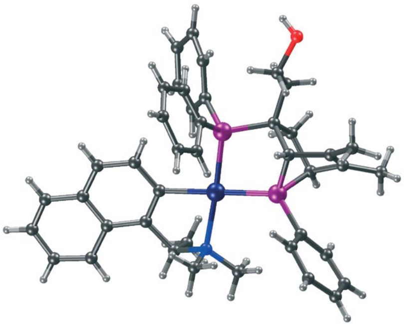
L. Pisano, D. Kiss, K. Várnagy, D. Sanna, G. Micera,* E. Garribba* ..... 2362−2374

Potentiometric, Spectroscopic and DFT Study of the $V^{IV}O$ Complexes Formed by Di(pyridin-2-yl) Ligands

Keywords: Vanadium / Bioinorganic chemistry / EPR spectroscopy / Density functional calculations

Metal Template Synthesis

An organoplatinum complex was employed as a promoter and chiral auxiliary in the asymmetric Diels−Alder reaction of phosphane-functionalized terminal alkenols with the diene 3,4-dimethyl-1-phenylphosphole. The cycloaddition reactions proceeded smoothly at room temperature, leading to the generation of alcohol-functionalized diphosphane ligands in high yields and excellent stereoselectivities.



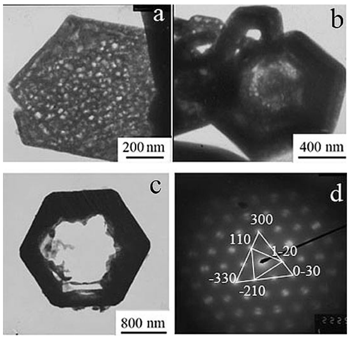
S. A. Pullarkat, Y. L. Cheow, Y. Li, P.-H. Leung* .... 2375−2382

Enantioselective, High-Yielding Synthesis of Alcohol-Functionalized Diphosphanes Utilizing Asymmetric Control with a Chiral Auxiliary

Keywords: Asymmetric synthesis / Platinum / Chiral auxiliaries / Cycloaddition / P ligands

Lanthanum Halide Nanostructures

Single-crystal LaF_3 with a ring-like structure is prepared by a simple molten salt route without the need for a template. The intrinsic crystallography of the sample is studied by XRD and HRTEM, and a formation mechanism involving central-etching of nanoplates is proposed on the basis of experiments performed with varying reaction times. The fluorescent properties of this compound are characterized by doping with Eu^{3+} cation.



Y. Tian,* J. Wen, B. Liu, N. Sui, Q. Jin, X. Jiao* .... 2383−2387

Synthesis and Characterization of Single-Crystalline Lanthanum Fluoride with a Ring-Like Nanostructure

Keywords: Molten salt synthesis / Nanostructures / Crystal growth / Lanthanum / Halides

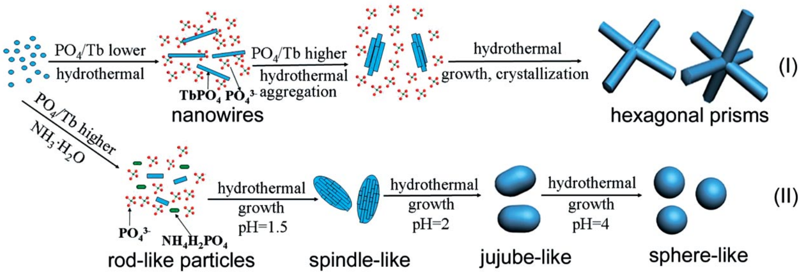
CONTENTS

Hierarchical Nanostructures

J. Bao, R. Yu,* J. Zhang, X. Yang,
D. Wang, J. Deng, J. Chen,
X. Xing* 2388–2392

💻 Controlled Synthesis of Terbium Orthophosphate Spindle-Like Hierarchical Nanostructures with Improved Photoluminescence

Keywords: Self-assembly / Hydrothermal synthesis / Luminescence / Nanostructures



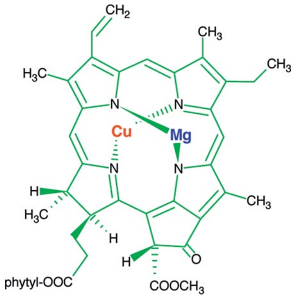
Spindle-like $TbPO_4{\cdot}H_2O$ hierarchical nanostructures with improved photoluminescence were prepared through a controlled synthesis by using a facile template-free hydrothermal route. The formation mechanism of the products was proposed.

Metallochlorophylls Formation

Ł. Orzeł, R. van Eldik,* L. Fiedor,*
G. Stochel* 2393–2406

💻 Mechanistic Information on Cu^{II} Metalation and Transmetalation of Chlorophylls

Keywords: Chlorophylls / Copper / Metalation / Transmetalation / Kinetics and mechanisms



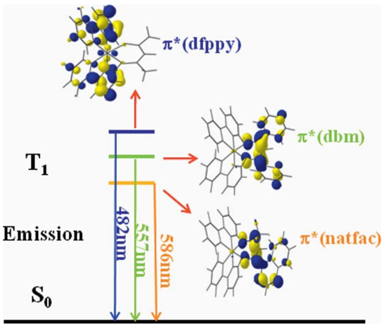
Kinetic studies on the reactions of chlorophyll *a* and pheophytin *a* with $CuAc_2$ showed that the rates and mechanisms of these reactions depend strongly on the properties of the solvent. As a consequence, the transmetallation in MeOH leads to the formation of a stable bimetallic intermediate, whereas in MeCN it terminates at the very initial stage of the reaction.

Color Tuning of Ir Complexes

X. Gu, T. Fei, H. Zhang,* H. Xu, B. Yang,
Y. Ma,* X. Liu 2407–2414

Tuning the Emission Color of Iridium(III) Complexes with Ancillary Ligands: A Combined Experimental and Theoretical Study

Keywords: Iridium / Ligand effects / Dyes/Pigments / Density functional calculations / Charge transfer



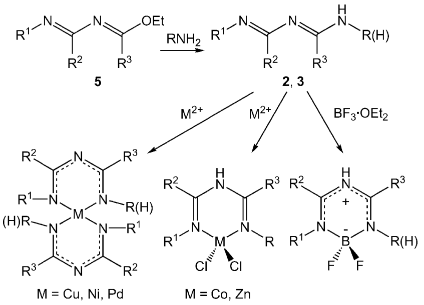
Color tuning of iridium(III) complexes is achieved by attaching electron-donating or electron-withdrawing substituents to the ancillary ligand L^X. The calculated results show that the low-lying excitations have MLCT and ILCT character. For the emission process, the main transition of FIr(acac) is $[d(Ir) + \pi(C\^{}N) \rightarrow \pi^*(C\^{}N)]$ and those of FIr(dbm) and FIr(natfac) are $[d(Ir) + \pi(L\^{}X) \rightarrow \pi^*(L\^{}X)]$.

N-Rich Bidentate Ligands

I. Häger, R. Fröhlich,
E.-U. Würthwein* 2415–2428

Synthesis of Secondary, Tertiary and Quaternary 1,3,5-Triazapenta-1,3-dienes and Their Co^{II}, Zn^{II}, Pd^{II}, Cu^{II} and BF$_2$ Coordination Compounds

Keywords: *N*-Imidoylimidoates / Triazapentadienes / N ligands / Hydrogen bonds



The secondary and tertiary 1,3,5-triazapenta-1,3-dienes **2** and **3** were prepared either from amidines and imidoyl chlorides or from *N*-imidoylimidoates **5** and primary amines. Treatment with M^{II} salts or BF_3 led to novel 1:1 and 2:1 coordination compounds with six-membered anionic or neutral triazapentadienyl chelate ligands.

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* Author to whom correspondence should be addressed.

💻 Supporting information on the WWW (see article for access details).