

Nanosized bimetallic alloys possess interesting size-dependent magnetic and optical properties. Learn more about their preparation in the Communication by Sobal and Giersig (p. 307).

AUSTRALIAN JOURNAL OF CHEMISTRY

AN INTERNATIONAL JOURNAL FOR CHEMICAL SCIENCE

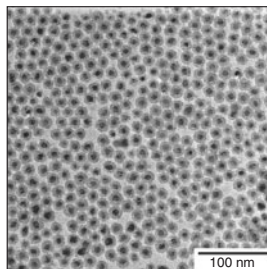
www.publish.csiro.au/journals/ajc

Rapid Communications

Core-Shell Pd/Co Nanocrystals

Nelli S. Sobal, Michael Giersig

Aust. J. Chem. **2005**, 58, 307–310.

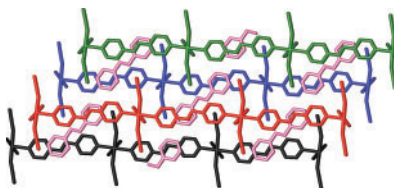


Two methods for the synthesis of Pd colloids with different crystal shapes are reported. Crystals prepared by one of the methods can act as seeds to form bimetallic Pd-core/Co-shell nanoparticles up to 16 nm in diameter; a TEM image of this material is shown. The bimetallic nanoparticles are superparamagnetic at room temperature.

Iron(II) Molecular Framework Materials with 4,4'-Azopyridine

Gregory J. Halder, Cameron J. Kepert

Aust. J. Chem. **2005**, 58, 311–314.



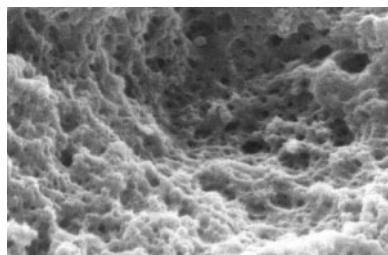
The sensitivity of self-assembly on subtle changes in chemical reagents and diffusion conditions is highlighted here by the formation of three new iron(II) molecular-framework materials incorporating the bridging ligand 4,4'-azopyridine (azpy). The structures were fully characterized (shown is $[\text{Fe}_2(\text{azpy})_4(\text{NCS})_4]$). The results aid understanding the range and importance of metal/ligand/solvent interactions during assembly.

Full Papers

Formulation of Cocaine-Imprinted Polymers Utilizing Molecular Modelling and NMR Analysis

Clovia I. Holdsworth, Michael C. Bowyer, Chris Lennard, Adam McCluskey

Aust. J. Chem. **2005**, 58, 315–320.



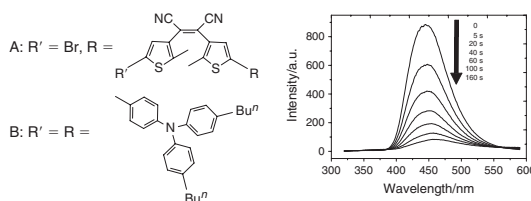
The potential use of molecular imprinted polymers (MIPs) as a detection system for illicit substances is realized here. Synthesis of a non-covalently imprinted polymer for cocaine is reported; subsequent NMR studies, which confirmed the interaction of the target with the MIP, agreed well with modelling data.

Tunable Luminescence of New Photochromic Bisthiénylenes Containing Triphenylamine

Qianfu Luo, Saihong Sheng, Saihe Cheng, He Tian

Aust. J. Chem. **2005**, 58, 321–326.

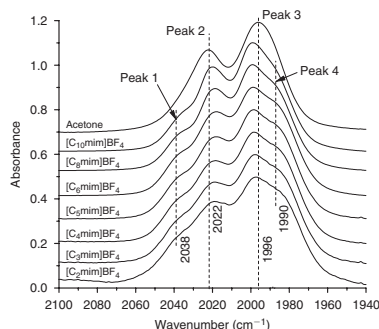
Organic photochromic material has potential applications in the areas of optical recording for storage of information and optical switching. Two such compounds, shown, underwent open-to-closed and closed-to-opened photochromism in relatively large quantum yields. The introduction of a fluorescent chromophore on the thiophene rings led to efficient photoswitchable luminescence.



Comparison of Polarities of Room-Temperature Ionic Liquids Using FT-IR Spectroscopic Probes

Guo-hong Tao, Ming Zou, Xiao-hua Wang, Zhi-yu Chen, David G. Evans, Yuan Kou

Aust. J. Chem. **2005**, 58, 327–331.

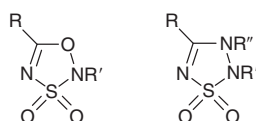


The polarity of ionic liquids is ‘tunable’, which thereby affects their solvation properties. Polarity however is a complex phenomenon and comparison based on single-parameter measurements is misleading. Reported here is a new spectrophotometric method based on CO-containing probes.

N,N-Dialkyl (*N'*-Chlorosulfonyl)-chloroformamidines in Heterocyclic Synthesis. I. The Preparation of [1,2,3,5]Thiatriazole and [1,3,2,4]Oxathiadiazole Derivatives

Gary D. Fallon, Saba Jahangiri, Andris J. Liepa, Ruth C. J. Woodgate

Aust. J. Chem. **2005**, 58, 332–338.

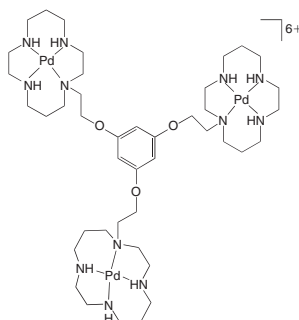


Heterocyclic compounds play a key role in pharmaceutical, agrochemical, optic, electronic, and materials science applications. This paper reports the synthesis of new oxathiadiazole and thiadiazole heterocycles (shown) which were prepared regioselectively from the reaction of *N,N*-dialkylated (*N'*-chlorosulfonyl)chloroformamidines with hydroxamic acid and hydrazine derivatives, respectively.

Mononuclear and Trinuclear Palladium(II) Complexes of Single- and Three-Ring Benzyl- or Xylyl-Substituted Cyclam Derivatives

Ying Dong, Leonard F. Lindoy, Peter Turner

Aust. J. Chem. **2005**, 58, 339–344.

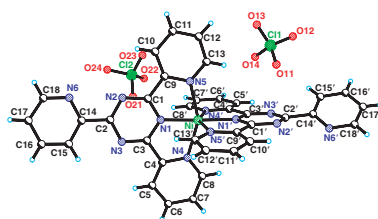


Palladium(II) readily complexes with different tri-linked cyclam derivatives so that each macrocyclic site is occupied. The chemistry of these systems follows that of their mono-ring analogues. Metal complexes of linked cyclam derivatives are candidates for inhibiting human immunodeficiency virus, types 1 (HIV-1) and 2 (HIV-2).

The Nickel(II)/2,4,6-Tris(2-pyridyl)-1,3,5-triazine System: Synthesis and Crystallographic Characterization of a Series of Complexes

Ramin Zibaseresht, Richard M. Hartshorn

Aust. J. Chem. **2005**, 58, 345–353.

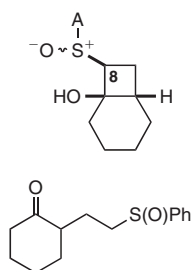


2,4,6-Tris(2-pyridyl)-1,3,5-triazine (tpt) is a versatile ligand. This structural study of a series of Ni^{II}-tpt complexes provides some insight into the factors that lead to their formation and crystallation. The addition of perchlorate ions to the isolated Ni-tpt complexes gave rise to [Ni(tpt)₂](ClO₄)₂ (shown), which notably lacked any π - π stacking or hydrogen bonding interactions.

Some Stability and Stereochemical Considerations of Simple Bicyclo[4.2.0]octanols

Wendy A. Loughlin, Catherine C. Rowen, Michelle A. McCleary

Aust. J. Chem. **2005**, 58, 354–361.

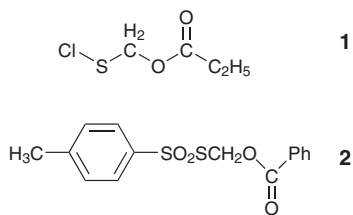


Bicyclooctanols potentially provide synthetic access for complex synthetic targets and functionalized cyclobutanols. This paper outlines how control of the stereochemistry at C8 in the formation of bicyclooctanols was achieved. The stability and reactivity of bicyclo[4.2.0]octan-1-ols to simple conditions of base, acid, and heat were explored. Unexpected stability to heat and stereoselective ring opening to the monoalkylated sulfoxide was observed.

**Benzoyloxymethyl
p-Toluenethiosulfonate:
a Crystalline, Stable Synthetic
Equivalent for $^+\text{CH}_2\text{S}^+$**

S. M. Humayun Kabir, Richard F. Langer

Aust. J. Chem. **2005**, 58, 362–367.

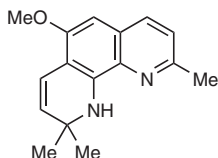


Sulfonyl chlorides, as a synthetic equivalent for $^+\text{CH}_2\text{S}^+$, are often unstable; unused quantities of the reagent **1** need be stored in a freezer. This report describes the preparation of a stable $^+\text{CH}_2\text{S}^+$ equivalent, **2**. Reagent **2** has been applied to the one-pot conversion of mercaptans into α -sulfide disulfides.

**Preparation and Cyclization of Some
N-(2,2-Dimethylpropargyl) Homo-
and Heteroaromatic Amines
and the Synthesis of Some
Pyrido[2,3-*d*]pyrimidines**

*Michelle A. Holman,
Natalie M. Williamson, A. David Ward*

Aust. J. Chem. **2005**, 58, 368–374.



N-(2,2-dimethylpropargyl) aromatic and quinoline amines can be cyclized to yield substituted dihydroquinoline, dihydronaphtho[2,3-*f*]quinoline, and dihydrophenanthroline products.

Focus

**New Polymeric Sorbents: Enhancing
Solid-Phase Extraction**

Datta E. Ponde

Aust. J. Chem. **2005**, 58, 375.

Solid-phase extraction (SPE) has proved its potential for sample preparation techniques. Recently developed polymeric sorbents provide excellent pH stability, high recoveries, and no problems associated with sorbent drying. New polymer-based sorbent will lead the application of SPE in various fields of chemical analysis.

Book Review

N. N. M. Nibbering

p. 376