

The cover shows the solid structure and indicates the blue-green fluorescence of the  $\text{Cd}_4(\mu\text{-O})_4$  coordination polymer reported by Chen et al. (p. 1175).

# AUSTRALIAN JOURNAL OF CHEMISTRY

AN INTERNATIONAL JOURNAL FOR CHEMICAL SCIENCE

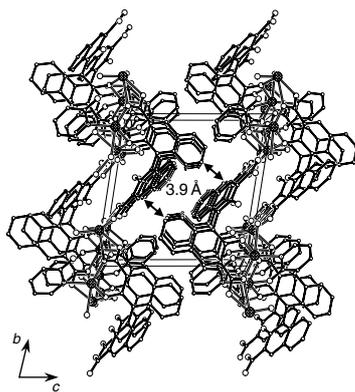
www.publish.csiro.au/journals/ajc

## Rapid Communication

### A Two-Dimensional Layered Cadmium Polymer Featuring $\text{Cd}_4(\mu\text{-O})_4$ Cores and Fluorescent Emission

Jin-Hua Yang, Wei Li, Shao-Liang Zheng, Zhen-Li Huang, Xiao-Ming Chen

*Aust. J. Chem.* **2003**, *56*, 1175–1178.



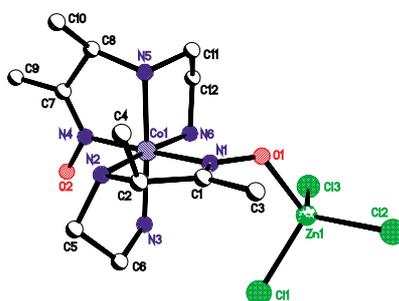
The title coordination polymer (shown is a view along its *a*-axis) may be efficiently prepared through a straightforward hydrothermal synthesis. The ligand coordinates to the cores in a surprising polydentate mode, which gives rise to fluorescence emission at 538 nm.

## Full Papers

### Preparation and Photochemistry of Some Cobalt(III) Complexes of Tridentate Oxime-Diamine and Oxime-Amino Acid Ligands

Carl A. Otter, Richard M. Hartshorn

*Aust. J. Chem.* **2003**, *56*, 1179–1186.

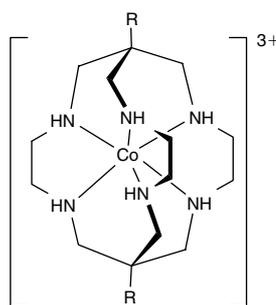


Oxime-diamine and oxime-amino acid complexes have been prepared and subjected to UV photolysis. The complexes isomerize or decarboxylate, and an unexpected incorporation of the anion is revealed.

### Chiral Resolution of Hexamine Cobalt(III) Cages: Substituent Effects on Chiral Discrimination

Paul V. Bernhardt, Tri Erny Dyahningtyas, Jack M. Harrowfield, Jee-Young Kim, Yang Kim, Elisabeth Rukmini

*Aust. J. Chem.* **2003**, *56*, 1187–1191.



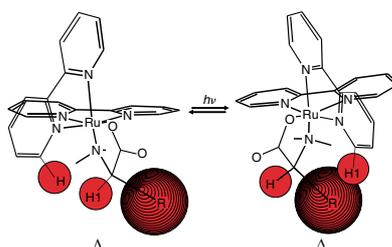
R =  $\text{NO}_2$   $[\text{Co}(\text{diNOsar})]^{3+}$   
R =  $\text{NH}_2$   $[\text{Co}(\text{diAMsar})]^{3+}$

The chiral resolution and absolute configuration, determined by X-ray crystallography, of the cobalt cage complexes  $[\text{Co}(\text{diNOsar})]^{3+}$  and  $[\text{Co}(\text{diAMsarH}_2)]^{5+}$  have been achieved by selective crystallization as their mixed chloride bis- $\mu$ -(*R,R*)-tartratodiantimonate(III) ( $[\text{Sb}_2(\text{R,R-tart})_2]^{2-}$ ) salts and by cation exchange column chromatography using  $\text{Na}_2[\text{Sb}_2(\text{R,R-tart})_2]$ .

### HPLC Separation of Diastereomeric Metal Complexes of the Form $\Delta, \Lambda$ -[Ru(diimine) $_2$ (*S*)-aminoacidate]

Janice R. Aldrich-Wright, Robert S. Vagg, Peter A. Williams

*Aust. J. Chem.* **2003**, *56*, 1193–1200.



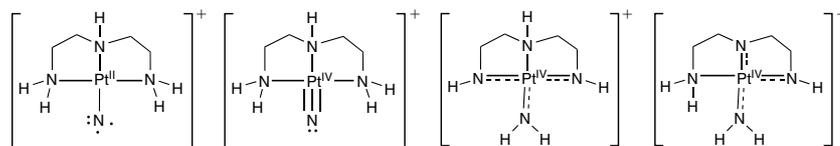
The title complex exchanges between its  $\Delta$ - and  $\Lambda$ -forms under irradiation from visible light. To determine the isomeric ratios of the equilibrium, separation is required. Of the ten analogous complexes studied, five could be separated through the use of ion-interaction reagents.

### Gas-Phase Studies on the Reactivity of the Azido(diethylenetriamine)-platinum(II) Cation and Derived Species

Sheena Wee, Jonathan M. White,  
W. David McFadyen,  
Richard A. J. O'Hair

*Aust. J. Chem.* **2003**, *56*, 1201–1207.

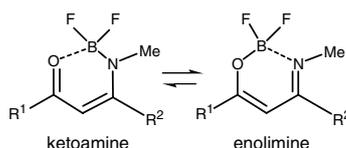
The gas-phase chemistry of the title compound, probed by means of collision-induced dissociation and ion–molecule reactions, reveals a wealth of reaction pathways and surprising complexity. Several compounds shown were candidates for the fragmentation intermediates, but complementary labelling studies eliminated two of these.



### The Structure of 1,3-Enaminoketonatoboron Difluorides in Solution and in the Solid State

Kuniaki Itoh, Kazuhiko Okazaki,  
Miki Fujimoto

*Aust. J. Chem.* **2003**, *56*, 1209–1214.

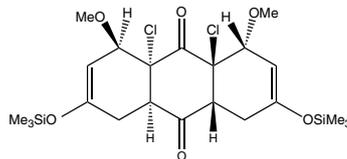


The structures of the title compounds in solution and the solid state, as determined by spectroscopic methods, are discussed. In solution, the ketoamine and enolimine tautomeric forms may be present in equal amounts, whereas in the solid state the contribution of the enolimine increases. These results help explain the reactivity and products from the reaction of the  $\text{BF}_2$  complex (as shown).

### Stereochemistry and Crystal Structures of Bis Cycloadducts of Danishefsky's Diene ( $\text{Me}_3\text{SiOC}(\text{=CH}_2)\text{CH}=\text{CHOMe}$ ) with 2,5- and 2,6-Dichlorobenzoquinone

Donald W. Cameron, Raymond L. Evans,  
Geoffrey I. Feutrill, Vincent A. Patrick,  
Brian W. Skelton, Allan H. White

*Aust. J. Chem.* **2003**, *56*, 1215–1217.



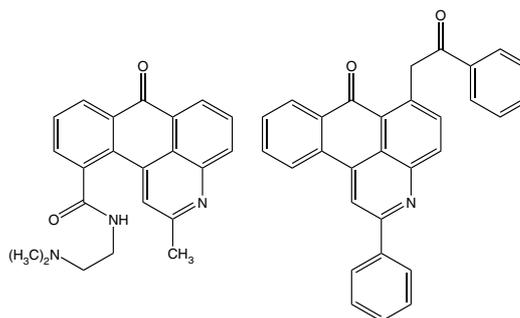
Syntheses and single crystal X-ray structural characterizations are reported for bis adducts formed between Danishefsky's diene with the title dienophiles. Formation of each adduct (an example of which is shown) involves diastereocontrolled creation of six stereogenic centres.

### Tetracycle Formation from the Reaction of Acetophenones with 1-Aminoanthraquinone, and Further Annulation of Pyridine and Diazepine Rings

Leslie W. Deady, Clare L. Smith

*Aust. J. Chem.* **2003**, *56*, 1219–1224.

In exploring routes to analogues of the potent antitumour agent (left structure), access to the 2-aryl moiety was required. The reaction of 1-aminoanthraquinone with acetophenones under the alkaline conditions reported herein provides the desired system, but with a 6- $\text{CH}_2\text{COAr}$  substituent (right structure). Useful polycyclic products are prepared from these compounds.

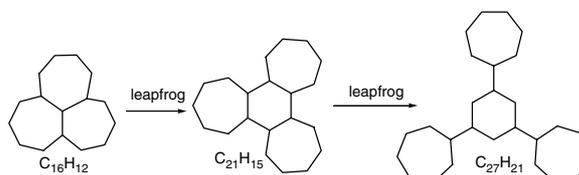


### Valence-Bond and Hückel Molecular Orbital Diradicals—Alternant versus Nonalternant Effects

Jerry Ray Dias

*Aust. J. Chem.* **2003**, *56*, 1225–1232.

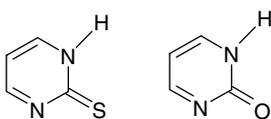
'A bond is formed from two electrons' is arguably, along with the concept of valence, the foundation for chemical reasoning. Understanding the formation of diradicals therefore demands understanding these fundamentals of bonding. In this paper, two distinct classes of diradicals are examined in conjunction with alternant and nonalternant hydrocarbons, and the tendencies to undergo skeletal distortions in transforming to a nonradical form.



### Substituent Effects in the Reduction Behaviour of Thio- and Oxopyrimidines in Non-Aqueous Solvents

Marco Borsari, Maria Cannio,  
Daniela Dallari, Claudio Fontanesi,  
Giovanna Gavioli, Silvia Peressini,  
Claudio Tavagnacco

*Aust. J. Chem.* **2003**, *56*, 1233–1238.

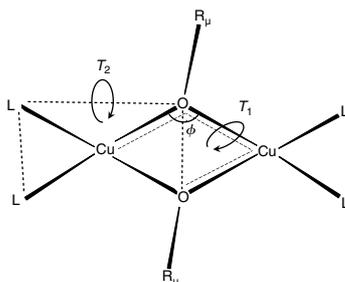


Pyrimidine bases and their thio derivatives are widespread in biological systems, in which their electron transfer properties are of importance. This examination of the electrochemical reduction behaviour of a collection of substituted thio- and oxopyrimidines (shown) in a number of protic and aprotic media aids clarification of the relationship between molecular structure and electron transfer processes.

### Magneto-Structural Correlation in Di- $\mu$ -oxo Bridged Dicopper Complexes—Predictability of Isotropic Exchange-Coupling Constant from Structure

G. V. R. Chandramouli,  
Tapan Kumar Kundu,  
Periakaruppan T. Manoharan

*Aust. J. Chem.* **2003**, *56*, 1239–1248.



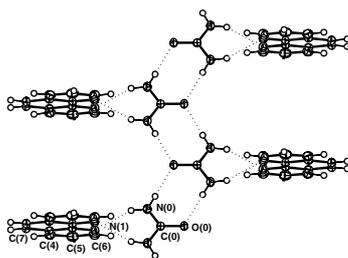
Correlation between isotopic exchange coupling constant and their structural parameters in the  $\text{CuO}_2\text{Cu}$  moiety, as indicated in the graphic, have been examined with reference to more than 100 compounds. In these compounds the superexchange path requires covalent bonding between copper and bridging oxygen atoms; however, if the  $\text{Cu-O}$  bond length is greater than 2.25 Å, this pathway probably breaks down.

### Short Communications

#### 'Neutralsmolekülkomplexe'—Structural Characterization of Some Adducts of Urea and Thiourea with $N,N'$ -Bidentate Aromatic Bases

Paul S. Donnelly, Brian W. Skelton,  
Allan H. White

*Aust. J. Chem.* **2003**, *56*, 1249–1253.

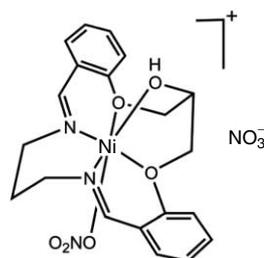


As an important yet simple ingredient controlling crystal architectures, (thio)urea is widely used. With the bidentate aromatic bases investigated here—bipyridine, 1,10-phenanthroline, 2,9-dimethyl-1,10-phenanthroline—the resulting 1 : 1 complexes form infinite one-dimensional hydrogen-bonded chains.

#### Synthesis and Characterization of the Nickel(II) Complex of a Macrocyclic Schiff Base Ligand with a Single Pendant Coordinating Hydroxyl Arm

Ali A. Khandar, Seyed A. Hosseini-Yazdi

*Aust. J. Chem.* **2003**, *56*, 1255–1257.

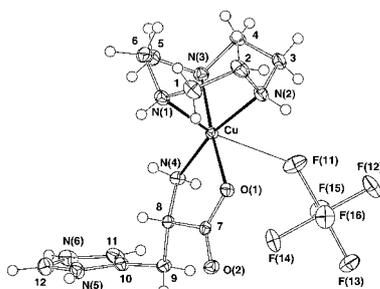


Macrocyclic complexes that contain pendant arms are being studied more intensely because it has emerged that they play an important role in biological systems and are good bioinorganic models for cobalamine. Here the authors report the synthesis and characterization of a nickel(II) complex of a 16-membered mixed-donor macrocyclic Schiff base ligand with a pendant hydroxyl arm.

#### Amino Acid Binding to Copper(II) in (1,4,7-Triazacyclononane)(L-histidine)-copper(II) Hexafluorophosphate Monohydrate

Bim Graham, Milton T. W. Hearn,  
Leone Spiccia, Brian W. Skelton,  
Allan H. White

*Aust. J. Chem.* **2003**, *56*, 1259–1261.



The reaction of  $[\text{Cu}(\text{tacn})\text{Br}_2]$  with L-histidine afforded  $[\text{Cu}(\text{tacn})(\text{L-His})](\text{PF}_6)_2 \cdot \text{H}_2\text{O}$ . This complex has a distorted square pyramidal copper(II) coordination sphere that is occupied by three nitrogen atoms of the tacn macrocycle, as well as one carboxylate oxygen and the primary nitrogen of L-histidine. The imidazole moiety remains protonated.

Annual Referee Index

p. 1262

Annual Author Index

p. 1264

**Author Index**

- Aldrich-Wright, J. R. 1193  
Bernhardt, P. V. 1187  
Borsari, M. 1233  
Cameron, D. W. 1215  
Cannio, M. 1233  
Chandramouli, G. V. R. 1239  
Chen, X.-M. 1175  
Dallari, D. 1233  
Deady, L. W. 1219  
Donnelly, P. S. 1249  
Dyahningtyas, T. E. 1187  
Evans, R. L. 1215  
Feutrill, G. I. 1215  
Fontanesi, C. 1233  
Fujimoto, M. 1209  
Gavioli, G. 1233  
Graham, B. 1259  
Harrowfield, J. M. 1187  
Hartshorn, R. M. 1179  
Hearn, M. T. W. 1259  
Hosseini-Yazdi, S. A. 1255  
Huang, Z.-L. 1175  
Itoh, K. 1209  
Khandar, A. A. 1255  
Kim, J.-Y. 1187  
Kim, Y. 1187  
Kundu, T. K. 1239  
Li, W. 1175  
Manoharan, P. T. 1239  
McFadyen, W. D. 1201  
O'Hair, R. A. J. 1201  
Okazaki, K. 1209  
Otter, C. A. 1179  
Patrick, V. A. 1215  
Peressini, S. 1233  
Dias, J. R. 1225  
Rukmini, E. 1187  
Skelton, B. W. 1215, 1249, 1259  
Smith, C. L. 1219  
Spiccia, L. 1259  
Tavagnacco, C. 1233  
Vagg, R. S. 1193  
Wee, S. 1201  
White, A. H. 1215, 1249, 1259  
White, J. M. 1201  
Williams, P. A. 1193  
Yang, J.-H. 1175  
Zheng, S.-L. 1175