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Special Issue Dedicated to Acharya P C Ray

VOLUME 50A

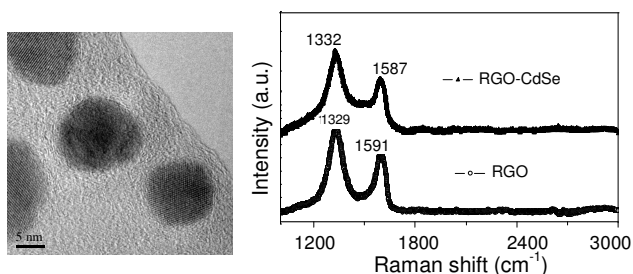
NUMBER 9-10

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CONTENTS

- 1239 **Synthesis, characterization and spectroscopy of composites of graphene with CdSe and CdS nanoparticles**

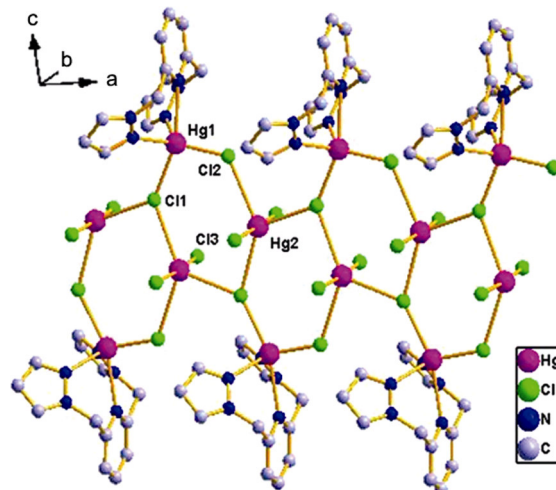
Nanocomposites of few-layer graphene with nanoparticles of CdSe and CdS have been synthesized and characterized. Electronic interaction between nanoparticles and graphene has been examined by Raman and photoluminescence spectroscopies.



Kota Moses, L S Panchakarla,
H S S Ramakrishna Matte, Bolla Govindarao
& C N R Rao*

- 1248 **Discrete monomeric and chloride-bridged dimeric and 1D coordination polymeric mercury(II) complexes of a class of pyridyl-pyrazole ligands with variable denticity and flexibility**

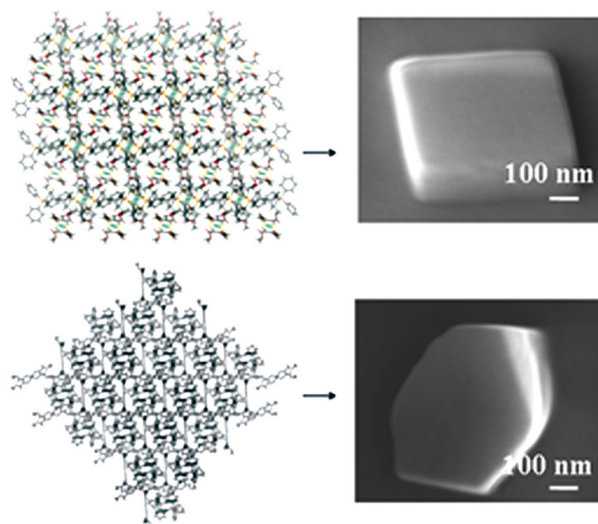
Synthesis and structural characterization of two discrete and a 1D coordination polymeric Hg^{II} complexes of pyridyl-pyrazole ligands have been achieved.



Saleem Javed, V Balamurugan, Wilson Jacob,
Anuj Kumar Sharma & Rabindranath Mukherjee*

1257 From molecular to micro structure via nanostructure of a nickel(II) dithiolene complex

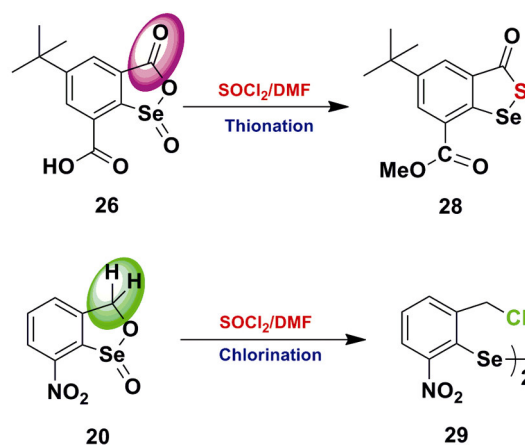
The molecular shape of a metal-ligand complex, $[\text{PPh}_4][\text{Ni}^{\text{II}}(\text{L}^{2-})(\text{L}^{1-\bullet})]$ ($\text{L} = 1,2\text{-dicarbomethoxyethylene dithiolate}$), viz., rectangular and hexagonal prismatic, are the repeating motifs/patterns manifested in lattice packing of the complex that extend to the nano domain.



Ameerunisha Begum, Manav Saxena,
Sumit K Sonkar & Sabyasachi Sarkar*

1263 Synthesis of intramolecularly coordinated cyclic selenenate/thioselenenate esters and their glutathione peroxidase-like activity

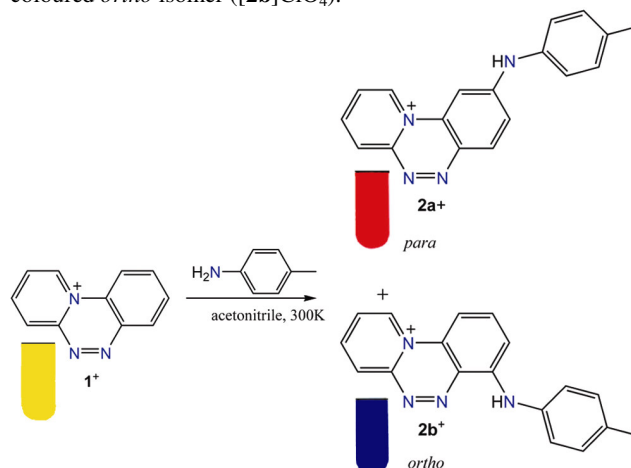
The thionation reaction of the selenenate ester **26** affords thioselenenate ester whereas the selenenate ester **20**, under similar conditions, yields diselenide.



Vijay P Singh, Harkesh B Singh* & Ray J Butcher

- 1273 Isolation and characterization of two isomeric arylamine substituted triazinium salts. Studies of intramolecular charge-transfer and electrochromic properties

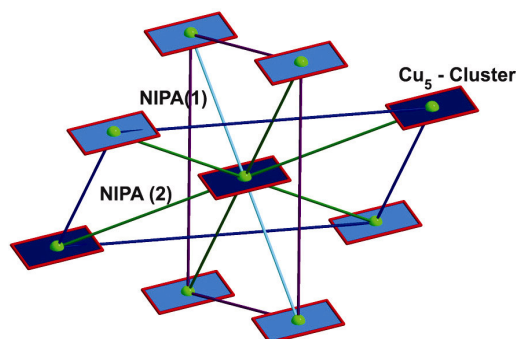
Reaction of 9,10-diaza-4a-azonia-phenanthrene perchlorate (**1**][ClO₄) with *para*-toluidine in acetonitrile affords two isomeric compounds, the red coloured *para* isomer (**2a**][ClO₄) and blue coloured *ortho* isomer (**2b**][ClO₄).



Mominul Sinan, Pradip Ghosh & Sreebrata Goswami*

- 1281 An eight-connected metal organic framework based on Cu₅ clusters: Synthesis, structure, magnetic and catalytic properties

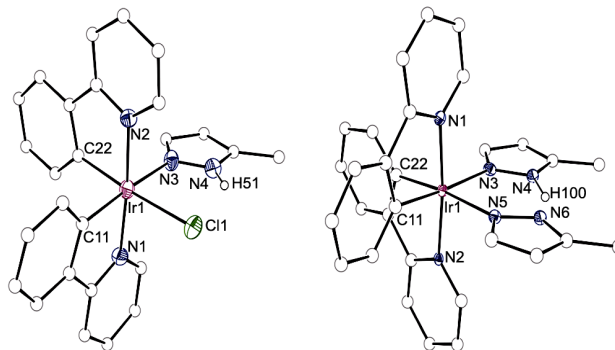
A new meta-organic framework compound, [Cu₅(μ₃-OH)₂(H₂O)₆{(NO₂)-C₆H₃-(COO)₂}]₄.5H₂O, with pentameric Cu₅ cluster is synthesized. The compound forms a pillared CdCl₂-like structure. The syntheses, structure, magnetic and catalytic studies of the obtained phases are reported.



Debajit Sarma & Srinivasan Natarajan*

- 1290 Cyclometalated Ir(III) complexes containing ancillary pyrazole-based ligands

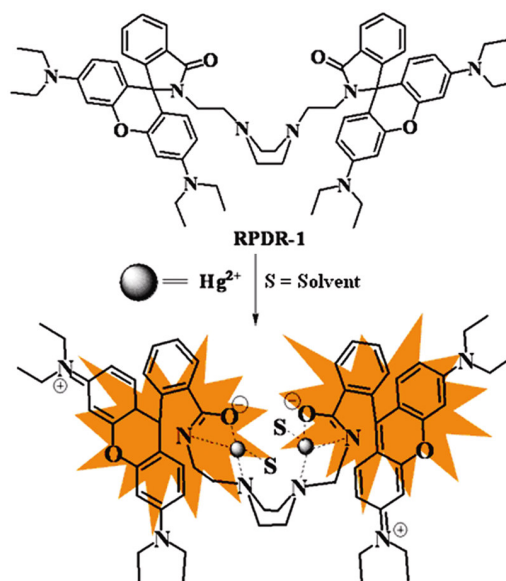
Neutral mononuclear cyclometalated Ir(ppy)₂ complexes with a variety of pyrazole-based ancillary ligands have been synthesised, characterised and their photophysical properties studied.



Tanima Hajra, Soumya Ghosh, Jitendra K Bera* & Vadapalli Chandrasekhar*

- 1298** A rhodamine-piperazine conjugate as a fluorogenic sensor for mercury(II) ion in aqueous ethanol medium

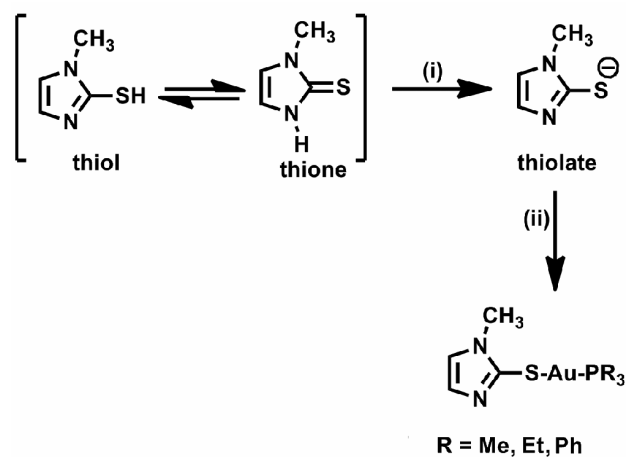
A new bis-rhodamine piperazine conjugate that exhibits high fluorescence specifically in presence of Hg^{2+} ion in aqueous ethanol has been synthesized.



Shubhra Bikash Maity & Parimal K Bharadwaj*

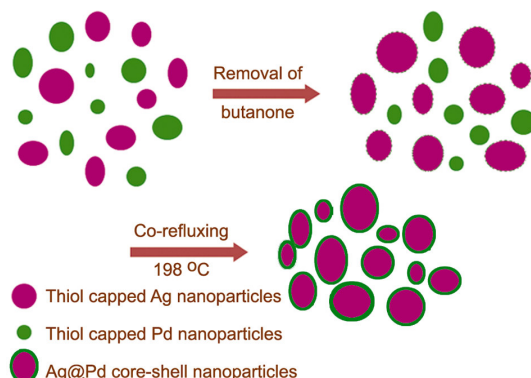
- 1303** Synthesis and characterization of some gold(I)-thiolate complexes having N-methylimidazole moiety

Therapeutic gold(I) drugs interact with the antithyroid drug methimazole to produce gold(I)-thiolate complexes. These gold(I)-thiolates undergo extensive thiol exchange reactions in the presence of various nucleophiles.



Krishna P Bhabak & Govindasamy Mugesh*

1308 Ag@Pd core-shell nanoparticles



Deepa Jose & Balaji R Jagirdar*

1318 Synthesis and structural studies of copper(II) and nickel(II) complexes containing 4,5-diazafluoren-9-one and pseudohalides: Metal ion directed isomer preference

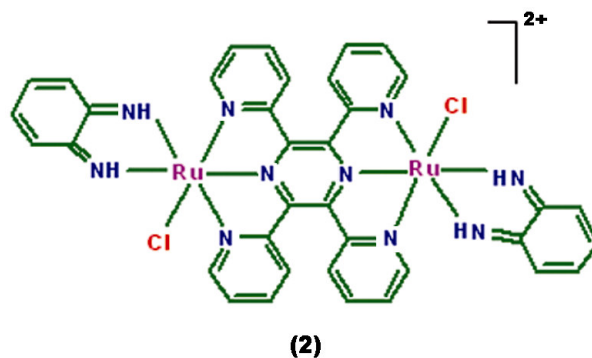
Metal ion directs the isomer preference between *cis*- and *trans*-octahedral coordination for a ligand with long chelate bite.



B Kishore Babu, S M Elahi, T Krishna Chary & M V Rajasekharan*

1324 Ruthenium complexes of two different non-innocent ligands. Investigation of electronic structural aspects by experimental and DFT analysis

The oxidized forms of non-innocent ligands Q (*o*-benzoquinone-diimine) and non-planar tppz (2,3,5,6-tetrakis(2-pyridyl)pyrazine) in (1) and (2) undergo successive close-by multiple reductions besides metal based oxidation(s). The mixed valent $\text{Ru}^{\text{II}}\text{Ru}^{\text{III}}$ state in (2⁺) exhibits $K_c \sim 10^2$, revealing a valence localized class II situation.

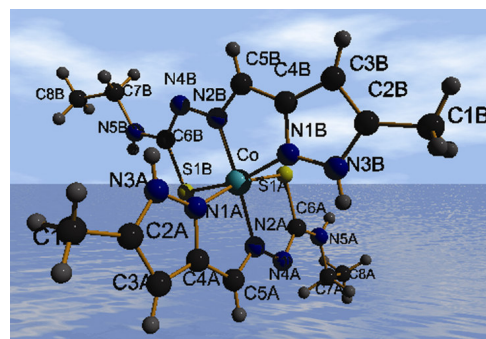


Tanaya Kundu, Abhishek Dutta Chowdhury, Biswajit Laha, Shaikh M Mobin & Goutam Kumar Lahiri*

- 1334** Synthesis and structural studies of cobalt(III) complexes of 5-methyl-3-formylpyrazole-N(4)-ethyl/dimethyl thiosemicarbazone and nickel(II) complex of 2-S-methyl-6-methyl-4-formylpyrimidine-N(4)-ethyl thiosemicarbazone

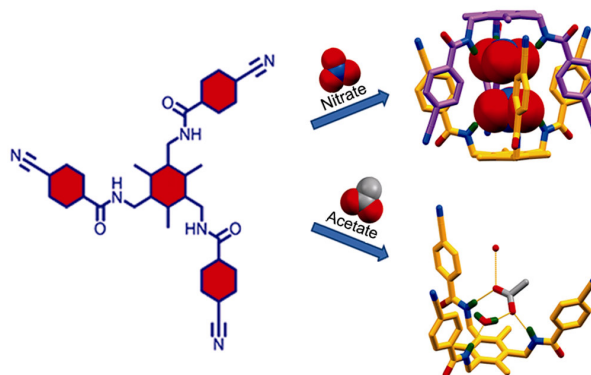
Atanu Jana^a, Saugata Konar, Sangita Ray,
Shie-Ming Peng, G H Lee, Ray J Butcher,
Tian-Huey Lu, Anil Kumar Barik, Sachindranath Pal
& Susanta Kumar Kar*

Two new cobalt(III) complexes of pyrazole derived thiosemicarbazones and one nickel(II) complex of a pyrimidine derived thiosemicarbazone are studied.



- 1343** Recognition of nitrates in a discrete dimeric capsular assembly of a triamide half-capsule

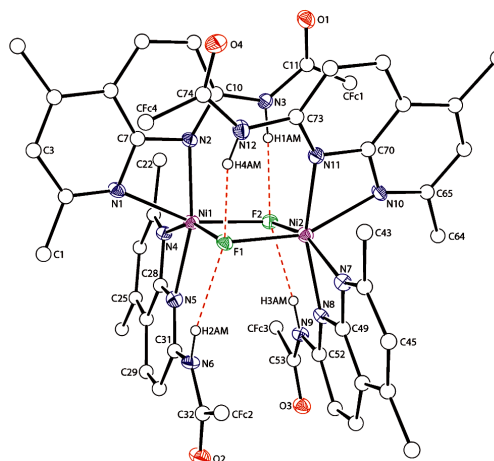
A bowl-shaped new tripodal amide receptor with *p*-cyanobenzoyl terminals shows formation of nitrate capsules whereas acetate shows a non-capsular aggregation.



M Arunachalam & Pradyut Ghosh*

- 1350** A fluoro-bridged dinuclear nickel(II) compound from tetrafluoroborate precursor: Making sense of a serendipitous reaction

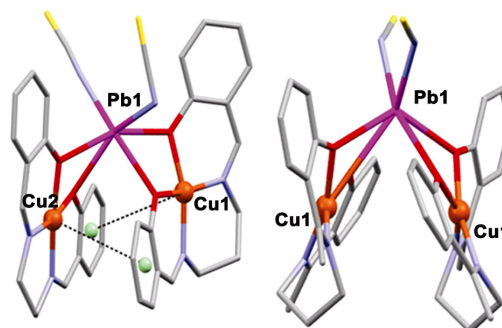
A fluoro-bridged, hydrogen-bond stabilized dinuclear nickel(II) compound is isolated from the reaction of $[\text{Ni}(\text{CH}_3\text{CN})_6](\text{BF}_4)_2$ with amide-linked ferrocene-naphthyridine hybrid ligand.



Raj K Das, Tapas Ghatak, Ramesh C Samanta &
Jitendra K Bera*

- 1356** Incorporation of lead(II) by copper(II)-salicylaldehyde type ligand complexes: Cation- π interactions in controlling the distortion of coordination geometry around lead(II)

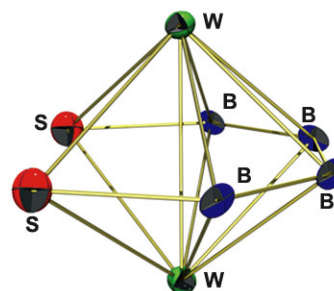
Synthesis and structural characterization of two trinuclear copper(II)-lead(II) complexes show that the lead ion can easily be incorporated by copper-salicylaldehyde type "ligand complex" and the distortion of geometry around Pb(II) is controlled by cation- π interactions.



Saptarshi Biswas & Ashutosh Ghosh*

- 1363** Synthesis and structural characterization of an open cage dithiatungstaborane $[(CpW)_2B_4H_4S_2]$ cluster

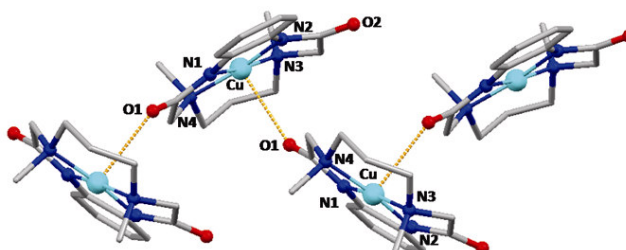
Reaction of $[Cp^*MoCl_4]$ or $[CpWCl_4]$ with excess of $[LiBH_4 \cdot thf]$ followed by thermolysis with excess of $[HS(CH_2)_nSH]$ ($n = 2$ or 3) leads to the formation of $[(Cp^*Mo)_2B_4H_4S_2]$ or $[(CpW)_2B_4H_4S_2]$ respectively.



Rajendra Singh Dhayal, Joseph Ponniah S, Satyanarayan Sahoo & Sundargopal Ghosh*

- 1369** Copper(II) complexes of 13-membered amide-based macrocyclic ligands: Effect of electronic substituents on redox properties

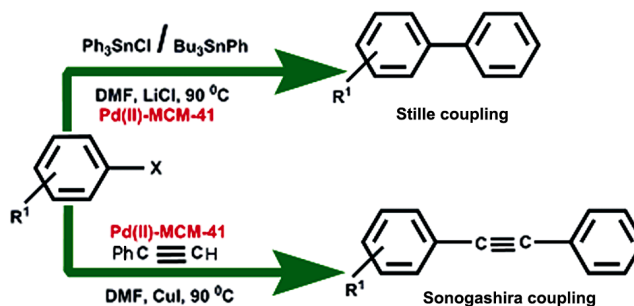
Copper(II) complexes in a set of amide-based 13-membered macrocyclic ligands are reported. The electron-donating and electron-withdrawing substituents present on the macrocyclic framework alter the redox properties of the compounds considerably.



Sushil Kumar & Rajeev Gupta*

1380 Heterogeneous Stille and Sonogashira cross-coupling reactions over palladium anchored mesoporous silica catalyst

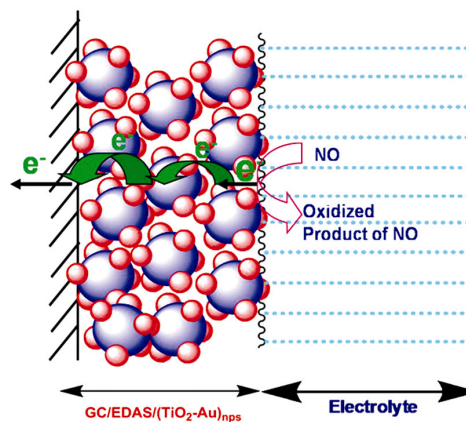
Palladium anchored chemically modified MCM-41 catalyst has been employed in Stille and Sonogashira cross-coupling reactions in heterogeneous condition. The ligand-free reaction affords good to excellent yield of the desired products. The highly efficient solid catalyst can be recycled several times without any loss of activity.



Susmita Bhunia & Subratanath Koner*

1388 Aminosilicate sol-gel embedded core-shell $(TiO_2-Au)_{nps}$ nanomaterials modified electrode for the electrochemical detection of nitric oxide

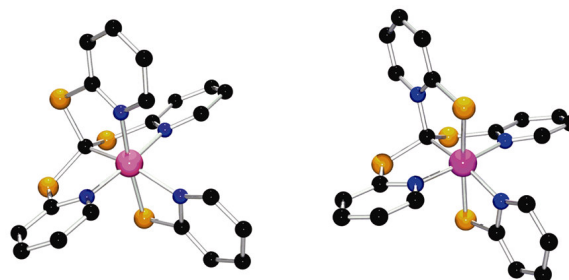
The glassy carbon electrode modified with core-shell EDAS/ $(TiO_2-Au)_{nps}$ has been used as a nitric oxide sensor. The GC/EDAS/ $(TiO_2-Au)_{nps}$ modified electrode shows good electrochemical and electrocatalytic properties towards NO with the lowest detection limit of 1 μM .



Alagarsamy Pandikumar & Ramasamy Ramaraj*

1394 Synthesis and reactivity of cobalt complexes derived from tris(2-pyridylthio)methane ligand: Structural characterization of cobalt(III) complexes containing cobalt-carbon bond

A low-spin cobalt(II) complex of tris(2-pyridylthio)methane ligand reacts with molecular oxygen to generate, depending upon the reaction conditions, two different cobalt(III) complexes containing the cobalt-carbon bond.

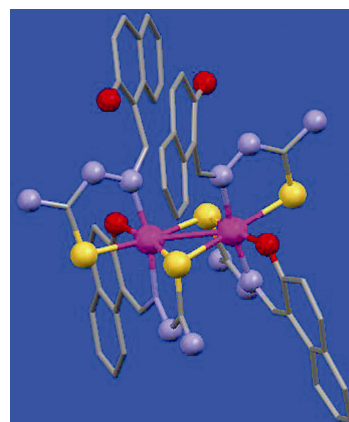


Cobalt (III) complexes with cobalt- carbon bond

Partha Halder & Tapan Kanti Paine*

1403 Synthesis, structure and electrochemical properties of some thiosemicarbazone complexes of ruthenium

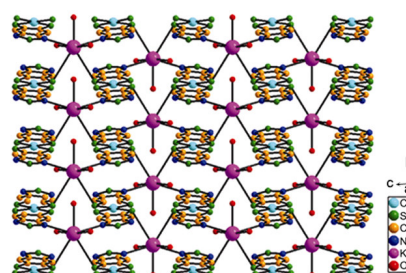
Thiosemicarbazones of salicylaldehyde, 2-hydroxyacetophenone and 2-hydroxynaphthaldehyde react with $[\text{Ru}(\text{dms})_4\text{Cl}_2]$ to afford a family of three dimeric complexes, where these ligands display two interestingly different modes of binding, viz., O,N,S-mode with additional bridging from the sulfur-site and N,S-mode associated with conformational change across the imine fragment.



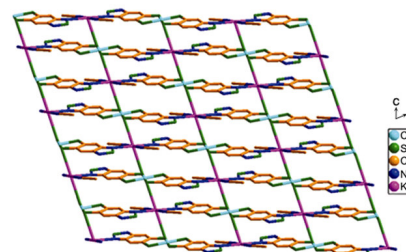
Sayanti Datta, Michael G B Drew & Samarendra Bhattacharya*

1410 Synthesis and structural characterization of potassium coordination polymers based on a copper-bis(dithiolato) complex: Role of coordinating solvents and counter cation

Synthesis of two new potassium based coordination polymers (**1**) and (**2**) of copper bis(dithiolene) complex, $[\text{Cu}^{\text{III}}(\text{btdt})_2]^-$ ($\{\text{btdt}\}^{2-} = 2,1,3\text{-benzenethiadiazole-5,6-dithiolate}$), has been described. Interestingly, extended networks of the compounds (**1**) and (**2**) in the solid state show 3D and 2D metal-coordination polymers respectively, which are obtained simply by varying the coordinated solvents in the recrystallization processes.



(1)

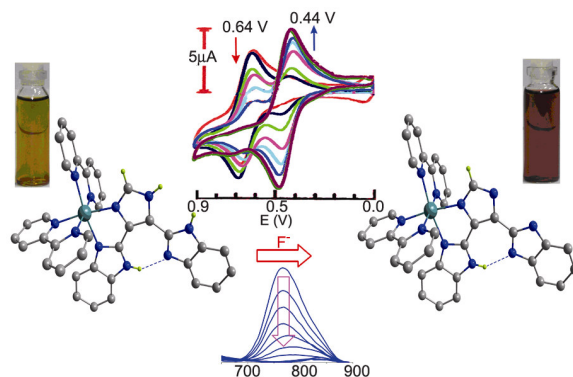


(2)

Ramababu Bolligarla, Bharat Kumar Tripuramallu, Vudagandla Sreenivasulu & Samar K Das*

- 1418 Osmium(II) mixed-chelate derived from imidazole 4,5-bis(benzimidazole) and 2,2'-bipyridine as multichannel sensor for anions: Synthesis, structural characterization and binding studies

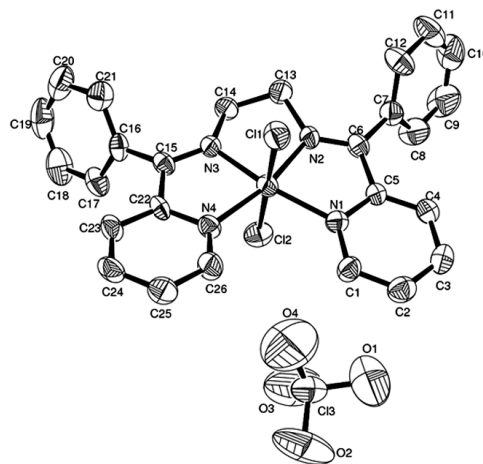
The monometallic Os(II) mixed-chelate derived from imidazole 4,5-bis(benzimidazole) and 2, 2'-bipyridine can act as multichannel sensor for F^- , AcO^- and $H_2PO_4^-$ ions in solution.



Debasish Saha, Shyamal Das, Dinesh Maity & Sujoy Baitalik*

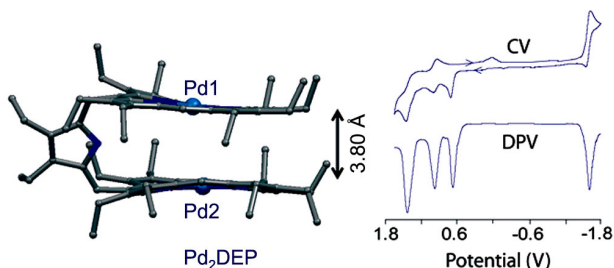
- 1429 Syntheses, structures and molecular properties of two mononuclear cobalt(III) halide complexes containing a tetradentate N-donor Schiff base

Syntheses, molecular and crystalline architectures and properties of two hexacoordinated mononuclear compounds, *trans*-[Co(L)X₂]ClO₄ [L = N,N'-(bis(pyridine-2-yl)benzylidene)-1,2-ethanediamine; X = Cl, Br] are described.



Sumitava Khan, Kishalay Bhar, Subhasis Roy, Krishnakumar Ramachandran & Barindra Kumar Ghosh*

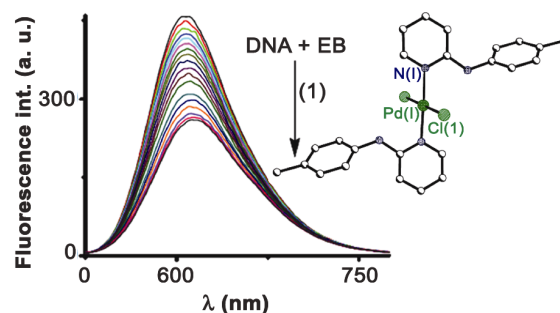
- 1436 Models for photosynthetic reaction center: Synthesis, structure and electrochemical properties of a cofacial di-palladium bisporphyrin



Arvind Chaudhary, Ranjan Patra & Sankar Prasad Rath*

- 1443 **Trans-dichlorobis(*N*-*p*-tolylpyridin-2-amine)palladium(II): Synthesis, structure, fluorescence features and DNA binding**

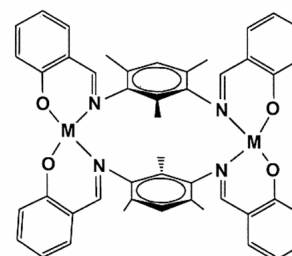
Synthesis, structure, fluorescence features and DNA binding of *trans*-dichlorobis(*N*-*p*-tolylpyridin-2-amine)palladium(II) are reported



Suman Kundu, Suvendu Maity, Ranjan Bhadra & Prasanta Ghosh*

- 1450 **Ferromagnetic vs antiferromagnetic coupling in structurally analogous binuclear complexes based on salen type ligand**

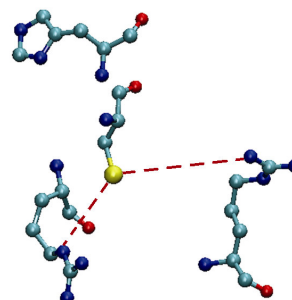
Dinuclear complexes of Co(II), Cu(II), Ni(II), Zn(II) and Cd(II) containing the Schiff base ligand *N,N'*-bis(2-hydroxybenzylidene)-2,4,6-trimethylbenzene-1,3-diamine have been investigated. Structure of the cobalt complex, $[\text{Co}(\text{C}_{23}\text{H}_{18}\text{N}_2\text{O}_2)_2]_2$, has been determined crystallographically. Variable temperature magnetic susceptibility measurements on Co(II) and Cu(II) complexes reveal that the former displays antiferromagnetic ($J = -0.21 \pm 0.1 \text{ cm}^{-1}$) and the latter ferromagnetic ($J = +1.23 \pm 0.1 \text{ cm}^{-1}$) coupling.



Rampal Pandey, Joan Ribas, Montserrat Corbella & Daya Shankar Pandey*

- 1457 **Density functional theory calculations on biological S-transfer: Insight into the mechanism of rhodanese**

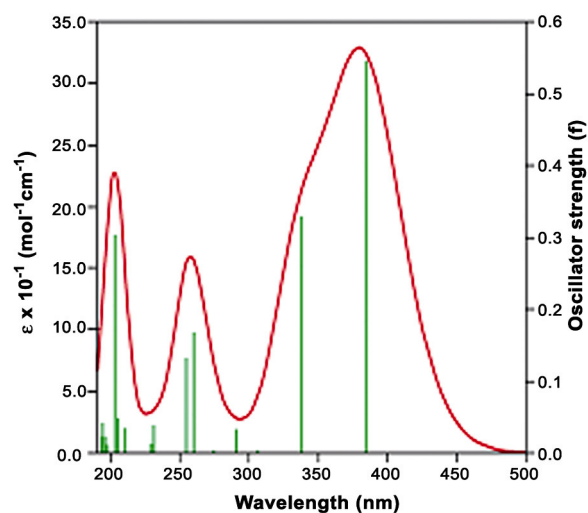
Biological sulfur transfer (S-transfer) is a key step in the synthesis of metabolites, CN^- detoxification and assembly of iron-sulfur clusters. Computational results addressing the thermodynamics of the S-transfer reactions from thiosulfate (natural S-donor) to HCN and thiol are presented.



Subal Dey & Abhishek Dey*

- 1463** Zinc and cadmium complexes of a Schiff base ligand derived from diaminomaleonitrile and salicylaldehyde: Syntheses, characterization, photoluminescence properties and DFT study

Zinc and cadmium complexes of a Schiff base ligand derived from diaminomaleonitrile and salicylaldehyde have been synthesized. A thorough DFT study has been performed to understand the origin of their electronic and luminescence properties.



Averi Guha, Jaydeep Adhikary, Tapan Kumar Mondal
& Debasis Das*

Authors for correspondence are indicated by (*)