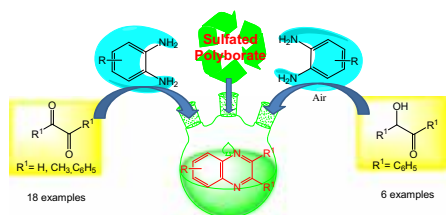


CONTENTS

Rapid Communication



Rapid, efficient and eco-friendly procedure for the synthesis of quinoxalines under solvent-free conditions using sulfated polyborate as a recyclable catalyst

Krishna S Indalkar, Chetan K Khatri and Ganesh U Chaturbhuj 141–148

A highly efficient and improved synthetic methodology for the preparation of quinoxaline derivatives from various substituted *o*-phenylenediamines and 1,2-diketones/ α -hydroxy ketones using eco-friendly, economic and recyclable sulfated polyborate catalyst under the solvent-free condition is reported. Mild reaction conditions, shorter reaction times, higher yields, ease of workup, recyclability of the catalyst, environment-friendliness, and ability to tolerate a wide variety of substituents are the key features of the present protocol.

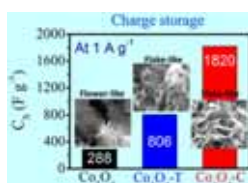


1,6-Diaminoperylene bisimide with a highly twisted perylene core

Che-Wei Chang, Fang-Yun Chien, Jiun-Wei Hu, Hsing-Yang Tsai and Kew-Yu Chen 149–156

1,6-Diaminoperylene bisimide (1) was synthesized and characterized by single crystal X-ray diffraction. The central perylene core of 1 is twisted with dihedral angles of 19.48(2) $^\circ$ and 19.50(2) $^\circ$; this twist configuration induces the axial chirality in this family of perylene bisimide chromophores.

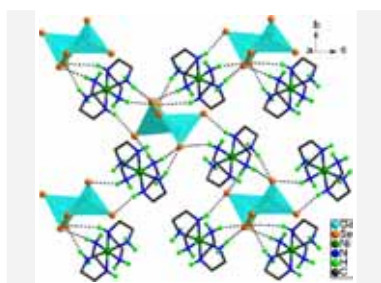
Regular Articles



In situ grown nano-architectures of Co₃O₄ on Ni-foam for charge storage application

G Rajeshkhanna, Ediga Umeshbabu and G Ranga Rao 157–166

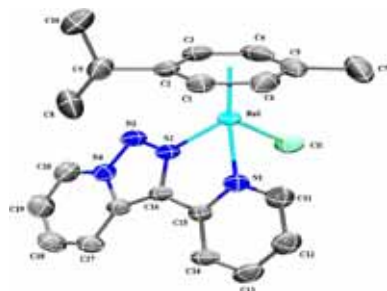
The surfactant assisted synthesized flake-like morphologies of cobalt oxide shows high charge storage performance.



Solvothermal syntheses, crystal structures, optical and thermal properties of new selenidogermanate and polyselenidogermanate

Shuzhen Liu, Peipei Sun, Jingyu Han, Yun Liu, Yali Shen, Chunying Tang, Hui Sun and Dingxian Jia 167–175

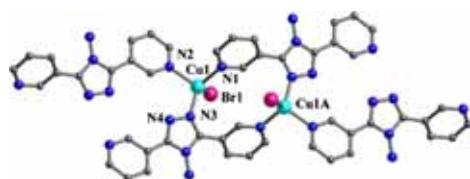
The syntheses, structural determination, optical and thermal properties of new selenidogermanate salts, [NH₄]₂[H₂N(CH₃)₂]₂Ge₂Se₆ (1) and [Ni(dien)₂]₂Ge₂Se₅(Se₂) (2), and a selenidogermanate complex [Ni(tepa)₂(μ -Ge₂Se₆)] (3) are reported.



Half-sandwich ruthenium, rhodium and iridium complexes of triazolopyridine ligand: Synthesis and structural studies

Narasinga Rao Palepu and Mohan Rao Kollipara 177–184

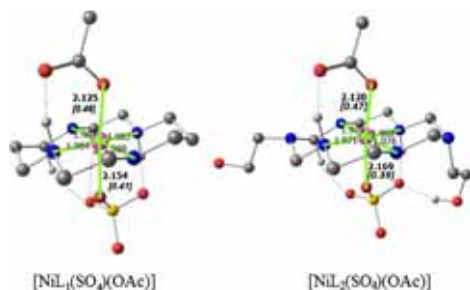
Triazolopyridine ligand, {3-(2-pyridyl)-[1,2,3]triazolo[1,5-a]pyridine} **L** was synthesized by reaction of *p*-toulenesulphonyl hydrazine and dipyridyl ketone in the presence of acetic acid. Half-sandwich ruthenium, rhodium and iridium complexes [**1-4**] were synthesized by reaction of [{(arene)MCl₂]₂] (arene = *p*-cymene/benzene/Cp* and M = Ru/Rh/Ir) with ligand **L** in methanol. All the complexes were characterized by spectral studies and the solid state structures of two complexes were unambiguously determined by crystallographic studies.



A New Copper(I) Complex Based on 4-amino-3,5-bis(3-pyridyl)-1,2,4-triazole: Synthesis, Crystal Structure, Theoretical Study, Thermal Behavior and Luminescence

Chen Ai-Hua, Meng Su-Ci, Zhou Kai, Wang Cong-Cong, Zhao Wei, Wang Ai-Jian and Qian Jun 185–191

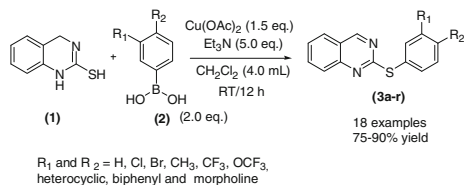
The synthesis and structural characterization of a new luminous copper(I) complex, namely, {[CuBr(3-abpt)]×2DMSO}_n (3-abpt = 4-amino-3,5-bis(3-pyridyl)-1,2,4-triazole) is reported. The Cu1 and Cu1A are connected by two 3-abpt ligands to form a 12-membered ring and the distance between the two Cu atoms is 5.464(1) Å.



Study of behaviour of Ni(II) macrocyclic complexes in acidic aqueous medium through kinetic measurement involving hydrogen peroxide oxidation and DFT calculations

Anuradha Sankaran, E J Padma Malar and Venkatapuram Ramanujam Vijayaraghavan 193–202

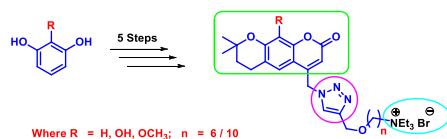
The Cu(II) ion-catalysed kinetics of oxidation of H₂O₂ by [Ni^{III}L] [where L = L₁ (cyclam) and L₂ (1,8-bis(2-hydroxyethyl)-1,3,6,8,10,13-hexaazacyclotetradecane)] was studied in the pH range of 3.6-5.6. The structure and bonding patterns of the [Ni^{III}L₁(SO₄)(OAc)] and [Ni^{III}L₂(SO₄)(OAc)] were studied using DFT calculations.



Transition metal-promoted synthesis of 2-aryl/heteroaryl-thioquinazoline: C-S Bond formation by “Chan-Lam Cross-Coupling” Reaction

Satya Karuna Pulakhandam, Naresh Kumar Katari and Ravi Prakash Reddy Manda. 203–210

An efficient method for the synthesis of S-aryl/heteroaryl-quinazoline has been developed through the cross-coupling of 1,4-dihydroquinazolin-2(1H)-thione with a variety of aryl and heteroaryl boronic acids, assisted by [Cu(OAc)₂] as the catalyst for the formation of carbon-sulfur bonds. This new method demonstrates that the conditions of the traditional copper-catalyzed Chan-Lam reaction can be improved.



Synthesis and antibacterial activity screening of quaternary ammonium derivatives of triazolyl pyranochromenones

Preeti Yadav, Bipul Kumar, Hemant K Gautam and Sunil K Sharma 211–222

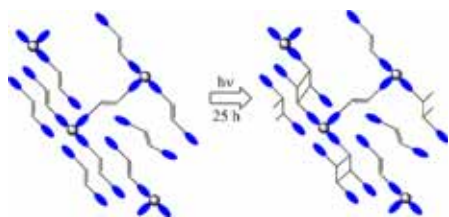
A series of quaternary ammonium derivatives of triazolyl pyranochromen-2-ones have been synthesized, characterized and their antibacterial potential investigated. In order to develop structure-activity relationship (SAR), the effect of varying the substituent (R) at the C-10 position of pyranochromen-2-one as well as the length of the spacer (n) between the triazolyl pyranochromen-2-ones and quaternary ammonium group, on the antibacterial activity of compounds has been evaluated.



Triphenylamine corrole dyads: Synthesis, characterization and substitution effect on photophysical properties

Kolanu Sudhakar and Lingamallu Giribabu 223–237

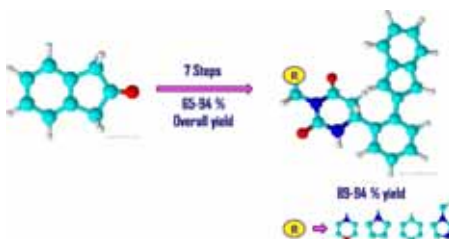
Intramolecular photoinduced reactions were monitored in three 5,15-diaryl-10-triphenylaminocorroles, represented as TPACor 1 (phenyl), TPACor 2 (3,5-ditertiarybutylphenyl), and TPACor 3 (p-nitrophenyl). In these dyad systems, energy transfer from triphenylamine to corrole is the major pathway, which is explained with optical, electrochemical, and DFT studies.



Solid-state Photochemical [2+2] Cycloaddition Reaction of Hydrogen-Bonded Zn(II) Metal Complex Containing Several Parallel C=C Bonds

Abdul Malik P Peedikakkal 239–247

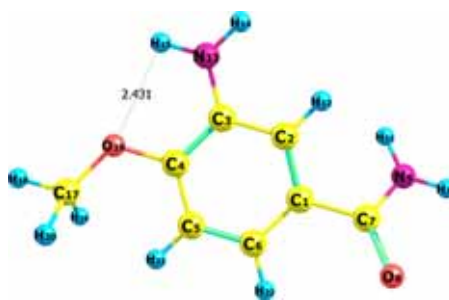
Single crystals of 2D hydrogen-bonded dinuclear Zn(II) complex of 4,4'-bipyridylethylene (bpe) containing coordination complex cation and free non-coordinated bpe molecules undergo photochemical [2+2] cycloaddition reaction *via* molecular movement which is accelerated by mechanical grinding.



A novel synthesis and preliminary *in vitro* cytotoxic evaluation of dihydropyrimidine-2,4(1H,3H)-dione derivatives

V Udayakumar, J Gowsika and A Pandurangan 249–258

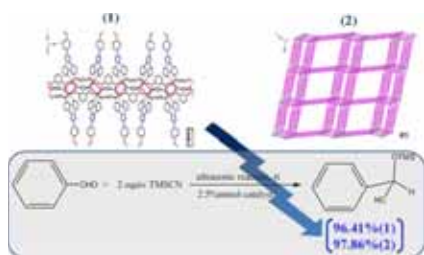
We have developed a new method for the synthesis of dihydropyrimidine-2,4-(1H,3H)-dione derivatives through a multi-step reaction with modest to high yields. NMR spectroscopy confirmed the structures of the synthesized compounds in each step. The biological evaluation of the synthesized compounds was tested against A431 cancer cell line.



Structural, intramolecular hydrogen bonding and vibrational studies on 3-amino-4-methoxy benzamide using density functional theory

G Subhapriya, S Kalyanaraman, S Gandhimathi, N Surumbarkuzhali and V Krishnakumar 259–269

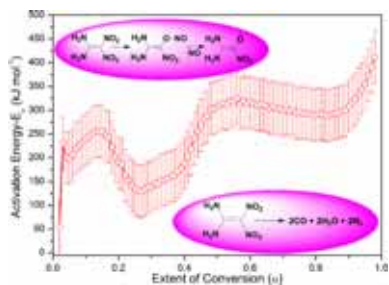
An extensive theoretical study on the molecular structure and vibrational analysis of 3-amino-4-methoxy benzamide was undertaken using density functional theoretical (DFT) method. The formation of intramolecular hydrogen bonding was identified from structural parameter analysis and confirmed with the natural bond orbital (NBO), molecular electrostatic potential (MEP) and natural charge analysis.



Structure Variation from One-Dimensional Chain to Three-Dimensional Architecture: Effect of Ligand on Construction of Lanthanide Coordination Polymers

Lei Wang, Wen-Xuan Li, Xiao-Min Gu, Wen-Li Zhang and Liang Ni 271–280

A series of four 3-dimensional (3D) lanthanide coordination polymers were prepared which exhibit different structures and excellent catalytic activity in the cyanosilylation of benzaldehyde.



A Kinetics Investigation on the Nitro-Nitrite Rearrangement Mediated Thermal Decomposition of High Temperature Monoclinic Phase of 1, 1-Diamino-2,2-Dinitroethylene (γ -Fox-7)

Kranthi Chatragadda and Anuj A Vargeese 281–288

Experimental investigations of thermal decomposition kinetics of 1,1-Diamino-2,2-Dinitroethylene (γ -Fox-7), DADNE at a lower heating rate was studied using Differential Scanning Calorimetry and Thermogravimetry. The results suggest that DADNE exhibits two different decomposition pathways. During thermogravimetric analysis it undergoes nitro-nitrite rearrangement-mediated decomposition leading to the formation of CO, H₂O and N₂.



Cover picture: Morphology-dependent charge storage in Co₃O₄/Ni foam. For details, see the paper by G Rajeshkhanna *et al.* (pp. 157–166)