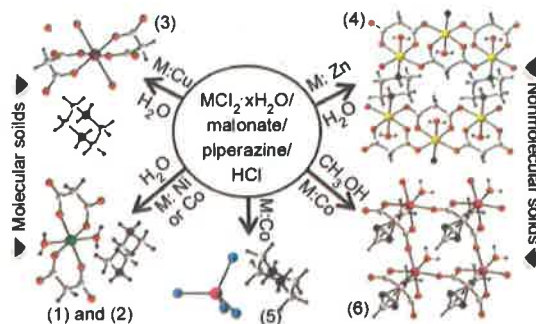


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1079 Editorial

1081 Crystal engineering of molecular to nonmolecular metal malonates in presence of piperazine: Role of metal ions in tuning architectures

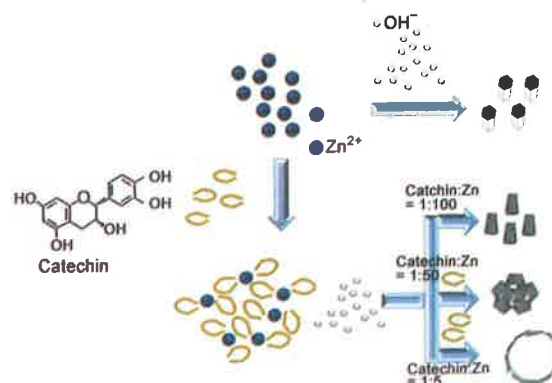
Five transition metal malonate based solids are crystallized in the presence of piperazine. Reaction under ambient condition favors the growth of $\{[M(\text{mal})_2(\text{H}_2\text{O})_2]\{\text{H}_2\text{pip}\}\}$ (M: Ni, **1**; M: Co, **2**), $\{[\text{Cu}(\text{mal})_2(\text{H}_2\text{O})_2]\{\text{H}_2\text{pip}\}\} \cdot 2\text{H}_2\text{O}$ (**3**) and $[\text{Zn}(\text{mal})(\text{pip})(\text{H}_2\text{O})]$ (**4**). While **1-3** are molecular solids, **4** is a 2-D coordination polymer. Higher acidic condition favors the formation of a molecular organic-inorganic salt, $[(\text{H}_2\text{pip})\{\text{CoCl}_4\}]$ (**5**), while the same reaction under a lesser polar solvent and slightly higher temperature yields a 2-D coordination polymer $[\{\text{Co}(\text{mal})(\text{H}_2\text{O})(\text{Hpip})\}]\text{Cl}$ (**6**). The nature of the metal ions and solvent seem to influence the architecture of the solids (molecular or nonmolecular).



Kaustubh R Mote, Jency Thomas* & Arunachalam Ramanan*

1091 Catechin mediated one-step fabrication of ZnO microspheres: Synthesis, characterization and applications

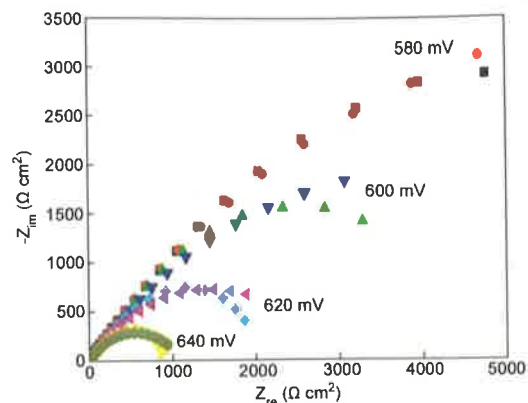
Synthesis of hollow ZnO microspheres by a one-step template-free hydrothermal process using (+)catechin as a crystal habit modifier is reported. The ZnO particles show transformation from hexagonal rods to microspheres with increase in concentration of catechin. The microspheres are formed by the aggregation of fine grained nanosized ZnO particle, and act as an efficient photocatalyst and drug carrier for controlled release of ampicillin.



Somnath Das & Amitava Pramanik*

- 1100 Electrochemical impedance spectroscopy study of oxygen evolution reaction on nanosized CoWO_4 and NiWO_4

CoWO_4 and NiWO_4 are investigated as electrocatalysts for the oxygen evolution reaction in 1 M KOH by electrochemical impedance spectroscopy. The electrode kinetic parameters, Tafel slope and reaction order for the OER determined from the EIS study are very close to those obtained from the steady-state dc polarization techniques.

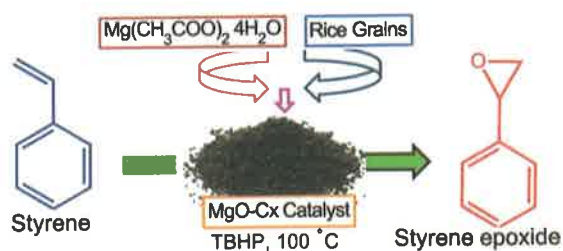


V K V P Srirapu, Ajay Kumar, Nirmala Kumari & Ravindra Nath Singh*

- 1106 Epoxidation of styrene over MgO-rice derived carbon composite catalyst prepared by *in situ* transformation technique

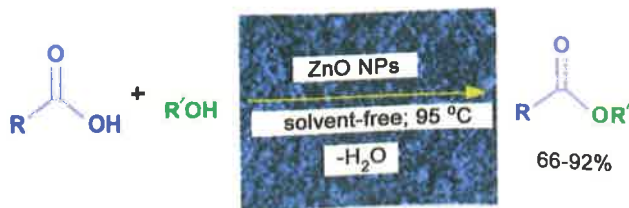
A low-cost and eco-friendly MgO-rice derived carbon composite catalyst, prepared via *in situ* transformation technique, is reported for epoxidation of styrene with 84% conversion, and 82% selectivity to styrene epoxide. The catalytic activity is attributed to the presence of well dispersed accessible basic sites obtained through *in situ* dispersion of MgO over the rice derived carbon.

M Kalpana, E Siva Sankar*, K Saidulu Reddy, K S Rama Rao, J Swathi, V Vijay Kumar, G Naresh & A Venugopal*



- 1112 Synthesis and characterization of stable ZnO nanoparticles using imidazolium-based ionic liquids and their applications in esterification reaction

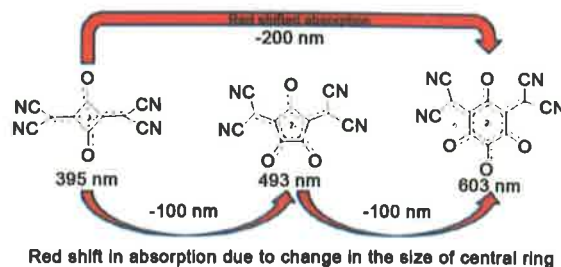
ZnO nanoparticles synthesized using microwave conversion method with $[\text{OMIM}][\text{PF}_6]$ ionic liquid as capping agent as well as solvent, are used as a solid reusable acid catalyst for esterification of carboxylic acids with alcohols. The yield with primary alcohols is almost 80%. The acid catalyst exhibits reusability up to four cycles without significant loss of activity.



S H Kavya, V Vijaya Kumar & C Ramesh Kumar*

1121 Dicyanomethylene substituted oxocarbon dianions: A comparative computational study

A comparative computational study of various dicyanomethylene substituted dianions of squarate, croconate and rhodizionate with absorption in the visible to the near-infrared region, shows that the absorption energies of the molecules depend largely on the size of the central ring and central angle.

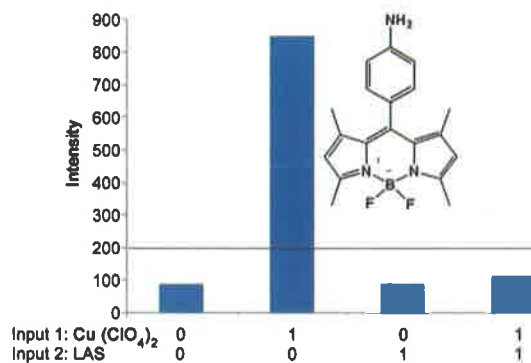


Promila, Anuj Tripathi & Chetti Prabhakar*

Notes

1128 Construction of molecular logic gates through a redox and protonation triggered OFF-ON fluorescent probe

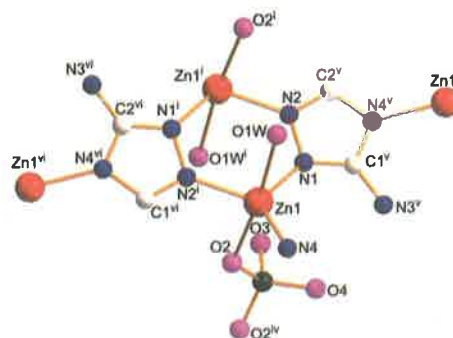
The redox and protonation triggered OFF-ON fluorescent probe 1 mimics the Boolean logic operation and works as a molecular OR logic gate with protons and oxidants as the stimulus inputs and fluorescent emission at 520 nm as the output. The combination of $\text{Cu}(\text{ClO}_4)_2$ and sodium L-ascorbate produces a molecular system displaying INHIBIT logic due to indirect fluorescence quenching.



Qian Li* & Wenjuan Zhu

1133 Synthesis, crystal structure and properties of a 3D zinc(II) coordination polymer with asymmetric 3-amino-1,2,4-triazolate

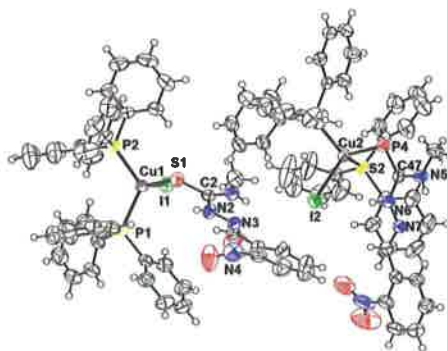
A new coordination polymer has been synthesized with zinc sulfate and an asymmetric 3-substituted triazole ligand at room temperature. Single X-ray analysis displays a six-connected unimodal primitive cubic topological network.



Wen Tao Fan, Jiao Jiao Du, Quan Qing Xu, Jun Feng Kou* & Feng Yi Liu*

1138 Synthesis, crystal structure and DFT calculations of copper(I) complex of 2-nitrobenzaldehyde-N¹-methylthiosemicarbazone

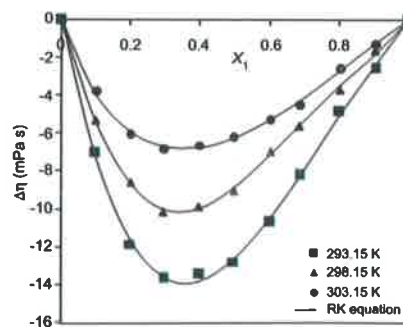
Stoichiometric complexes of copper(I) halides with 2-nitrobenzaldehyde-N¹-methyl thiosemicarbazone and triphenylphosphine, of the type $[\text{CuX}(\eta^1\text{-S-2-NO}_2\text{-Hbtsc-N}^1\text{-Me})(\text{Ph}_3\text{P})_2]$ (X = I (1), Br (2), Cl (3)), are synthesised. X-ray structure of the copper(I) complex **1** shows distorted tetrahedral geometry around the metal.



Dharmender Sharma, Suman Maji, Vivek Gupta & Rekha Sharma*

1144 Thermophysical properties of binary mixtures of polyethylene glycol 400 with *n*-propanol

Densities, viscosities and refractive indices of binary mixture of PEG 400 with *n*-propanol are reported over the entire composition range at 293.15–303.15 K. Negative deviations are observed for excess molar volumes, deviation in viscosities and excess internal pressures, while positive deviations were observed for refractive indices and excess Gibbs energies of activation of viscous flow.



M M Budeanu* & V Dumitrescu

1151 Role of polyvinyl pyrrolidone as a capping agent in the synthesis of magnetite (Fe₃O₄) nanoparticles

Uncapped magnetite (Fe₃O₄) and magnetite capped with polyvinyl pyrrolidone (Fe₃O₄-PVP) are synthesized by an aqueous precipitation method. Results suggest that PVP as capping agent reduces grain size, regularizes the shape and increases the crystallinity of Fe₃O₄ NPs. Fe₃O₄-PVP NPs show significantly higher thermal stability and surface charge than the uncapped Fe₃O₄ nanoparticles. Superparamagnetic behavior is shown by both Fe₃O₄ and Fe₃O₄-PVP nanoparticles.

Sujata Kumari, Neha Yadav, Debasree Ghosh, Chandra Mohan Srivastava* & Sudip Majumder*



1157 Guide to Authors

Authors for correspondence are indicated by (*)