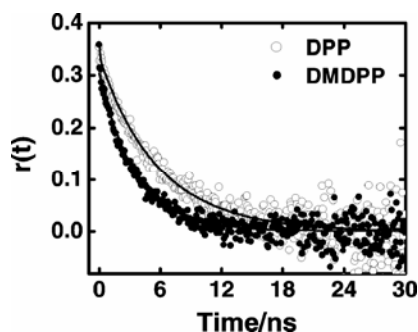


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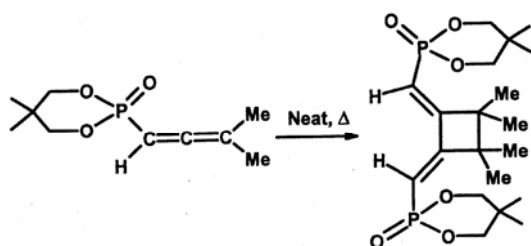


The role of specific interactions on dynamical processes in a room temperature ionic liquid

K S Mali 7–21

Despite the strong cohesive interactions within the constituent cations and anions, ionic liquids do experience strong specific interactions with organic solutes such that their rotational diffusion is hindered. In contrast, specific interactions have no influence on the photoisomerization process in ionic liquids and it appears to be governed solely by the viscosity of the ionic liquids.

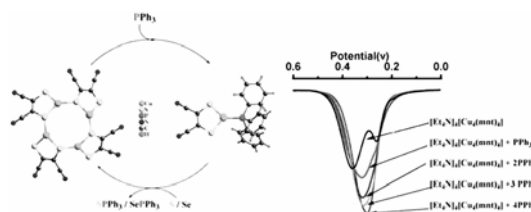
Full Papers



Allenylphosphonates with a 1,3,2-dioxaphosphorinane ring: Synthesis, structures, stability and utility

N N Bhuvan Kumar, Manab Chakravarty, N Satish Kumar, K V Sajna and K C Kumara Swamy 23–36

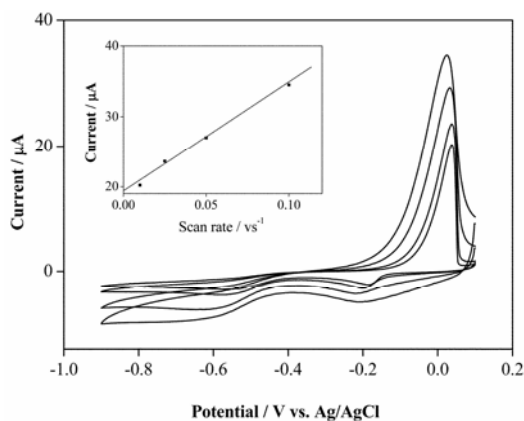
Synthesis, structure and stability of several allenylphosphonates are presented. Dimerization of an allene leading to a phosphono-cyclobutane is highlighted.



Oxidation of phosphine by sulfur or selenium involving a catalytic cycle in the interconversion of monomer and tetramer forms of copper–maleonitriledithiolate complexes

Biplab K Maiti and Sabyasachi Sarkar 37–41

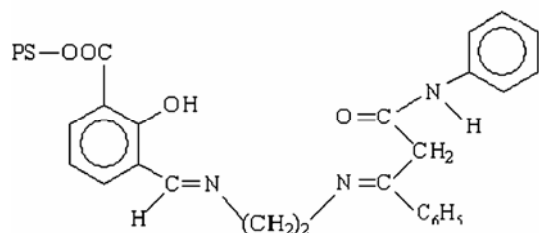
$[\text{Et}_4\text{N}][\text{Cu}(\text{mnt})(\text{PPh}_3)]$ monomer \leftrightarrow tetramer $[\text{Et}_4\text{N}]_4[\text{Cu}_4(\text{mnt})_4]$ interconversion has been used to generate catalytic cycles for the oxidation of PPh_3 by S or Se involving competitive $\{\text{Cu}(\text{I})-\mu_2-\text{S}\}$ and $\{\text{Cu}(\text{I})-\text{P}\}$ bondings.



Synthesis, spectroscopic and redox properties of the mononuclear Ni^{II} , $\text{Ni}^{\text{II}}(\text{BPh}_2)_2$ containing (B–C) bond and trinuclear $\text{Cu}^{\text{II}}-\text{Ni}^{\text{II}}-\text{Cu}^{\text{II}}$ type-metal complexes of *N,N'*-(4-amino-1-benzyl piperidine)-glyoxime

Ahmet Kilic, Esref Tas and Ismail Yilmaz 43–56

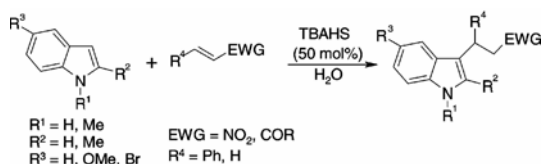
The novel *vic*-dioxime ligand containing the 4-amino-1-benzyl piperidine group, *N,N'*-(4-amino-1-benzyl piperidine)-glyoxime, (LH_2) has been prepared from 4-amino-1-benzyl piperidine with *anti*-dichloroglyoxime at -15°C in absolute THF. Mononuclear Ni^{II} metal complex has been obtained with 1:2 metal/ligand ratio. The ligand and its mono and trinuclear metal complexes were characterized by elemental analyses, FT-IR, UV-Vis, ^1H and ^{13}C -NMR spectra, magnetic susceptibility measurements, molar conductivity, cyclic voltammetry, mass spectra and X-ray powder techniques.



Synthesis, magnetic and spectral studies on polystyrene-anchored coordination complexes of bi-, tri-, tetra- and hexavalent metal ions with unsymmetrical dibasic tetradentate ONNO donor Schiff base derived from 3-formylsalicylic acid, ethylenediamine and 2-benzoylacetyl anilide

Dinesh Kumar, Arun Syamal, Jaipal and
Lalit Kumar Sharma 57–64

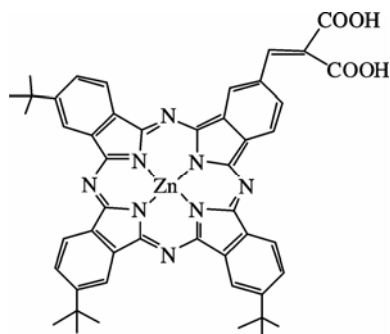
Polystyrene-anchored Cu(II), Zn(II), Cd(II), Ni(II), Mn(II), MoO₂(II), UO₂(II), Fe(III) and Zr(IV), complexes of the unsymmetrical dibasic tetradentate ONNO donor Schiff base derived from the condensation of chloromethylated polystyrene, 3-formylsalicylic acid, ethylenediamine and 2-benzoylacetyl anilide (PS-LH₂) has been synthesized. The polystyrene anchored complexes have the formulae: PS-LM (where M = Cu, Zn, Cd, Ni, MoO₂, UO₂), PS-LFeCl·DMF, PS-Lmn·2DMF and PS-LZr(OH)₂·DMF.



A simple protocol for the michael addition of indoles with electron deficient olefins catalysed by TBAHS in aqueous media and their broad spectrum antibacterial activity

M Damodiran, R Senthil Kumar, P M Sivakumar,
Mukesh Doble and Paramasivan T Perumal 65–73

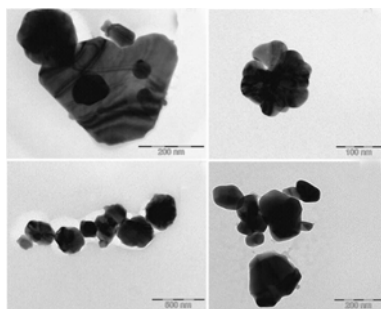
Tetrabutylammonium hydrogen sulfate catalysed Michael addition of indoles to electron deficient olefins in water generated the corresponding Michael adducts in good to excellent yield. The synthesized compounds were tested for their antibacterial activity against four microorganisms. These compounds showed MIC values in the range of 0.16–2.67 μM.



Unsymmetrical extended π-conjugated zinc phthalocyanine for sensitization of nanocrystalline TiO₂ films

L Giribabu, Ch Vijay Kumar, P Yella Reddy, Jun-Ho Yum,
M Grätzel and Md K Nazeeruddin 75–82

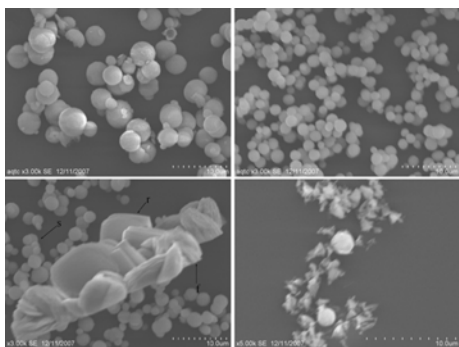
An unsymmetrical zinc phthalocyanine (PCH008) was designed and synthesized based on ‘push-pull’ as well as extended-π conjugation concept for dye-sensitized solar cell applications. The new sensitizer has shown a short circuit current of 5.63 mA cm⁻², open circuit potential of 557.0 mV and a fill factor of 0.75 corresponding to an overall conversion efficiency of 2.35%.



Preparation of amine coated silver nanoparticles using triethylenetetramine

L Ramajo, R Parra, M Reboredo and M Castro 83–87

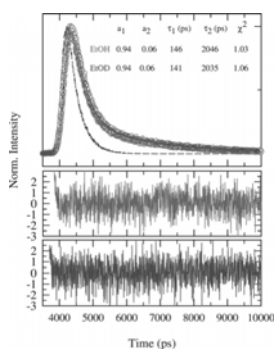
Silver nanoparticles were synthesized by chemical reduction on ethanol, using triethylenetetramine as surfactant, in order to improve the adhesion between the epoxy resin and the filler. The effect of temperature on the precipitation of silver nanoparticles has been investigated.



Sucrose/bovine serum albumin mediated biomimetic crystallization of calcium carbonate

Cheng-Li Yao, Wang-Hua Xu, Ai-Min Ding and Jin-Mao Zhu 89–93

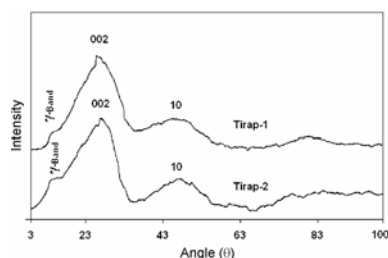
The CaCO₃ crystals were obtained from the sucrose/bovine serum albumin systems. Sucrose at low concentrations tends to induce formation of vaterite and calcite, while addition of bovine serum albumin led to the stable formation of vaterite.



Excited state intramolecular charge transfer reaction in 4-(1-azetidiny)benzotrile: Solvent isotope effects

Tuhin Pradhan, Piue Ghoshal and Ranjit Biswas 95–101

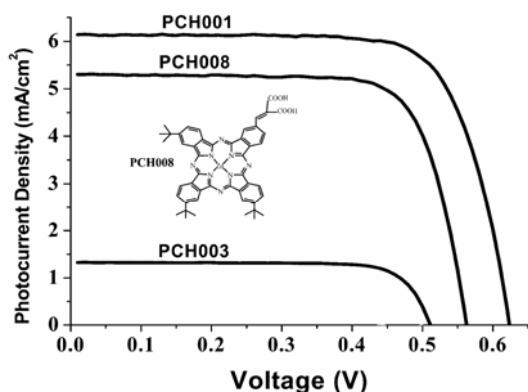
Study of excited state intramolecular charge transfer reaction of 4-(1-azetidiny) benzotrile (P4C) in deuterated and normal ethanol reveals that reaction rate and other properties (such as quantum yield and radiative rates) have been found to be insensitive to the solvent isotope substitution.



A X-ray diffraction analysis on graphene layers of Assam coal

Binoy K Saikia, Rajani K Boruah and Pradip K Gogoi 103–106

X-ray diffraction technique has been applied to high sulphur coal of Makum coalfield, Assam (India) for interpreting its molecular-level structure. Random layered (graphene) structural parameters for two coal samples were determined.



Cover picture: Tapping of solar energy with phthalocyanine sensitizer using nanotechnology. For details see the paper by L Giribabu *et al* (pp 75–82).