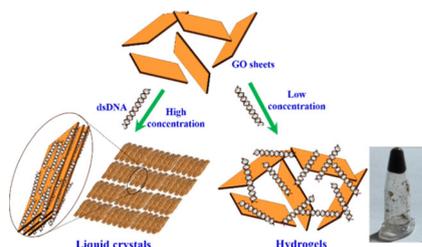


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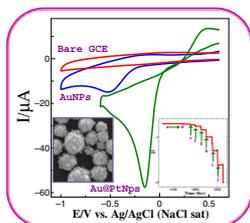


#### Facile synthesis of Graphene Oxide/Double-stranded DNA composite liquid crystals and Hydrogels

Rajendra Kurapati, U Venkateswara Reddy, Ashok M Raichur and N Suryaprakash . . . . . 325–330

The spontaneous formation of composite liquid crystals (LCs) and porosity-controlled hydrogels of GO with double stranded DNA (dsDNA) in aqueous solution are reported for the first time. The simple self-assembled materials, dsDNA/GO may open new windows in biosensing and tissue engineering applications.

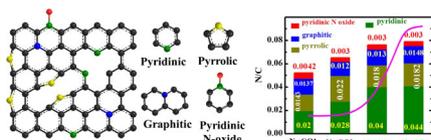
### Regular Articles



#### Electroless deposition of Gold-Platinum Core@Shell Nanoparticles on Glassy Carbon Electrode for Non-Enzymatic Hydrogen Peroxide sensing

N S K Gowthaman and S Abraham John . . . . . 331–338

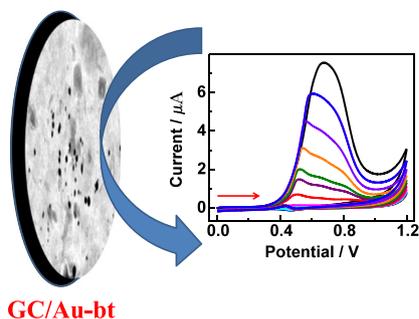
A non-enzymatic hydrogen peroxide sensor was developed using gold@platinum nanoparticles with core@shell structure fabricated on glassy carbon electrode by electroless deposition method.



#### On the electrocatalytic activity of nitrogen-doped reduced graphene Oxide: Does the nature of nitrogen really control the activity towards oxygen reduction?

Sourav Bag and C Retna Raj. . . . . 339–347

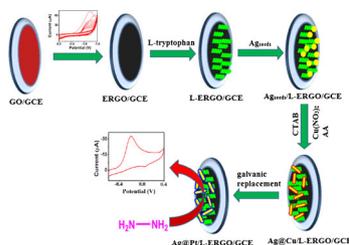
It is demonstrated that the chemical nature and the amount of nitrogen atom substitutionally doped onto the carbon framework of the N-doped reduced graphene oxide controls the electrocatalytic performance towards oxygen reduction reaction.



#### Synthesis and characterization of gold nanoparticles incorporated bentonite clay for electrocatalytic sensing of arsenic(III)

Pankaj Kumar Rastogi, Dharmendra Kumar Yadav, Shruti Pandey, Vellaichamy Ganesan, Piyush Kumar Sonkar and Rupali Gupta . . . . . 349–356

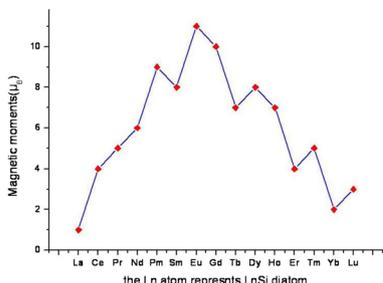
Bentonite clay supported, gold nanoparticle-based, biocompatible material was synthesized (represented as Au-bt) and it shows remarkable electrocatalytic activity for As(III) oxidation. Based on the electrocatalytic activity of synthesized Au-bt material, As(III) determination is demonstrated in neutral electrolyte solution.



### Facile growth of Ag@Pt bimetallic nanorods on electrochemically reduced graphene oxide for an enhanced electrooxidation of hydrazine

S E Jeena and T Selvaraju. . . . . 357–363

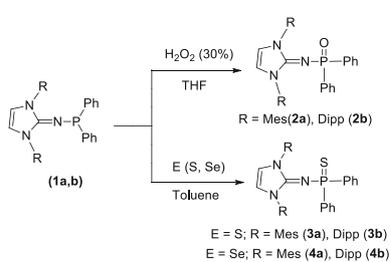
Sequential growth of Ag@Pt nanorods (NRDs) on electrochemically reduced graphene oxide (L-ERGO) by seed-mediated growth and sacrificial replacement of Cu by Pt surface. Synergistic effect was produced by the combination of Ag and Pt as NRDs at L-ERGO which enables an enhancement in the electrocatalytic efficiency for hydrazine oxidation.



### A density functional investigation on the electronic and magnetic properties of LnSi (Ln=La-Lu) Diatom

Run-Ning Zhao, Rui Chen, Yan-Hong Yuan, Fan Gu and Ju-Guang Han . . . . . 365–371

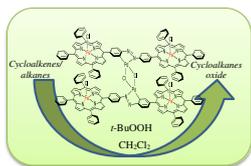
Bond lengths, vibrational frequencies, electron affinities, magnetic properties, and ionization potentials of the neutral and charged LnSi (Ln=La-Lu) diatom were calculated by using the density functional method with relativistic effect. The magnetic moment of LnSi (Ln=La-Lu) increased gradually from LaSi to EuSi and decreased from EuSi to LuSi.



### Synthesis and solid state structures of Chalcogenide compounds of Imidazolin-2-ylidene-1,1-Diphenyl-phosphinamine

Kishor Naktode, Suman Das, Abhinanda Kundu, Hari Pada Nayek and Tarun K Panda. . . . . 373–382

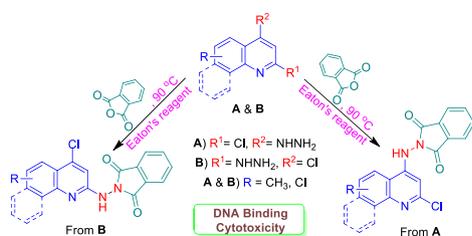
We report the synthesis and structural characterization of 1,3-di-aryl-imidazolin-2-ylidene-1,1-diphenylphosphinamine, [Im<sup>R</sup>NPPH<sub>2</sub>] and their respective chalcogenide compounds, Im<sup>R</sup>NP(=E)Ph<sub>2</sub> [E= O, R = Mes, (2a), Dipp (2b); E = S, R = Mes, (3a), Dipp (3b); E = Se, R = Mes, (4a), Dipp (4b)].



### A new Organopalladium compound containing four Iron (III) Porphyrins for the selective oxidation of alkanes/alkenes by *t*-BuOOH

Manoj Kumar Singh and Debkumar Bandyopadhyay . . . . . 383–389

New tetrameric soluble iron(III) porphyrins and their remarkable catalytic oxidation of several alkenes to alkene oxides by *t*-BuOOH are explored.



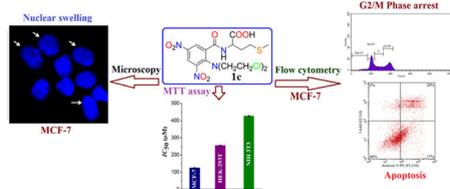
### Synthesis, DNA binding and cytotoxic evaluation of aminoquinoline scaffolds

Gopal Senthil Kumar, Mohamed Ashraf Ali, Tan Soo Choon and Karnam Jayarampillai Rajendra Prasad . . . . . 391–400

A convenient route to synthesize aminoquinoline substituted isoindolin-1,3-diones using Eaton's reagent as a catalyst has been explored. The DNA binding and *in vitro* cytotoxicity studies revealed the importance of aminoquinoline scaffolds in cancer treatment.

**Effect of methionine and glucosamine conjugation on the anticancer activity of aromatic dinitrobenzamide mustards**

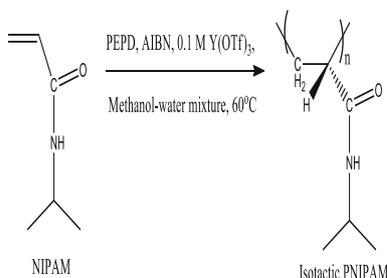
Subhendu Karmakar, Sudipta Bhattacharyya and Arindam Mukherjee . . . . . 401–413



*In vitro* studies show that conjugation of methionine and glucosamine to certain dinitrobenzamide mustards may enhance selectivity and increase toxicity against breast adenocarcinoma as compared to nontumorigenic HEK-293T and mouse fibroblast NIH 3T3.

**Synthesis of low polydisperse isotactic poly(*N*-isopropylacrylamide)s in environment-friendly and less toxic methanol-water mixtures by RAFT polymerization**

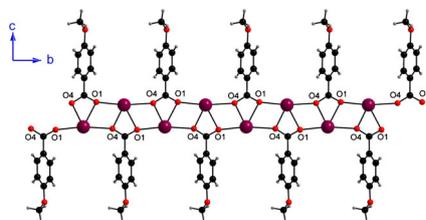
Chandra Sekhar Biswas, Kheyath Mitra, Shikha Singh and Biswajit Ray . . . . . 415–420



Poly(*N*-isopropylacrylamide)s with low polydispersity ( $M_w/M_n = 1.11 - 1.37$ ) and different isotacticity have been synthesized successfully with high yields in environment-friendly methanol-water mixture by RAFT polymerization in the presence of 0.1 M Yttrium trifluoromethanesulfonate.

**Synthesis, crystal structure and properties of magnesium and calcium salts of *p*-anisic acid**

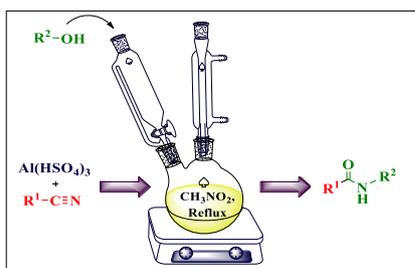
Kiran T Dhavskar, Pooja H Bhargao and Bikshandarkoil R Srinivasan . . . . . 421–428



The synthesis, crystal structure and properties of a monomeric octahedral magnesium compound [Mg(H<sub>2</sub>O)<sub>6</sub>](C<sub>8</sub>H<sub>7</sub>O<sub>3</sub>)<sub>2</sub>·2H<sub>2</sub>O (C<sub>8</sub>H<sub>7</sub>O<sub>3</sub> = *p*-anisate or 4-methoxybenzoate) and a two dimensional coordination polymeric compound [Ca(H<sub>2</sub>O)(C<sub>8</sub>H<sub>7</sub>O<sub>3</sub>)<sub>2</sub>] are reported.

**An efficient and convenient synthesis of *N*-substituted amides under heterogeneous condition using Al(HSO<sub>4</sub>)<sub>3</sub> via Ritter reaction**

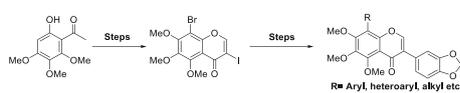
Elnaz Karimian, Batool Akhlaghinia and Sara S E Ghodsinia . . . . . 429–439



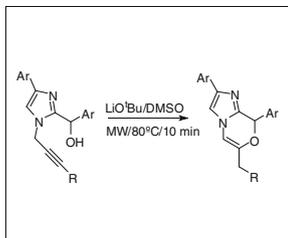
An efficient and inexpensive synthesis of *N*-substituted amides by refluxing nitromethane *via* the Ritter reaction catalyzed by aluminum hydrogen sulfate [Al(HSO<sub>4</sub>)<sub>3</sub>] is described. The catalyst which is an air-stable, cost-effective solid acid could be readily recycled by filtration and reused four times without any significant loss of its activity.

**An efficient synthesis of 8-substituted Odoratine derivatives by the Suzuki coupling reaction**

P Ravi Kumar, C Balakrishna, B Murali, Ramakrishna Gudipati, Prasanta K Hota, Avinash B Chaudhary, A Jaya Shree, Satyanarayana Yennam and Manoranjan Behera . . . . . 441–450



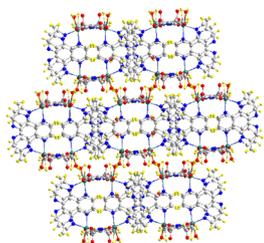
An efficient method for the preparation of odoratine, a naturally occurring isoflavone, has been described. 8-Substituted odoratine derivatives were prepared *via* the Suzuki coupling reaction. Site selective bromination reaction was explored to obtain the key intermediates required for the coupling reactions.



### Transition metal-free, base-promoted hydroalkoxylation: Synthesis of substituted imidazo[2,1-c][1,4]oxazines

Muthupandi Nagaraj and Shanmugam Muthusubramanian . . . 451–458

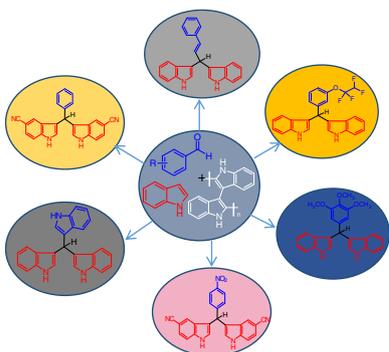
An efficient, transition metal-free method to synthesize substituted imidazo[2,1-c][1,4]oxazine derivatives *via* hydroalkoxylation of 1,5-alkynyl alcohol has been described. The reaction proceeds regioselectively with exclusive formation of 6-exo-dig product.



### Extended structures of two coordination polymers based on 1,10-phenanthroline derivatives: Preparation, structural characterization and properties

Yan-Ju Huang, Ya-Ru Pan, Gang Du and Yi-Xin Cao. . . . 459–465

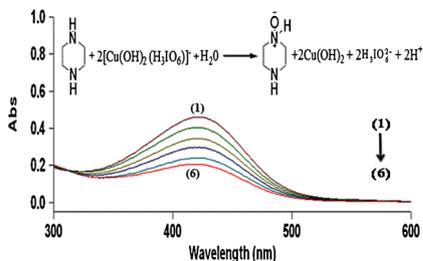
Two coordination polymers were prepared by the combination of two metal salts (Cd and Mn) and 2-methyldipyrido[3,2-f:2',3'-h]quinoxaline ligands. The coordination polymers have 1D chains formed *via* coordination bonds, and unique two-dimensional supramolecular structures formed due to  $\pi$ - $\pi$  stacking interactions. The results reveal that the coordination preference of the metal ion plays a critical role in the construction of the coordination polymer.



### Synthesis and characterization of Polyindole and its catalytic performance study as a heterogeneous catalyst

Prakash Chhattise, Kalpana Handore, Amit Horne, Kakasaheb Mohite, Atul Chaskar, Sabrina Dallavalle and Vasant Chabukswar. . . 467–475

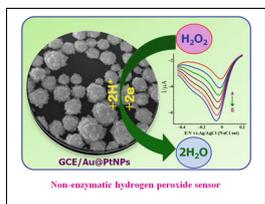
Polyindole was synthesized by chemical oxidative polymerization using citric acid as a dopant. The synthesized polymer was well characterized by various spectroscopic techniques like FT-IR, XRD and FESEM, etc. The XRD pattern confirms polyindole to be partially crystalline. The performance of polyindole as a heterogeneous catalyst has been studied for the synthesis of 3,3'-arylmethylene bis-1H-Indole derivatives using various substituted aldehydes and indole under reflux reaction condition with good to excellent yield.



### Thermodynamic, kinetic and mechanistic investigations of Piperazine oxidation by Diperiodatocuprate(III) complex in aqueous alkaline medium

Vijay P Pattar, Prashant A Magdum, Deepa G Patil and Sharanappa T Nandibewoor. . . . . 477–485

The kinetics of oxidation of Piperazine by Diperiodatocuprate(III) complex in aqueous alkaline medium was studied spectrophotometrically. The possible mechanism was proposed based on the experimental rate laws. The reaction constants involved in the different steps of mechanism were evaluated and thermodynamic quantities were also calculated and discussed.



Cover picture: Non-enzymatic hydrogen peroxide sensor. For details, see the paper by N S K Gowthaman and S Abraham John (pp. 331–338)