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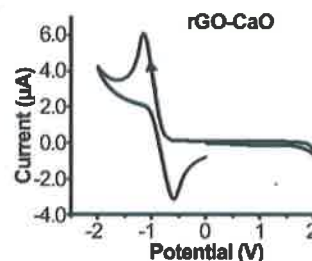
MAY 2018

CONTENTS

Rapid Communication

605 Unusual redox activity of composite alkaline earth metal oxides and reduced graphene oxide system

Reduced graphene oxide (rGO) impregnated on Group 2 alkaline earth oxides (CaO, SrO, BaO) matrix by mechanical mixing, thermal annealing and subsequent cold shock, yields new electrochemical materials, which exhibit unexpected inherent redox activity with amazing chemical reversibility. These characteristics become more prominent on moving down the group. Thermal stability of these coupled systems also increases down the group.

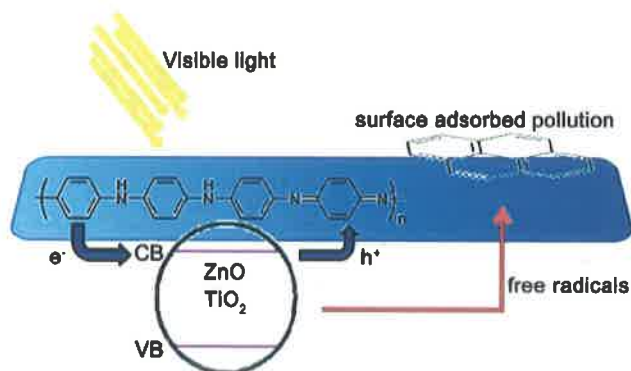


Sudip Majumder*, Shilpa Sharma, Debasree Ghosh,
 Pretty Joon & Chittaranjan Sinha*

Papers

610 Photoinduced pyrene degradation in contaminated soils by polyaniline coated photocatalysts

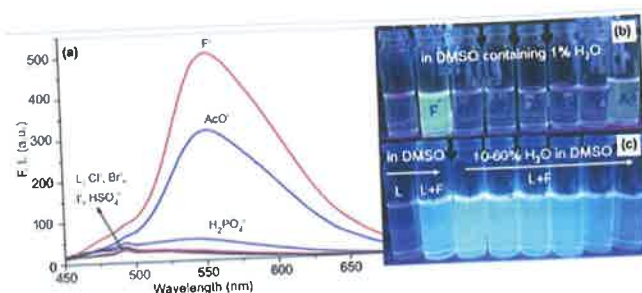
Polyaniline coated TiO₂ and ZnO nanoparticles, with improved photocatalytic efficiency for pyrene degradation, have been prepared by the interfacial polymerization method. The nanocomposites, are characterized by scanning electron microscopy, Fourier transform infrared spectroscopy, and X-ray diffraction. The pyrene removal efficiency is more than 95% on the polymer coated photocatalysts surface.



F Shahrezaei, A Hemati Azandaryani,
 A M Mansourie, A Akhbari & P Pakravan*

619 Fluoride selective chemosensor derived from vitamin B₆ cofactor pyridoxal

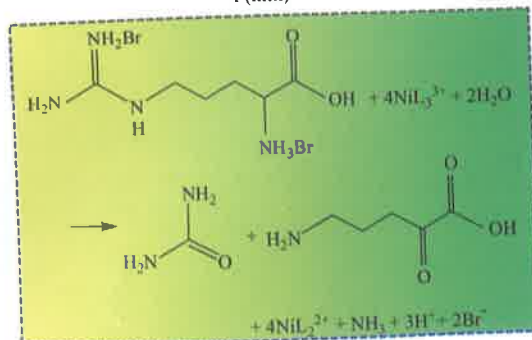
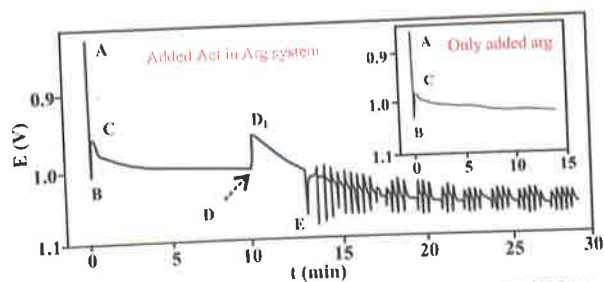
An easy-to-prepare, non-cytotoxic Schiff base receptor (L) is synthesized by condensation of pyridoxal with aniline. The sensor shows both naked-eye detectable color change and significant 'turn-on' fluorescence at 550 nm in the presence of F⁻ with the detection limit as low as 0.4 μM. The sensor L has been successfully applied for the intracellular detection of fluoride in live cancer cell through bio-imaging technique.



Suban K Sahoo*, Darshna Sharma,
Anuradha Moirangthem, Anupam Basu*,
Ashok Kumar S K & Umesh D Patil

626 Thermodynamic characteristics of L-arginine oscillating system catalyzed by tetraazamacrocyclic nickel(II) complex

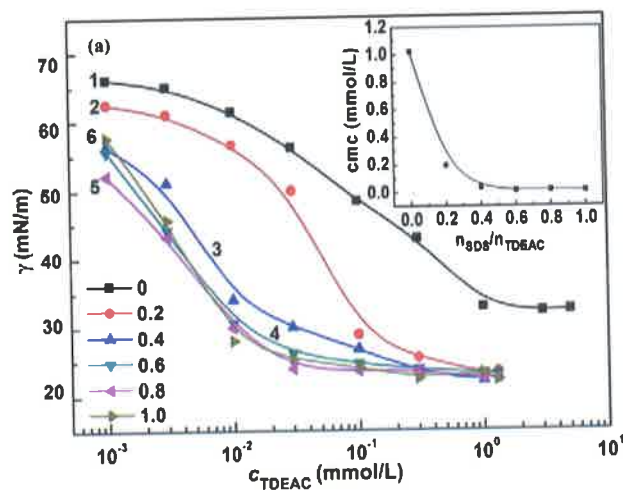
A novel oscillating system comprising Arg as organic substrate and catalyzed by NiL(ClO₄)₂ exhibits a periodic change in the concentration of the reduced and oxidized forms of NiL₂²⁺ and NiL₃³⁺. The chemical oscillation system is a non-equilibrium system due to its negative entropy. Furthermore, the two active groups of Arg oscillating system can be activated at higher acidity.



Lijun Ren* & Chunlan Yuan

633 Interactions between *N*-tetradecyl-*N,N*-dimethyl-*N*-(2,3-epoxypropyl) ammonium chloride and some surfactants

The interactions between TDEAC and SDS (AS, DTAC or C_{12} DMAO) are reported. A very strong synergistic effect is observed between oppositely charged surfactants, like TDEAS and SDS (or AS) as compared to the weak interaction of TDEAC with DTAC (or C_{12} DMAO). The micellization of the TDEAS/SDS (or AS) mixed system is a spontaneous and exothermic process. The strong synergistic effect is confirmed by steady-state fluorescence, dynamic light scattering and Rubingh regular solution approaches.

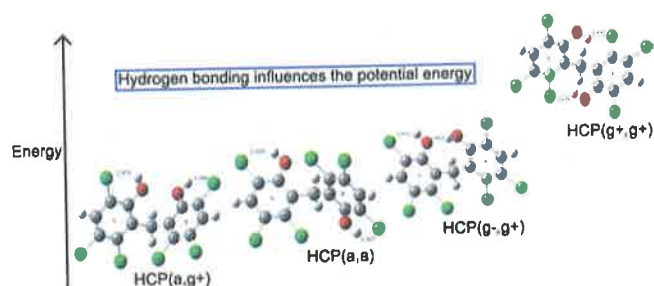


Jialin Zheng, Jing Zhao, Yan Li*, Zhen Chen,
Ling Wang, Xiaodeng Yang* & Guoqin Li

Notes

643 Role of hydrogen bonding in conformational energies of hexachlorophene and its derivatives - A theoretical study

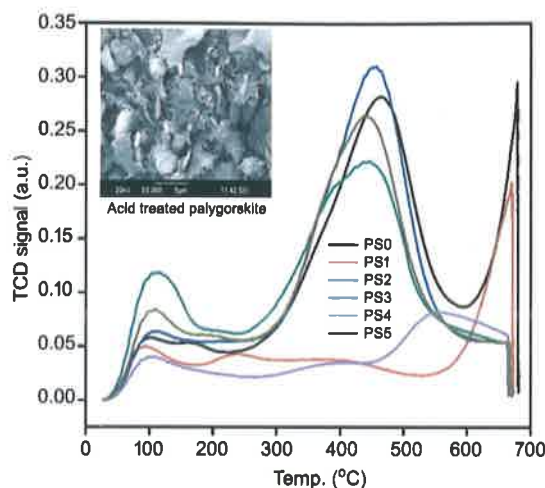
Conformational space around two dihedral angles (viz., θ and ϕ) in hexachlorophene and its derivatives result in four notable minimum energy conformers (viz., a,g+; a,a; g-,a; g+,g+). Existence of LP \rightarrow σ^* interactions evidenced by $E(2)$ energies of NBO analysis and support the presence of hydrogen bonding and its role in conformational stability.



C Prathipa, P Kalpana & L Akilandeswari*

649 Metal supported and metal ion exchanged catalysts from palygorskite for acetylation reaction

Solid acid catalysts from palygorskite developed by three modification methods, viz., acid activation, metal salt support (with FeCl_3 , MnCl_2 , CoCl_2 , SnCl_2 , ZnCl_2 and AlCl_3) and metal ion exchange (exchange with Fe^{3+} , Mn^{2+} , Co^{2+} , Sn^{2+} , Zn^{2+} and Al^{3+}) are found to be efficient catalysts for acetylation of alcohols with no loss of catalytic activity even after four cycles. The iron exchanged palygorskite is found to be most active.



Dhanya Balan A P & Pushpalettha P*

655 Guide to Authors

Authors for correspondence are indicated by (*)

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