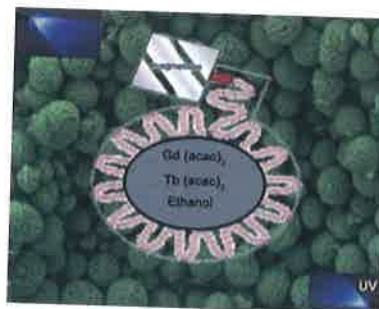


CONTENTS

- 1285 **Rapid synthesis of Tb³⁺-doped gadolinium oxyhydroxide and oxide green phosphors and their biological behaviour**

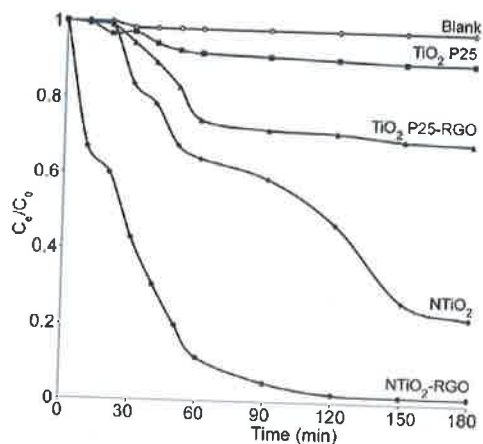
Green phosphors based on terbium doped GdOOH and Gd₂O₃ powders are prepared without using any surfactants, by a rapid microwave-assisted method with ethanol as a solvent. The as-prepared Tb³⁺:GdOOH powders are crystalline with a flower-like morphology comprising many two-dimensional flake-like structures. These powders show good luminescence properties under UV excitation and conversion to Tb³⁺:Gd₂O₃ takes place at modest temperatures by annealing. The annealed powders show increase in luminescence intensity due to phase change from oxyhydroxide to oxide as well as increase in crystallinity as a result of annealing. The as-prepared powders show considerable toxicity towards cells, whereas the annealed powders do not hamper the cell growth.



Saima Wani, Shafquat Majeed & S A Shivashankar*

- 1293 **Photocatalytic decolourisation of toxic dye, Acid Blue 25, with graphene based N-doped titania**

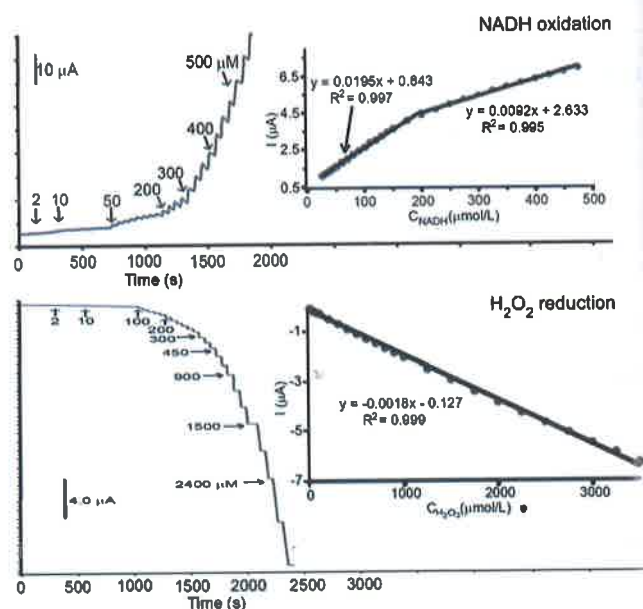
The photocatalytic decolourisation of Acid Blue 25 has been carried out using graphene based N-doped TiO₂. Acidic pH favours the decolourisation of dye as compared to neutral and alkaline pH. The mineralisation of the dye was 90.7% within 7 h.



Susmita Sen Gupta* & Dhruba Chakraborty

1302 Thionine-functionalized graphene oxide nanosheet as an efficient electrocatalyst for NADH oxidation and H₂O₂ reduction

Thionine-functionalized graphene oxide has been used as an efficient electrocatalyst in the detection of hydrogen peroxide and nicotinamide adenine dinucleotide under the optimum conditions of pH 3.0 (PBS, 0.1 mol L⁻¹), 20 wt% of the modifier, and working potential of 0.24 V for oxidation of NADH and 0.00 V for reduction of H₂O₂. Two linear ranges of 2.0–200 μmol L⁻¹ and 200–500 μmol L⁻¹ and a detection limit of 0.43 μmol L⁻¹ are obtained for NADH analysis. For H₂O₂ these are respectively 2.0–3500 μmol L⁻¹ and 1.3 μmol L⁻¹.

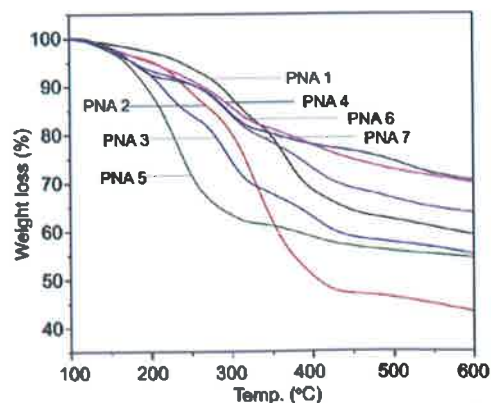


Ali A Ensafi*, Navid Zandi-Atashbar,
Zeynab Ahmadi Sarsahra & Behzad Rezaei

Notes

1310 Novel acrylate polymer nanocomposites with nano CdS

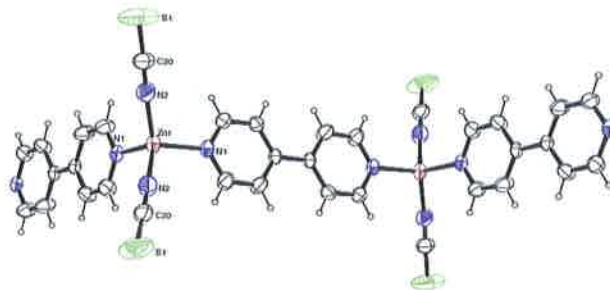
Polymeric nanocomposites of CDMPA and PCPMA with nano CdS are synthesized by in-situ technique. XRD studies show cubic structured nanocrystalline polymer nanocomposites with crystalline size in the range of 2.41–3.16 nm. Activation energy for thermal decomposition of polymer nanocomposites is less than that of the virgin polymers. The polymer nanocomposites are thermally less stable than the virgin polymers.



Nirmal N Patel, Kaushal P Patel * & Rajnikant M Patel

1317 A green polymeric zinc(II) complex: Synthesis, structural characterization, and theoretical studies

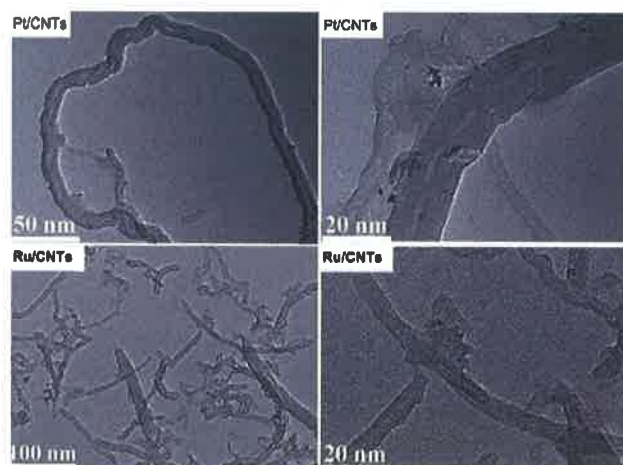
Synthesis and X-ray structural characterization of a Zn(II) polymer $[\text{Zn}(\text{NCS})_2(\text{L})]_n$ [$\text{L} = 4,4'$ -bipyridine] is reported. The compound, having Zn(II) with d^{10} electronic configuration at the centre of each monomeric unit, shows green colour at $\lambda_{\text{max}} = 648 \text{ nm}$. MO energy calculations show that the HOMO-LUMO energy difference gradually decreases from monomeric to tetrameric units. These calculations show that ~ 13 molecular units are responsible for the experimentally observed green colour of the Zn(II) polymer.



Abhijit Pal, Sarat Chandra Kumar, Partha Mitra, Shubhamoy Chowdhury* & Rajarshi Ghosh*

1321 Preparation and catalytic property of carbon nanotubes supported Pt and Ru nanoparticles for hydrogenation of aldehyde and substituted acetophenone in water

Pt and Ru nanoparticles are deposited on carbon nanotubes by a simple wet impregnation method using aqueous solutions of platinum and ruthenium salts to prepare the supported catalysts, Pt/CNTs (5 wt%) and Ru/CNTs (10 wt%). Pt/CNTs and Ru/CNTs are highly active and chemoselective catalysts for the aqueous-phase hydrogenation of aldehydes and substituted acetophenones. The use of water as the reaction medium makes these catalytic systems environmentally friendly.



Zhiwang Yang*, Cheng Lei, Wenlong Chen, Ruxue Liu, Hong Wei, Yali Ma, Shuangyan Meng, Shaoping Hu & Yuli Wei

Authors for correspondence are indicated by (*)