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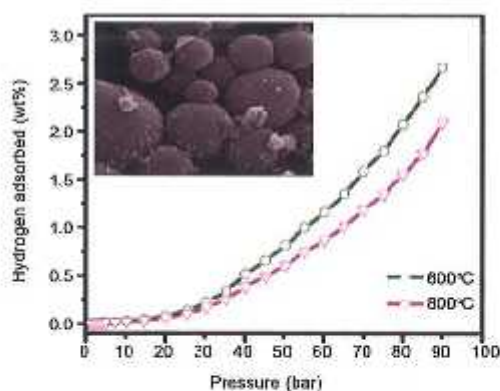
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CONTENTS

1423 Hydrogen sorption in phosphorous substituted carbon material

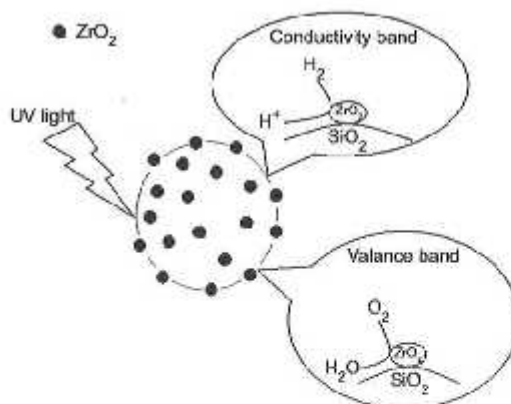
Phosphorus substituted carbon materials calcined at 600 °C and 800 °C show hydrogen storage capacity of 2.6 wt% and 2 wt% respectively at 298 K and 100 bar pressure. The hydrogen storage capacity decreases with increase in carbonization temperature.



Arjunan Ariharan, Balasubramanian Viswanathan*
 & Vaiyapuri Nandhakumar

1434 Synthesis of ZrO₂ and ZrO₂/SiO₂ particles and photocatalytic degradation of methylene blue

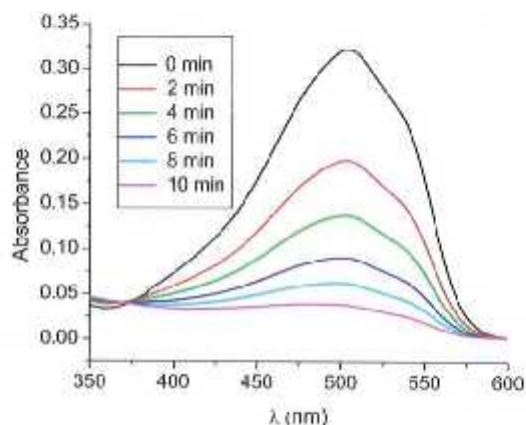
SiO₂ particles (0.6 μm dia.) have been synthesized from tetraethyl orthosilicate and then decorated with ZrO₂ synthesized from zirconium tetrabutoxide. The composite shows Si-O-Zr bridges between SiO₂-ZrO₂ particles and ZrO₂ deposited on the SiO₂ surface. The UV/O₃/SiO₂/ZrO₂ system shows the highest rate for photodegradation of methylene blue as a sample pollutant. ZrO₂/SiO₂ spherical nanocomposite particles are more active than ZrO₂ because of lattice deformation due to stabilization of t-ZrO₂ phase by SiO₂. Ozone contributes to the photoactivity by creating superoxide and hydroxide radicals.



Ali Inran Vaizogullar*, Ahmet Balci &
 Mehmet Ugurlu

1440 Synthesis of zinc sulfide nanoparticles stabilized by sodium dodecylsulfate micelles and evaluation of photocatalytic activity

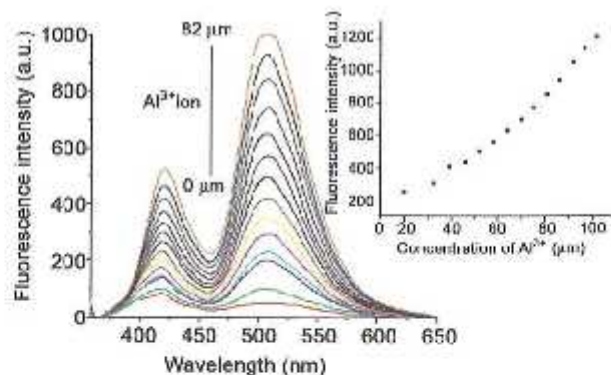
The photocatalytic degradation of methyl orange by SDS stabilized ZnS nanoparticles is found to be highly efficient. Nearly 98% of the dye is degraded during 10 min of irradiation.



Longjam Meerabai Devi[†] & Devendra P S Negi^{*}

1446 Pyrene-appended Schiff base as a turn-on fluorescence sensor for Al^{3+} detection and interaction with DNA

Pyrene appended Schiff base, 1,3 bis ((E)-pyrene-1-yl-methylenearino)propan-2-ol (HL) fluoresces at 419 nm and 508 nm in DMF solution upon excitation at 344 nm. The addition of Al^{3+} results in a significant 100 fold increase in its fluorescent intensity with the emission maximum red shifted from 421 nm to 508 nm with intense green emission due to the formation of a 1:2 stoichiometric $[Al_2Cl_2(L)]$ complex. The limit of detection is found to be $7.42 \times 10^{-8} M$. The complexation inhibits the photo-induced electron transfer process and the CHEF mechanism is responsible for the turn-on fluorescence sensitivity.

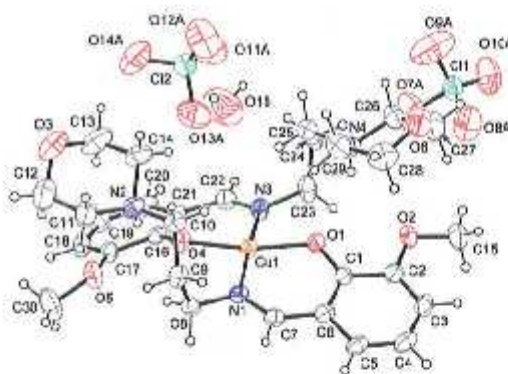


Uttam Panda, Kuheli Das, Paramita Dutta & Chittaranjan Sinha^{*}

Notes

1451 Synthesis, characterization and DFT calculations of N,O Schiff base complex of copper(II)

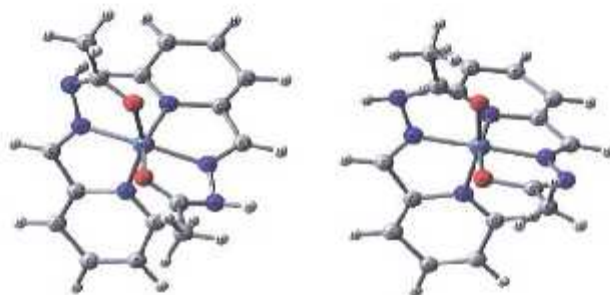
A mononuclear complex of Cu(II) with an N,O donor Schiff base ligand, 2-methoxy-6-(3-morpholinopropyl)iminomethylphenol, has been synthesized and characterized. The structure of the complex, confirmed by single crystal X-ray analysis, shows that both the ligands attached to one metal center are zwitterions, where nitrogen atom of the morpholine ring is protonated. Fluorescence spectral study shows that the ligand displays an emission band at 535 nm on excitation at 418 nm. The presence of Cu²⁺ ion in the complex quenches its emission intensity.



Sudipto Dey, Koushik Ghosh, Shibashis Halder,
Corrado Rizzoli & Partha Roy*

1459 Synthesis, molecular structure and TD-DFT studies on N'-(pyridine-2-ylmethylene)acetohydrazide nickel(II) complexes

Synthesis and characterization of two new mononuclear nickel(II) complexes, viz., [Ni(L)₂](NO₃)₂·H₂O and [Ni(HL)(L)]ClO₄·(H₂O)₂ are reported. All the complexes are structurally characterized by single crystal X-ray analysis. Magnetic moment values and spectroscopic data of both complexes show a paramagnetic nickel(II) center with a tridentate N₂O donor Schiff base.



[Ni(L)₂](NO₃)₂·H₂O

[Ni(HL)(L)]ClO₄·(H₂O)₂

Ram N Patel*, Yogendra Pratap Singh,
Yogendra Singh & Raymond J Butcher

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