

Indian Journal of Chemistry

Sect. A: Inorganic, Bio-inorganic, Physical, Theoretical & Analytical

www.niscair.res.in; http://nopr.niscair.res.in
CODEN: ICACEC; ISSN: 0376-4710 (Print), 0975-0975 (Online)

VOLUME 51A

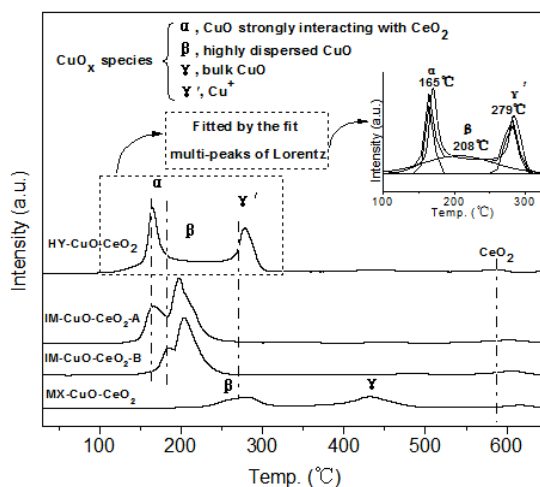
NUMBER 11

NOVEMBER 2012

CONTENTS

- 1529 Effect of interaction between CuO and CeO₂ on the performance of CuO-CeO₂ catalysts for selective oxidation of CO in H₂-rich streams

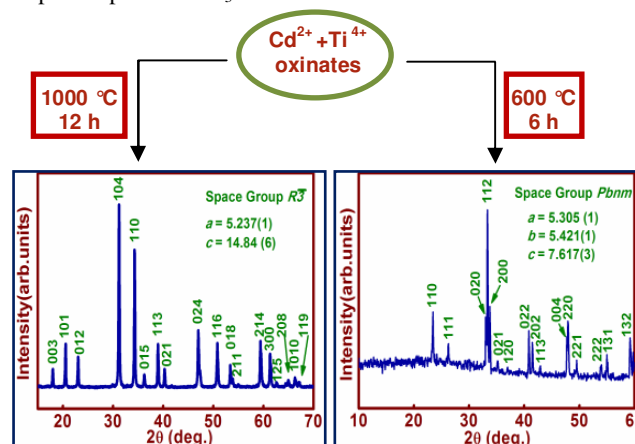
Due to strong interaction and synergism between interfacial CuO and CeO₂, Hy-CuO-CeO₂ catalyst prepared by hydrothermal method exhibits the highest catalytic activity, particularly at low temperatures.



Pengfei Zhu, Mei Liu & Renxian Zhou *

- 1538 Synthesis and optical properties of pure CdTiO₃ and Ni²⁺ and Zn²⁺ ion substituted CdTiO₃ obtained by a novel precursor route

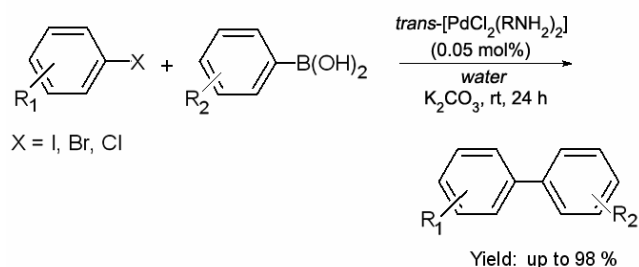
In ilmenite and perovskite forms of CdTiO₃ synthesized from oxinate precursors, phase transition from ilmenite to perovskite structure occurs at 1000 °C. Ni²⁺ and Zn²⁺ substituted CdTiO₃ show a shift in the optical bands to red and blue regions with respect to pure CdTiO₃.



Mamta Kharkwal, S Uma & R Nagarajan*

1545 Primary amine-based palladium(II) complexes as catalysts for Suzuki-Miyaura reaction: Experimental and theoretical investigations on the effects of substituents on nitrogen atom

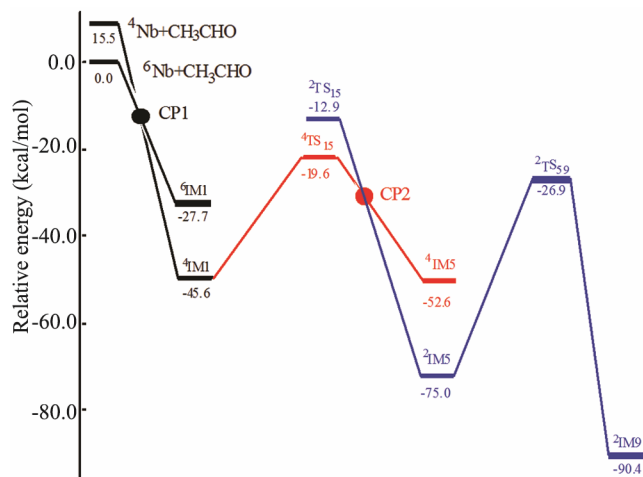
Catalytic activities of eight primary amine-based palladium complexes are explored for Suzuki-Miyaura reactions of aryl halides with arylboronic acids in water at room temperature. The observed catalytic trend correlates well with the DFT-based reactivity descriptors such as chemical hardness, chemical potential and electrophilicity index of the ligands.



Archana Tairai, Pradip K Bhattacharyya, Rahul Kar & Pankaj Das*

1553 A DFT study on the mechanism of the gas phase reaction of niobium with acetaldehyde

The spin-forbidden reaction, ${}^6\text{Nb} + \text{CH}_3\text{CHO} \rightarrow \text{CP1} \rightarrow {}^4\text{IM1} \rightarrow {}^4\text{TS}_{15} \rightarrow \text{CP2} \rightarrow {}^2\text{IM5} \rightarrow {}^2\text{TS}_{59} \rightarrow {}^2\text{IM9}$, is found to be energetically most favorable. The identified reaction mechanisms suggest sextet-quartet and quartet-doublet surface crossings. The crossing region has been determined approximately.

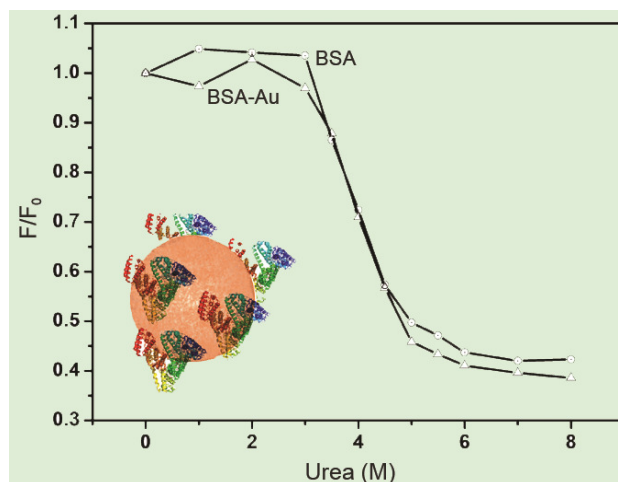


Yong Wang & Gui-hua Chen*

Notes

1561 Fluorescence and CD studies of protein denaturation in the presence of sub-picomolar gold nanoparticles

Sub-nanomolar concentrations of gold nanoparticles are found to have some visible effects on the conformation of BSA. A small but definite enhancement in the trp emission in presence of sub-picomolar gold nanoparticles is observed.



K Ojha, P K Chowdhury & A K Ganguli*

1567 Flow injection preconcentration system using a new functionalized resin for determination of cadmium(II) by flame atomic absorption spectroscopy

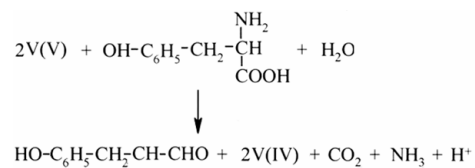
A rapid, sensitive and selective online preconcentration procedure for the determination of cadmium(II) in industrial water samples by flow injection technique with flame atomic absorption spectroscopy as a detection method is reported. The method is linear over the concentration range of 0–120 $\mu\text{g L}^{-1}$ Cd(II). The limits of detection are 1.038 and 0.57 $\mu\text{g L}^{-1}$ for 60 s and 120 s sorption times respectively. The precision for 5 replicate measurements are 1.68 and 1.12 for the determination of 20 and 50 $\mu\text{g L}^{-1}$ Cd(II) respectively.

Reena Saxena* & Suneeti Singh

1574 Kinetics and mechanism of oxidation of tyrosine by vanadium(V) in aqueous hydrochloric and ethanoic acid medium

In aqueous hydrochloric and ethanoic acid media, vanadium(V) is reduced to vanadium(IV) and tyrosine is oxidized to 4-hydroxyphenyl acetaldehyde. The reaction is first order with respect to vanadium(V) and less than unit order with respect to tyrosine concentrations. The reaction follows the rate law:

$$\text{Rate} = -d[\text{VO}_2^+]/dt = \frac{k K_1 K_2 [\text{VO}_2^+] [\text{tyrosine}] [\text{H}^+]}{1 + K_1 [\text{H}^+] + K_1 K_2 [\text{tyrosine}] [\text{H}^+]}$$



A S Onkar, P N Naik, S D Gunagi, S T Nandibewoor &
S A Chimatadar*

1580 Corrigendum

Authors for correspondence are indicated by (*)