



## Contents

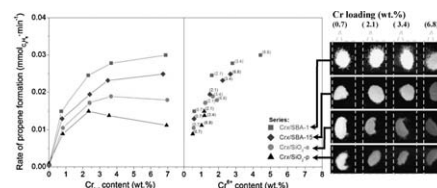
### Articles

**Piotr Michorczyk, Jan Ogonowski, Kamila Zeńczak**

*Journal of Molecular Catalysis A: Chemical 349 (2011) 1*

Activity of chromium oxide deposited on different silica supports in the dehydrogenation of propane with  $\text{CO}_2$  – A comparative study

► Chromium oxide dispersed on commercial silicas and siliceous mesoporous materials as a catalysts for dehydrogenation of propane with  $\text{CO}_2$  (DHP- $\text{CO}_2$ ). ► Content of Cr redox species increases with the rise of specific surface area of the support. ► Propene formation rate is proportional to the number of Cr redox species in the catalysts. ► Presented in the fresh catalyst Cr(VI) species are reduced rapidly to Cr(II)/Cr(III) species at the beginning of the DHP- $\text{CO}_2$  process.

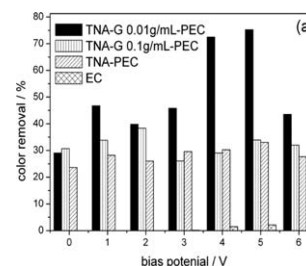


**Yajun Wang, Jie Lin, Ruilong Zong, Jun He, Yongfa Zhu**

*Journal of Molecular Catalysis A: Chemical 349 (2011) 13*

Enhanced photoelectric catalytic degradation of methylene blue via  $\text{TiO}_2$  nanotube arrays hybridized with graphite-like carbon

► Graphite-like carbon/ $\text{TiO}_2$  nanotube array was synthesized by sucrose graphitization. ► Enhanced photoelectric catalytic activity under ultraviolet irradiation. ► Obvious photoelectric catalytic activity under visible irradiation ( $\lambda > 450 \text{ nm}$ ). ► Different degradation mechanisms of MB under ultraviolet and visible irradiation.

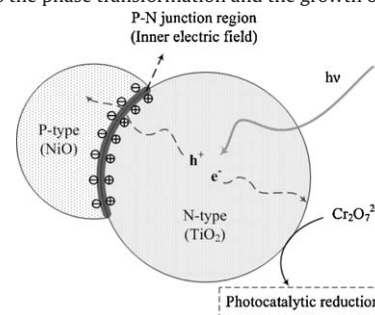


**Young Ku, Chia-Nan Lin, Wei-Ming Hou**

*Journal of Molecular Catalysis A: Chemical 349 (2011) 20*

Characterization of coupled NiO/ $\text{TiO}_2$  photocatalyst for the photocatalytic reduction of Cr(VI) in aqueous solution

► The p–n junction mechanism is generated by coupling NiO and  $\text{TiO}_2$  in sol–gel process. ► NiO/ $\text{TiO}_2$  is fabricated for the photocatalytic reduction of Cr(VI). ► The p–n junction region can efficiently transfer the photogenerated holes. ► The presence of NiO retards the phase transformation and the growth of  $\text{TiO}_2$ .

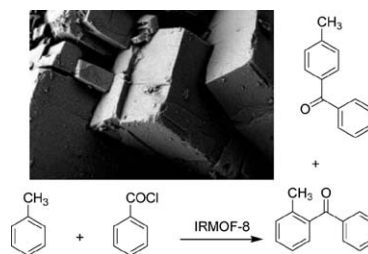


**Lien T.L. Nguyen, Chi V. Nguyen, Giao H. Dang,  
Ky K.A. Le, Nam T.S. Phan**

*Journal of Molecular Catalysis A: Chemical* 349 (2011) 28

Towards applications of metal–organic frameworks in catalysis: Friedel–Crafts acylation reaction over IRMOF-8 as an efficient heterogeneous catalyst

► IRMOF-8 was synthesized and characterized. ► IRMOF-8 was used as catalyst for the Friedel–Crafts acylation reaction. ► High conversions were achieved using catalytic amounts of the IRMOF-8. ► The catalyst could be reused.

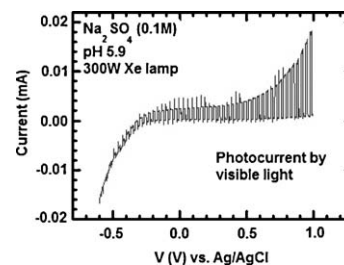


**D.P. Das, Niranjana Biswal, Satyabadi Martha,  
K.M. Parida**

*Journal of Molecular Catalysis A: Chemical* 349 (2011) 36

Solar-light induced photodegradation of organic pollutants over CdS-pillared zirconium–titanium phosphate (ZTP)

► CdS pillaring has decreased the band gap energy of ZTP to 2.81 eV. ► CdS pillaring has increased the surface area. ► CdS pillaring has shifted the adsorption edge to visible light. ► 15CdS-ZTP showed the best photocatalytic activity towards the degradation of contaminants.

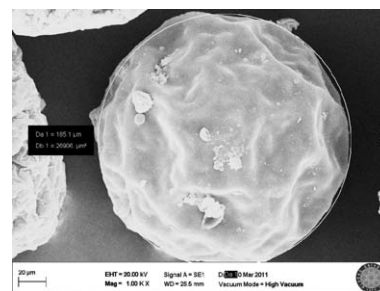


**Ali Kara, Beyhan Erdem**

*Journal of Molecular Catalysis A: Chemical* 349 (2011) 42

Synthesis, characterization and catalytic properties of sulfonic acid functionalized magnetic-poly(divinylbenzene-4-vinylpyridine) for esterification of propionic acid with methanol

► We investigate the catalytic property of new material on the esterification of methyl propionate. ► m-Poly(DVB-4VP-SO<sub>3</sub>H) is shown as active catalyst for propionic acid–methanol esterification. ► This new catalyst may be proposed as an alternative instead of commercial resins.

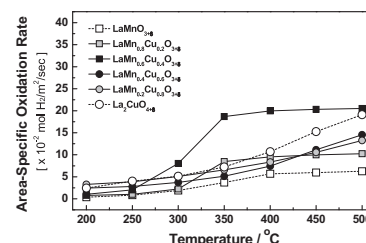


**Hee-Jun Eom, Jun Ho Jang, Dae-Won Lee,  
Seongmin Kim, Kwan-Young Lee**

*Journal of Molecular Catalysis A: Chemical* 349 (2011) 48

Catalytic combustion of hydrogen over La<sub>1-x</sub>Sr<sub>x</sub>CoO<sub>3-δ</sub> + Co<sub>3</sub>O<sub>4</sub> and LaMn<sub>1-x</sub>Cu<sub>x</sub>O<sub>3+δ</sub> under simulated MCFC anode off-gas conditions

► LaMn<sub>1-x</sub>Cu<sub>x</sub>O<sub>3</sub> and La<sub>1-x</sub>Sr<sub>x</sub>CoO<sub>3</sub> were compared in combustion of MCFC anode off-gas. ► Among the tested catalysts, the most active catalyst was LaMn<sub>0.6</sub>Cu<sub>0.4</sub>O<sub>3</sub>. ► B-site ion reducibility and oxygen mobility affected the activity of LaMn<sub>1-x</sub>Cu<sub>x</sub>O<sub>3</sub>. ► For La<sub>1-x</sub>Sr<sub>x</sub>CoO<sub>3-δ</sub>, the coproduced Co<sub>3</sub>O<sub>4</sub> generated synergy effects in activity.

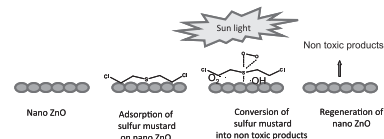


**G.K. Prasad, P.V.R.K. Ramacharyulu, Beer Singh, K. Batra, Anchal R. Srivastava, K. Ganesan, R. Vijayaraghavan**

*Journal of Molecular Catalysis A: Chemical* 349 (2011) 55

Sun light assisted photocatalytic decontamination of sulfur mustard using ZnO nanoparticles

► Synthesis of ZnO nanoparticles of different sizes using sol gel method. ► Characterization of ZnO nanoparticles was done by XRD, IR, SEM and N<sub>2</sub> BET analysis. ► Advantage of ZnO is that, it absorbs over a larger fraction of solar spectrum. ► ZnO nanoparticles exhibited better efficiency towards sulfur mustard in Sun light. ► Photocatalysis aided faster decontamination of sulfur mustard on nano ZnO.

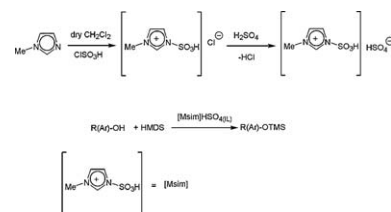


**Nader Ghaffari Khaligh**

*Journal of Molecular Catalysis A: Chemical* 349 (2011) 63

Preparation, characterization and use of 3-methyl-1-sulfonic acid imidazolium hydrogen sulfate as an eco-benign, efficient and reusable ionic liquid catalyst for the chemoselective trimethylsilyl protection of hydroxyl groups

► Introducing the new catalyst (as ionic liquid) for organic transformations. ► Superiority of the catalyst with respect to the reported catalysts. ► Introducing an efficient new method for protection of hydroxyl groups. Generality of the method, high yields and very short reaction times. ► Application of solvent free conditions in the reaction.

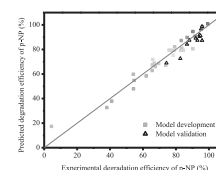


**Sheng-Peng Sun, Ann T. Lemley**

*Journal of Molecular Catalysis A: Chemical* 349 (2011) 71

p-Nitrophenol degradation by a heterogeneous Fenton-like reaction on nano-magnetite: Process optimization, kinetics, and degradation pathways

► Degradation of p-NP in water by heterogeneous Fenton on nano-Fe<sub>3</sub>O<sub>4</sub> at neutral pH. ► Parameter optimization by central composite design and response surface methodology. ► Primary reactive species, intermediate products and kinetics of p-NP degradation. ► An environmentally benign technology for remediation of p-NP and other contaminants.

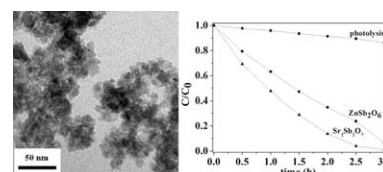


**Wenjun Liu, Pingyong Lin, Hua Jin, Hun Xue, Yongfan Zhang, Zhaohui Li**

*Journal of Molecular Catalysis A: Chemical* 349 (2011) 80

Nanocrystalline ZnSb<sub>2</sub>O<sub>6</sub>: Hydrothermal synthesis, electronic structure and photocatalytic activity

► Facile hydrothermal method to nanocrystalline ZnSb<sub>2</sub>O<sub>6</sub> with large surface area. ► Nanocrystalline ZnSb<sub>2</sub>O<sub>6</sub> shows photocatalytic activity for the degradation of dyes. ► ZnSb<sub>2</sub>O<sub>6</sub> and Sr<sub>2</sub>Sb<sub>2</sub>O<sub>7</sub> show different activity due to different electronic structures. ► Second metal in ternary antimonates influence their electronic structure and activity.

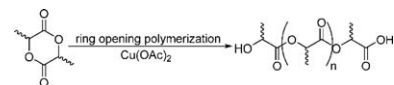


**Ravikumar R. Gowda, Debashis Chakraborty**

*Journal of Molecular Catalysis A: Chemical* 349 (2011) 86

Copper acetate catalyzed bulk ring opening polymerization of lactides

- ▶  $\text{Cu}(\text{OAc})_2$  is found to be an effective bulk polymerization catalyst for the polymerization of lactide.
- ▶ Polymers with different end groups can be synthesized. ▶ The overall system is green and ecofriendly.

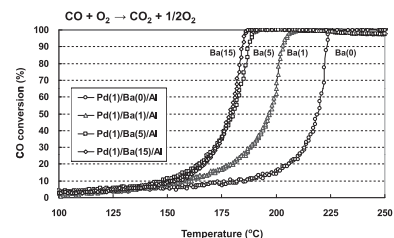


**K. Tanikawa, C. Egawa**

*Journal of Molecular Catalysis A: Chemical* 349 (2011) 94

Effect of barium addition over palladium catalyst for CO–NO–O<sub>2</sub> reaction

- ▶ Ba addition on Pd supported on Al<sub>2</sub>O<sub>3</sub> improved both of CO oxidation and NO reduction. ▶ Ba addition caused the decrease for the activity of CO oxidation on Pd/CZ. ▶ Deactivation of CO oxidation is due to the reduction of oxygen supply from CZ to Pd. ▶ NO reduction is not affected by Ba on CZ under a stoichiometric CO–NO–O<sub>2</sub> condition.



**Stefano Livraghi, Maria Cristina Paganini, Elio Giamello**

*Journal of Molecular Catalysis A: Chemical* 349 (2011) 100

EPR study of electron trapping on partially hydroxylated alkali-earth oxides occurring during SO<sub>2</sub> disproportionation

- ▶ SO<sub>2</sub> interaction on oxide surface is affected by hydroxyl groups. ▶ EPR is the most suitable spectroscopic technique to evaluate radical species. ▶ Adsorption of SO<sub>2</sub> on oxide surfaces generates radicals. ▶ Different basicity of MgO, CaO and SrO plays a crucial role in reactivity.

