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Articles

P.J. Baricelli, R. Santos, E. Lujano and A.J. Pardey

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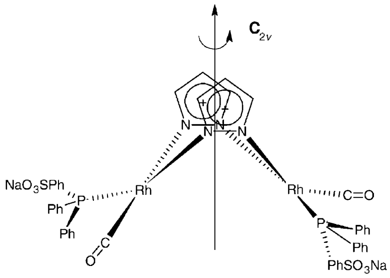
Synthesis, characterization and catalytic activity in the hydroformylation of 1-hexene and styrene of water-soluble rhodium complex [Rh(μ-Pz)(CO)(TPPMS)]$_2$ (Part 1)

The synthesis and full characterization of the water-soluble complex [Rh(μ-Pz)(CO)(TPPMS)]$_2$ (**I**), where TPPMS: $(C_6H_5)_2P(m\text{-}C_6H_4SO_3Na)$ and Pz: pyrazolate, is described. These analyses confirmed that there are two pyrazolate bridging ligands in an exobidentate orientation, giving a C$_{2v}$ symmetry to the complex. The complex was active in the catalytic hydroformylation of 1-hexene and styrene in a two-phase reaction medium.



Neftalí L.V. Carreño, Humberto V. Fajardo, Adeilton P. Maciel, Antoninho Valentini, Fenelon M. Pontes, Luiz F.D. Probst, Edson R. Leite and Elson Longo

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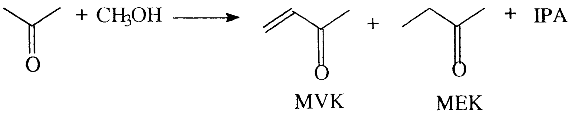
Selective synthesis of vinyl ketone over SnO$_2$ nanoparticle catalysts doped with rare earths

Ultrafine particles of tin oxide, doped with the rare earths Ce, Y and La, respectively, were prepared using the polymeric precursor method. The novel application of nanostructured tin oxide, undoped and doped, to the C–C bond formation of an α,β-unsaturated compound, methyl vinyl ketone (MVK) is presented.



Shrikant M. Kulkarni, Mahesh R. Didgikar and Raghunath V. Chaudhari

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Synthesis of polyesteramides by palladium-catalyzed carbonylation–polycondensation of aromatic diiodides and amino alcohols

Polyesteramides were prepared by palladium-catalyzed carbonylation–polycondensation reaction of aromatic diiodides and amino alcohols. The effects of reaction parameters such as carbon monoxide pressure, solvent, base, temperature, etc. on the yield and intrinsic viscosity of the polyesteramide obtained were investigated using the carbonylation of 4,4′-diiodobiphenyl and 3-aminopropan-1-ol as a model polymerization reaction.

$$\mathrm{I{-}Ar{-}I} + \mathrm{H_2N{-}R{-}OH} \xrightarrow[\text{base, solvent}]{\text{CO, Pd catalyst}} \left[\mathrm{{-}CO{-}Ar{-}CO{-}NH{-}R{-}O{-}} \right]_n$$

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S. Harinipriya and M.V. Sangaranarayanan

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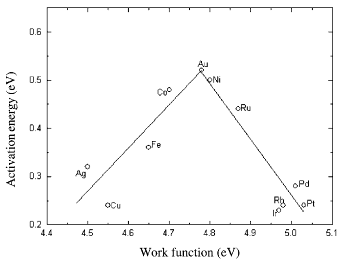
Estimation of the activation energies for heterogeneous catalytic processes from thermodynamic and structural considerations

Correlation between the activation energy for decomposition of formic acid and work function of metals.



Francisco López-Linares, Giuseppe Agrifoglio, Ángel Labrador and Arquímedes Karam

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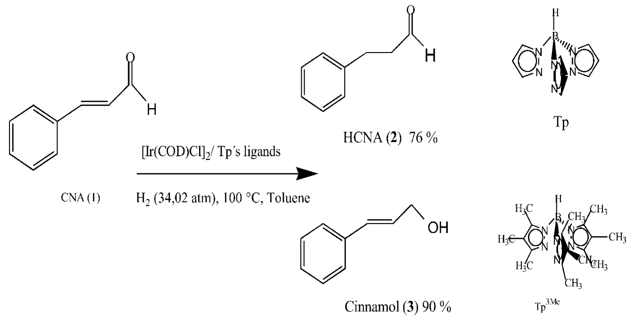
Regioselective hydrogenation of olefinic or carbonyl functional group of α,β-unsaturated substrates by iridium cycloocta-1,5-diene precursor stabilized with hydro(pyrazolyl)borate ligands



Basudeb Saha and James H. Espenson

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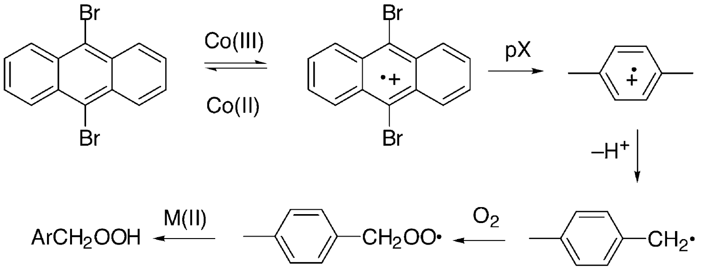
Bromoanthracenes and metal co-catalysts for the autoxidation of *para*-xylene

Bromoanthracenes such as 9,10-dibromoanthracene (DBA) and 9-bromoanthracene can replace inorganic bromide as promoters for the autoxidation of *p*-xylene with cobalt(II) acetate catalysts. DBA reacts with Co(III) by electron transfer to form the radical cation $DBA^{\bullet +}$. Further electron transfer from *para*-xylene yields the strong acid p-$MeC_6H_4CH_3^{\bullet +}$ and p-$MeC_6H_4CH_2^{\bullet}$; reaction with oxygen forms the key chain-branching intermediate, p-$MeC_6H_4CH_2OO^{\bullet}$.



Trissa Joseph, M. Hartmann, S. Ernst and S.B. Halligudi

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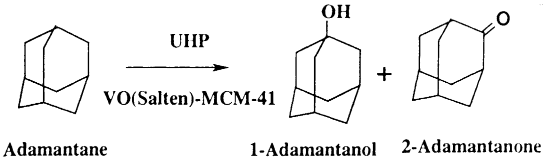
Oxidation of adamantane by urea hydroperoxide using vanadium complex anchored onto functionalized Si-MCM-41

A tetradentate complex 3-[*N*,*N*′-bis-3-(salicylidenamino)ethyltriamine] vanadium(IV), VO(Salten) was grafted on to MCM-41 through a covalently linked organic moiety. This anchored complex allowed the catalytic oxidation of adamantane using urea hydroperoxide (UHP) as the oxidizing agent at 60 °C and atmospheric pressure. No leaching of the complex was observed after the reaction.



Jumras Limtrakul, Chan Inntam and Thanh N. Truong

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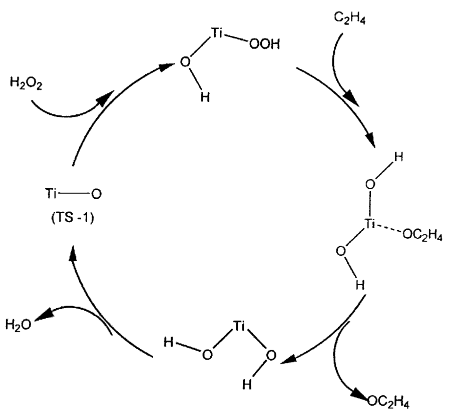
Density functional theory study of the ethylene epoxidation over Ti-substituted silicalite (TS-1)



Harumitsu Nishikawa

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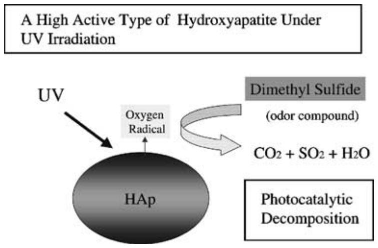
A high active type of hydroxyapatite for photocatalytic decomposition of dimethyl sulfide under UV irradiation



Ana María Domínguez, Antonio Zárate, Raúl Quijada and Tessy López

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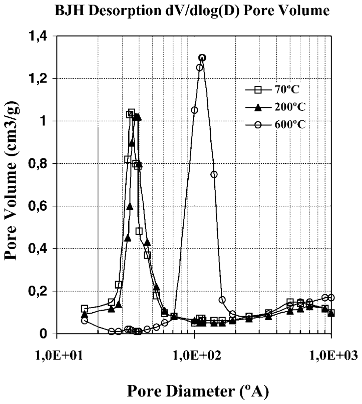
Sol–gel iron complex catalysts supported on TiO_2 for ethylene polymerization



T.H. Bennur, D. Srinivas and S. Sivasanker

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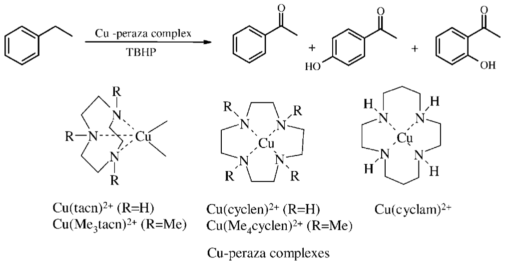
Oxidation of ethylbenzene over “neat” and zeolite-Y-encapsulated copper tri- and tetraaza macrocyclic complexes

Oxidation of ethylbenzene over “neat” and zeolite-Y-encapsulated copper tri- and tetraaza macrocyclic complexes using *tert*-butyl hydroperoxide as oxidant is reported. C–H bond activation takes place both at benzylic and aromatic ring carbon atoms. Ring hydroxylation was more over the “neat” than the encapsulated complexes. The differences in the selectivity are attributed to different types of “active” copper–oxygen intermediates formed in different proportions.



Naoto Koizumi, Guozhu Bian, Kazuhito Murai, Toshihiko Ozaki and Muneyoshi Yamada

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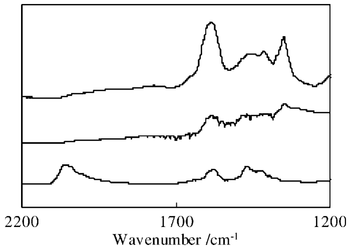
In situ DRIFT studies of sulfided K-Mo/γ-Al_2O_3 catalysts

Diffuse reflectance infrared Fourier transform (DRIFT) spectra with NO and syngas adsorption on sulfided K-Mo/Al_2O_3 catalysts indicate that sites for NO and CO adsorption over the MoS_2-like species are addressed by K atoms to form K-MoS_2 interaction species. During high-pressure CO hydrogenation, formate species are formed on the catalysts and K atoms have strong interaction with the formate species, which may result in the decrease of the activity for CO_2 and hydrocarbons synthesis and in the increase of the activity for mixed alcohol synthesis.



Danfeng Li, Yihang Guo, Changwen Hu, Chunjie Jiang and Enbo Wang

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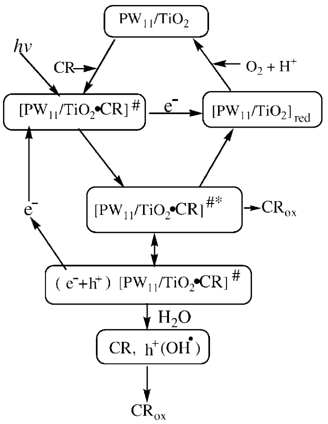
Preparation, characterization and photocatalytic property of the $PW_{11}O_{39}{}^{7-}/TiO_2$ composite film towards azo-dye degradation



Juan David Henao, Luis Fernando Córdoba and Consuelo Montes de Correa

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Theoretical and experimental study of NO/NO_2 adsorption over Co-exchanged type-A zeolite

A simplified model of cobalt and its closest environment in LTA type zeolite, with structural formula $Co(OH)_2H_2O$ qualitatively represents their transition metal centers, allowing to get a first approximation of the molecular process involved in the adsorption of NO and NO_2 over cobalt exchanged type-A (Co-A) zeolite

Jianmei Lu, Zhenqian Zhang, Xuewei Xia, Lihua Wang and Xiulin Zhu

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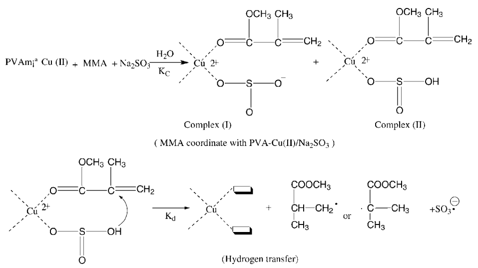
Catalytic function of cross-linked polyvinylamine–Cu(II) complexes for polymerization of methyl methacrylate

Complexes of cross-linked polyvinylamine (PVAm) and Cu(II) were synthesized and used as inhomogeneous catalyst for MMA polymerization. A novel catalysis mechanism was proposed.



Jinlong Gong, Xinbin Ma, Shengping Wang, Moyi Liu, Xia Yang and Genhui Xu

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Transesterification of dimethyl oxalate with phenol over MoO_3/SiO_2 catalysts