

# Catalysis Science & Technology

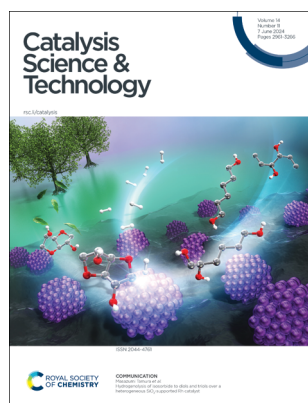
A multidisciplinary journal focussing on all fundamental science and technological aspects of catalysis

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**Cover**  
See Masazumi Tamura *et al.*, pp. 3001–3006.  
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**Inside cover**  
See Zhaoyang Fei, Ziqi Tian, Xu Qiao *et al.*, pp. 3012–3020.  
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## EDITORIAL

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### Introduction to integrated approaches for methane activation

Ken-ichi Shimizu, Wataru Ueda\* and Hua Song

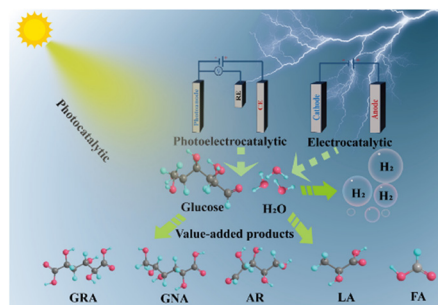


## REVIEWS

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### Photo-, electro-, and photoelectro-catalytic conversion of glucose into high value-added products

Kang Lu, Yunfei Zhang, Yi Shen\* and Hongying Li



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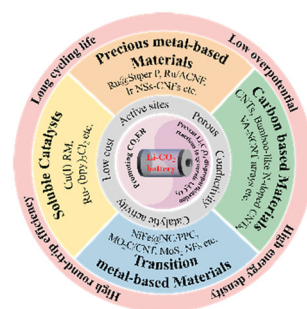


## REVIEWS

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Recent advancement in designing catalysts for rechargeable Li-CO<sub>2</sub> batteries

Juan Wang, Senlin Tian, Yang Lin, Haoran Song, Ningning Feng,\* Gang Yang and Qun Zhao\*

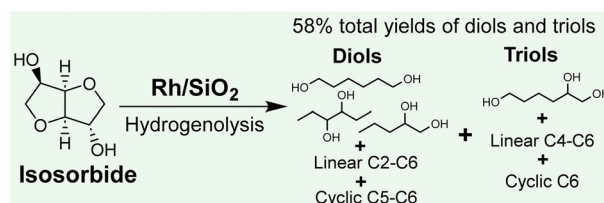


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Hydrogenolysis of isosorbide to diols and triols over a heterogeneous SiO<sub>2</sub>-supported Rh catalyst

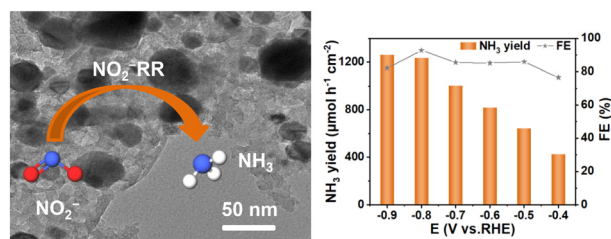
Pengru Chen, Wataru Onodera, Masato Akatsuka, Yusuke Kita and Masazumi Tamura\*



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## Co nanoparticle-decorated radix cynanchi daniculati-derived carbon for efficient electrocatalytic nitrite reduction to ammonia

Chengliang Ma, Li Bao, Xiaoya Fan, Xun He, Xuwei Liu, Wei Chu, Asmaa Farouk, Mohamed S. Hamdy, Shengjun Sun, Quan Li,\* Min Wu\* and Xuping Sun\*

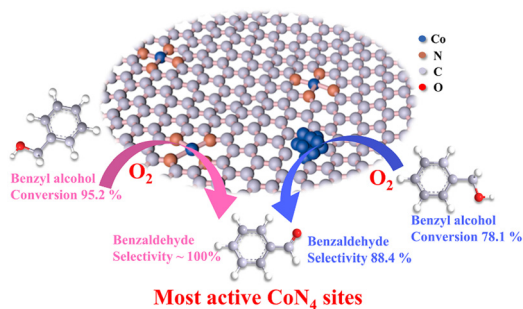


## PAPERS

3012

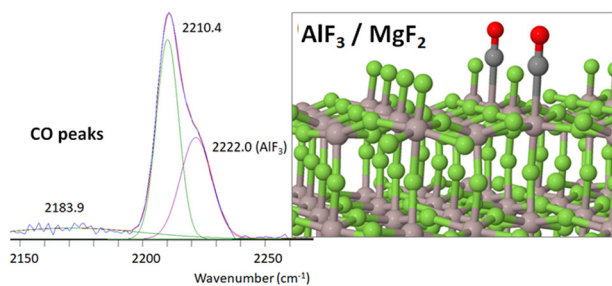
Highly-selective oxidation of benzyl alcohol to benzaldehyde over Co<sub>1</sub>/NC catalysts

Fan Xue, Yanle Li, Jingyue Bi, Shangpu Zhuang, Mifen Cui, Zhaoyang Fei,\* Ziqi Tian\* and Xu Qiao\*





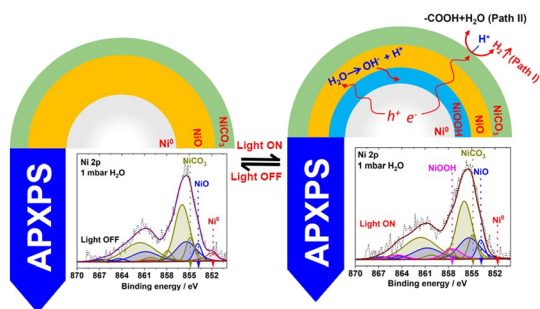
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### CO adsorption on pure, defective and mixed composition AlF<sub>3</sub> and MgF<sub>2</sub> surfaces

A. Impellizzeri, J. Dieu, J. Rousseau, S. Brunet\* and C. P. Ewels\*

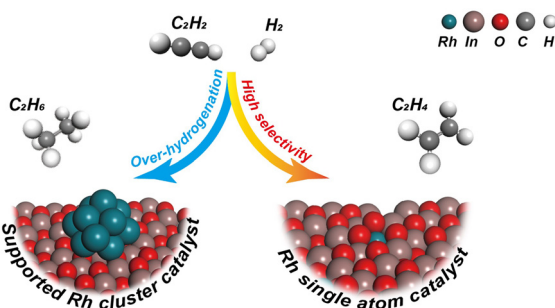
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### Solar light driven atomic and electronic transformations in a plasmonic Ni@NiO/NiCO<sub>3</sub> photocatalyst revealed by ambient pressure X-ray photoelectron spectroscopy

Manoj Kumar Ghosalya,\* Parisa Talebi, Harishchandra Singh,\* Alexander Klyushin, Esko Kokkonen, Mohammed Alaoui Mansouri, Marko Huttula, Wei Cao and Samuli Urpelainen\*

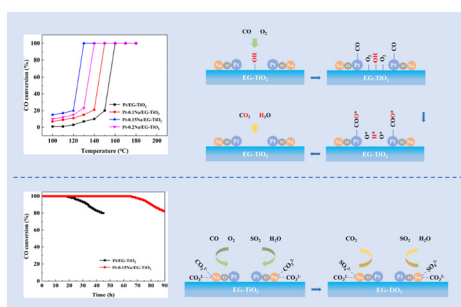
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### Exploration of the active sites on a Rh-In<sub>2</sub>O<sub>3</sub> catalyst for the semi-hydrogenation of acetylene: a theoretical study

Kaihang Sun, Rui Zou, Chenyang Shen and Chang-jun Liu\*

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### Alkali metal modified Pt/EG-TiO<sub>2</sub> catalysts for CO oxidation with efficient resistance to SO<sub>2</sub> and H<sub>2</sub>O

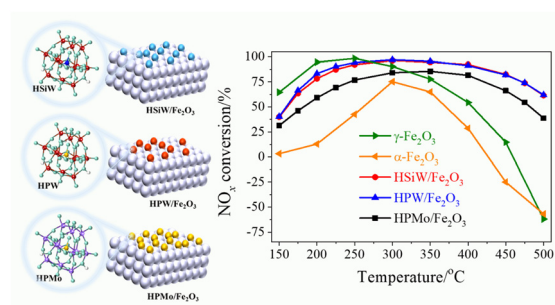
Hongtai Zhu, Wenge Qiu,\* Rui Wu, Kai Li and Hong He\*



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### Heteropoly acid-grafted iron oxide catalysts for efficient selective catalytic reduction of NO<sub>x</sub> with NH<sub>3</sub>

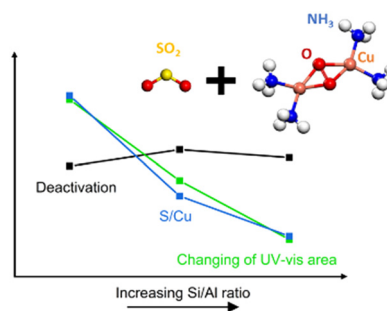
Yang Geng,\* Zhihua Lian, Yan Zhang, Janqi Liu, Dongliang Jin and Wenpo Shan\*



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Reza K. Abasabadi, Ton V. W. Janssens,\* Silvia Bordiga and Gloria Berlier\*



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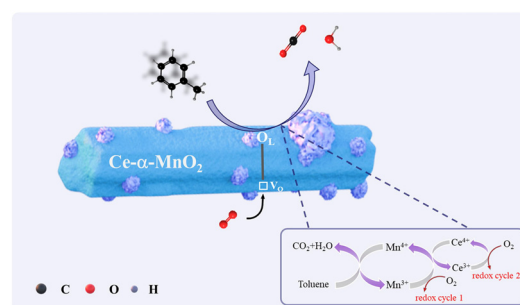
Abolfazl Mohammadkhani, Samanesadat Hosseini, Seied Ali Pourmousavi,\* Akbar Heydari\* and Mohammad Mahdavi



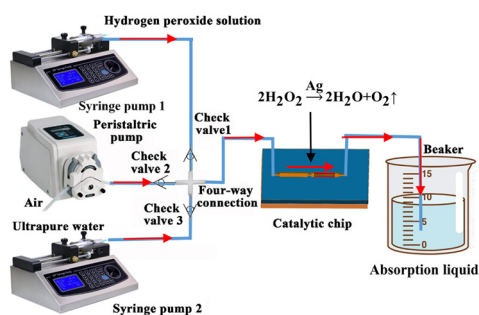
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### Enhanced catalytic performance for toluene combustion via Ce-doped α-MnO<sub>2</sub>: efficient balance between toluene adsorption and activation oxidation

Yongli Dong, Shuo Li, Chaoqun Chen, Weina Song,\* Xinglong Li, Fan Wang, Lina Ma, Xiaotong Wang and Wei Li\*



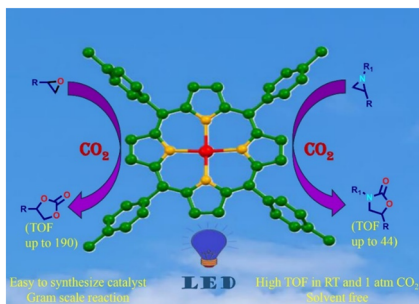
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### Reaction rate and thermal effects of hydrogen peroxide decomposition in microfluidic chips containing channel-type silver catalysts

Yong Yang, Yinghua Ye, Peng Zhu, Wei Zhang and Ruiqi Shen\*

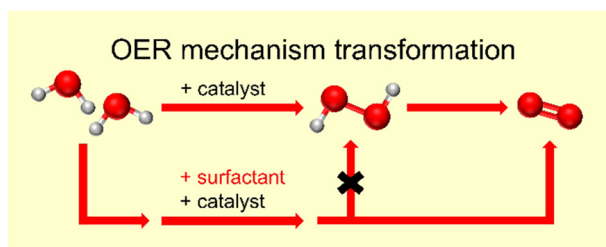
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### Magnesium-porphyrin as an efficient photocatalyst for the transformation of CO<sub>2</sub> to cyclic carbonates and oxazolidinones under ambient conditions

Sushanta Kumar Meher, Prakash Nayak, Sasmita Dhala, Swetapadma Tripathy and Krishnan Venkatasubbaiah\*

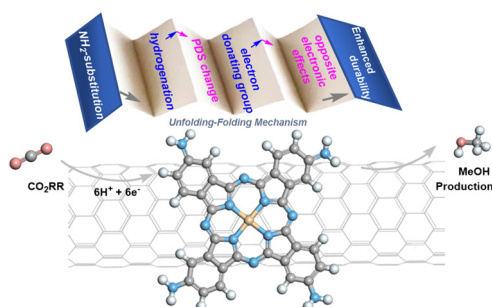
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### Blocking the bimolecular pathway of water oxidation electrocatalyzed by copper porphyrin with a surfactant

Luna Yang, Shujiao Yang, Jiafan Kong, Wenjie Yuan, Sisi Li, Xiaohan Liu, Rui Cao and Wei Zhang\*

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### New insights into the enhanced CO<sub>2</sub>RR durability caused by electron-donating substitution of heterogeneous CoPc

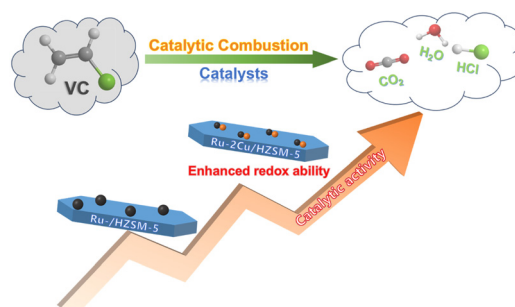
Qi Zhang,\* Pingao Hu, Chao Ma, Zhiyuan Xu and Beibei Tang



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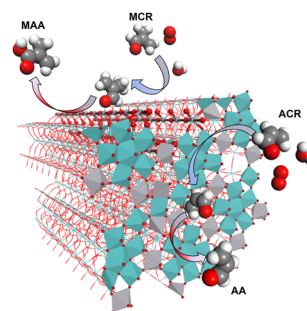
Mingqi Li, Yunyun Wang, Min Ding, Wangcheng Zhan, Li Wang, Qiguang Dai, Yun Guo, Aiyong Wang\* and Yanglong Guo\*



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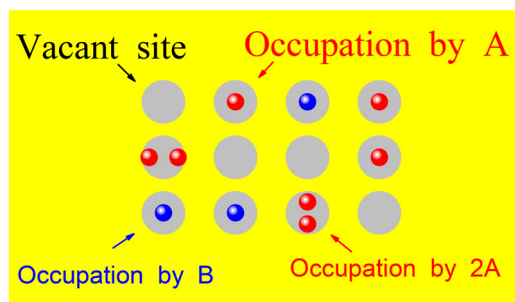
Satoshi Ishikawa,\* Nagisa Noda, Kosuke Shimoda, Toru Murayama and Wataru Ueda\*



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### Heterogeneous catalytic reactions with double occupation of binding sites

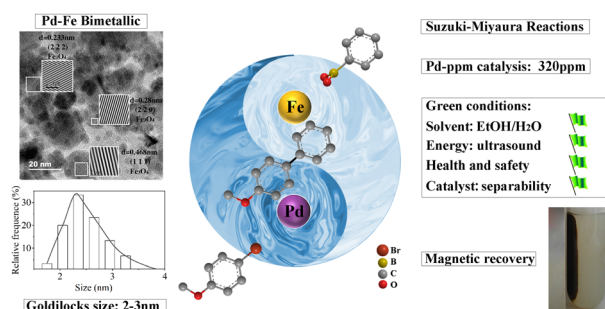
Vladimir P. Zhdanov\*



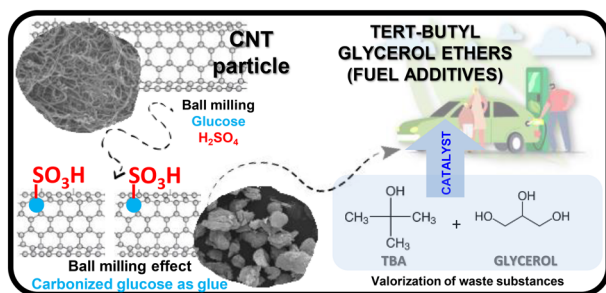
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### Magnetic Pd-Fe nanoparticles for sustainable Suzuki–Miyaura cross-coupling reactions

Zhuangli Zhu,\* Sanqi Liang, Huaming Sun, Weiqiang Zhang,\* Jianming Yang\* and Ziwei Gao\*



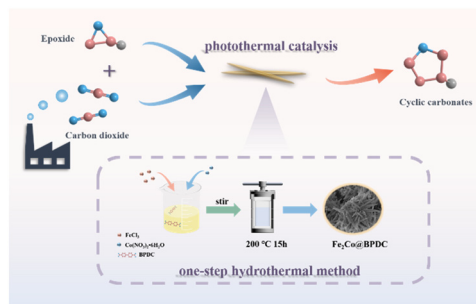
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Karolina Ptaszyńska,\* Katarzyna Morawa Eblagon,\*  
 Anna Malaika, José Luís Figueiredo  
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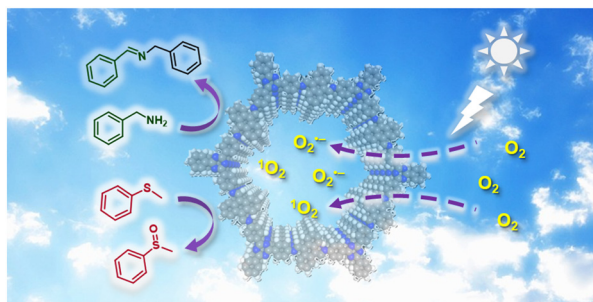
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### Bimetallic Fe/Co photothermal catalyst for fixing CO<sub>2</sub> to cyclic carbonates under atmospheric pressure

Xuewei Tu, Can Sun, Yang Hu, Yutong Chen,  
 Shouxin Zhu, Jingyi Qu, Zhexiao Zhu, Xiang Zhang\*  
 and Hui Zheng\*

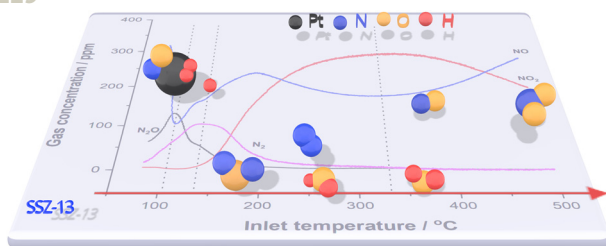
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### Extending 2D covalent organic frameworks by inserting anthracene for promoted white-light-mediated photocatalysis

Yiqiong Liu, Zehao Zhao, Wenshuo Xu  
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### Pt-based catalysts for NO<sub>x</sub> reduction from H<sub>2</sub> combustion engines

Jieling Shao, Phuoc Hoang Ho, Wei Di, Derek Creaser  
 and Louise Olsson\*

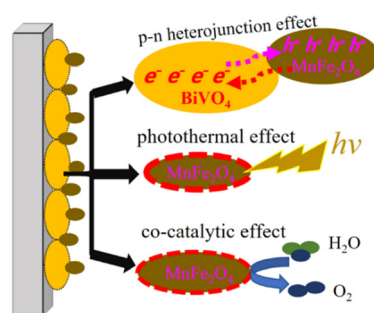




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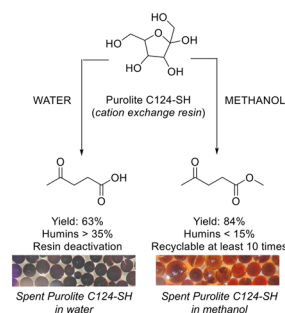
Guoqiang Shen, Haijiao Lu\* and Hao Chen\*



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Aymerick Beaurepaire, Justine Bodin, Delphine Dufour, Quentin Blancart Remaury, Stanislas Baudouin, Karine de Oliveira Vigier and François Jérôme\*



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Kazumasa Murata,\* Keita Arai, Nao Kondo, Ryo Manabe, Takashi Yumura and Saburo Hosokawa\*

