

# Catalysis Science & Technology

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

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## IN THIS ISSUE

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### Cover

See Ivo A. W. Filot, Emiel J. M. Hensen et al., pp. 3262–3274.  
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### Inside cover

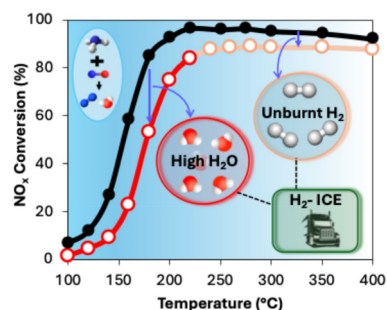
See Dhruba J. Deka et al., pp. 3256–3261.  
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## COMMUNICATION

3256

### Influence of H<sub>2</sub>-ICE specific exhaust conditions on the activity and stability of Cu-SSZ-13 deNO<sub>x</sub> catalysis

Dhruba J. Deka,\* Garam Lee, Kenneth G. Rappé, Eric Walter, Janos Szanyi and Yong Wang

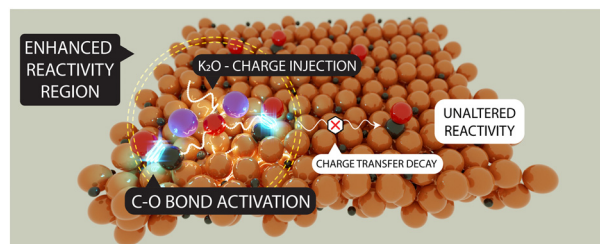


## PAPERS

3262

### A computational study of K promotion of CO dissociation on Hägg carbide

Xianxuan Ren, Rozemarijn D. E. Krösschell, Zhuowu Men, Peng Wang, Ivo A. W. Filot\* and Emiel J. M. Hensen\*





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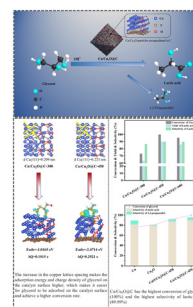
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3275

### Fabrication of nano Cu/Cu<sub>2</sub>O@C for the conversion of glycerol to lactic acid

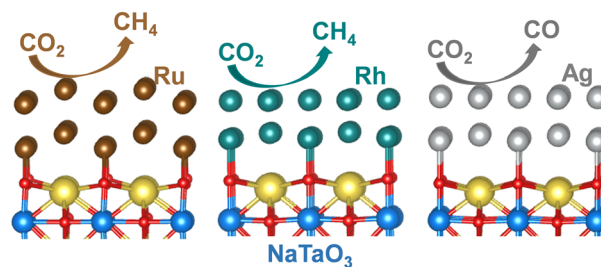
Hanqu Fu, Shuangming Li,\* Xinshu Xie, Yiwen Wang, Jili Zhang and Sansan Yu\*



3288

### Theoretical investigation on the reaction mechanism of photocatalytic CO<sub>2</sub> reduction over NaTaO<sub>3</sub> modified with metal cocatalysts (Ru, Rh, and Ag)

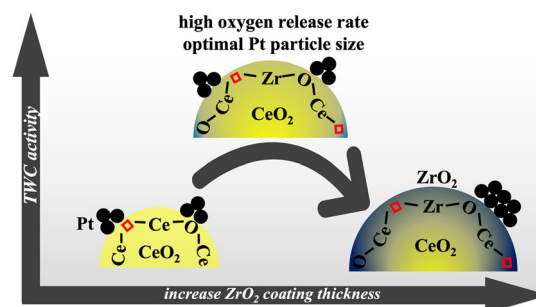
Chunyu Jin, Linlin Wang, Hao Dong\* and Xin Zhou\*



3298

### Enhancing the low-temperature performance of Pt-based three-way catalysts using CeO<sub>2</sub>(core)@ZrO<sub>2</sub>(shell) supports

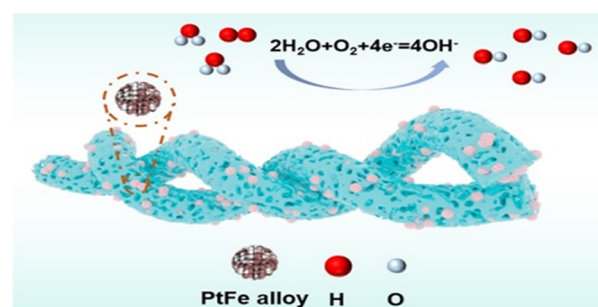
Chih-Han Liu, Junjie Chen,\* Patrick R. Raffaele, Michael J. Lance, Jacob Concolino, Prateek Khatri, Tala Mon, Todd J. Toops, Alexander A. Shestopalov and Eleni A. Kyriakidou\*



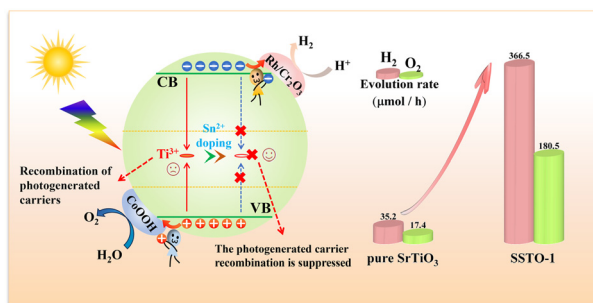
3307

### Highly active PtFe alloy encapsulated in porous carbon fibers as an air-cathode catalyst for zinc-air batteries

Zhen An, Zizai Ma,\* Zihao Wan, Hongfei Xu, Jinping Li and Xiaoguang Wang\*



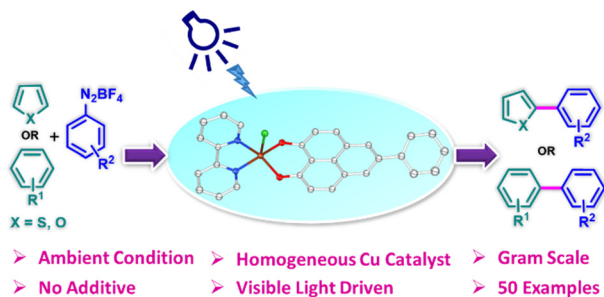
3316



### Efficient photocatalytic water splitting using Sn-doped SrTiO<sub>3</sub> perovskite with Sn at Sr sites

Yongshuai Chen, Mengdie Cai,\* Yimeng Cao, Suhaib Shuaib Adam Shuaib, Jia-qi Bai,\* Fang Chen, Jiawei Xue, Yuxue Wei and Song Sun

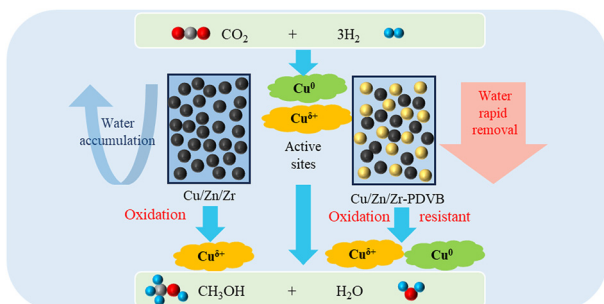
3325



### Highly efficient phenalenyl-copper bifunctional photoredox catalyst for direct C–H bond arylation of arenes and heteroarenes

Krishnendu Paramanik, Nilaj Bandopadhyay, Suraj Kumar Agrawalla, Chandra Shekhar Purohit, Bhaskar Biswas\* and Hari Sankar Das\*

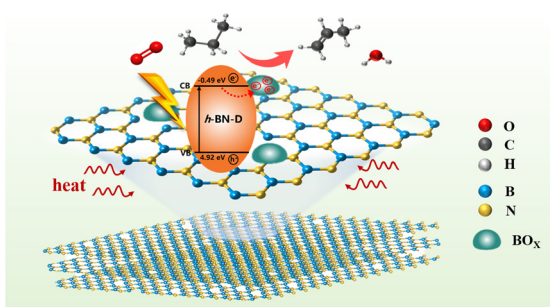
3332



### Enhancement of CO<sub>2</sub> hydrogenation to methanol over Cu-based catalysts mixed with hydrophobic additives

Lei Huang, Lingrui Cui, Cao Liu, Xingguo Wei, Yechunzi Liu and Fahai Cao\*

3346



### Light-assisted free radical initiation for efficient thermocatalytic propane oxidative dehydrogenation on defect-rich hexagonal boron nitride

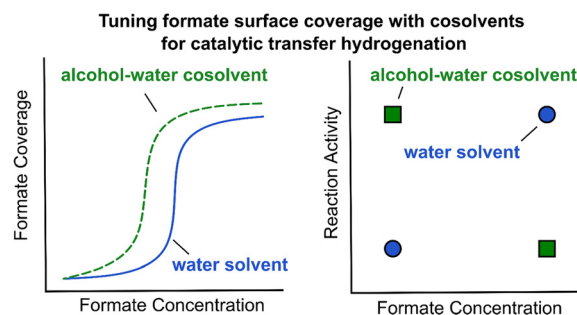
Ruiqi Lv, Haini Zhuang, Zitao Duan, Kunlin Li, Zhaoxia Zhang, Shaolong Wan, Shuai Wang and Jingdong Lin\*



3354

### Tuning formate surface coverage with cosolvents for liquid-phase catalytic transfer hydrogenation

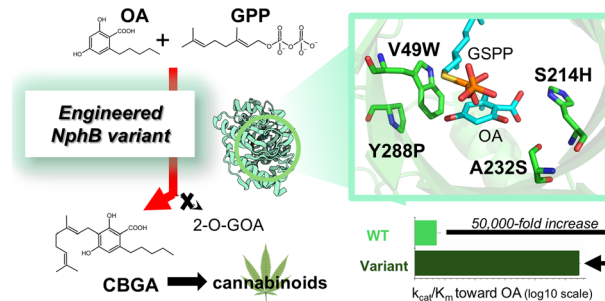
Ezra A. Baghdady, J. Will Medlin\* and Daniel K. Schwartz\*



3363

### A highly active and regioselective cannabigerolic acid synthase engineered from a promiscuous prenyltransferase NphB

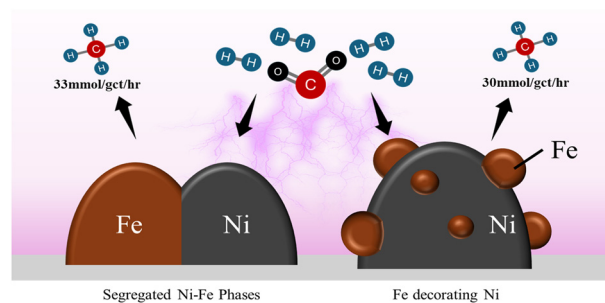
Ye Seop Park,\* Minju Kim, Chae Yeong Na, Hyeon Woo Ham, Jun-Young Cho, Boyoung Park, Cheulhee Jung, Daechan Park and Tae Hyeon Yoo\*



3372

### The impact bimetallic Ni-Fe deposit configuration has on accessing synergy during plasma-catalytic CO<sub>2</sub> methanation

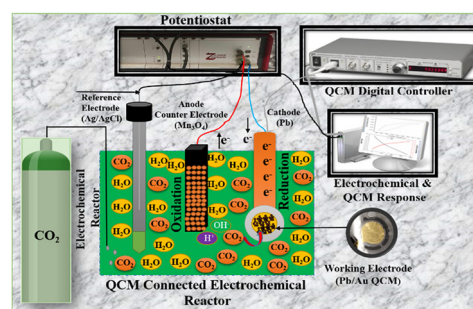
Ahmad Z. Md Azmi, Rachele Tay, Jiajia Zhao, Christopher D. Easton, Aaron Seeber, Yunxia Yang, Anthony B. Murphy, Emma Lovell\* and Jason Scott\*



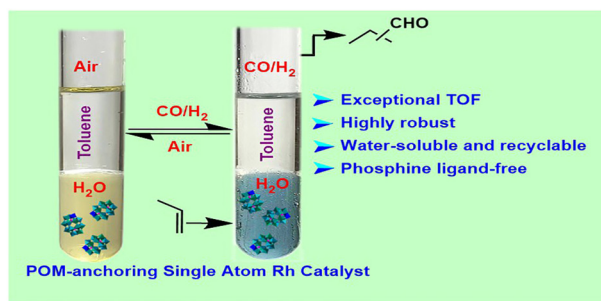
3385

### Synthesis of various Pb catalysts and their examination in the study of electrochemical CO<sub>2</sub> reduction (ECR) using a quartz crystal microbalance with a Mn<sub>3</sub>O<sub>4</sub> anode

V. S. K. Yadav,\* Mohammed A. H. S. Saad, Mohammed J. Al-Marri and Anand Kumar\*



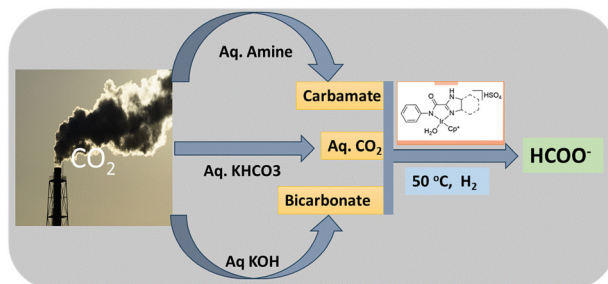
3393



### Boosting the hydroformylation activity of polyoxometalate-anchored Rh single atom catalysts in toluene–water media

Ning An, Yongjun Jiang, Huiying Liao, Ji Ding, Xinjia Wei, Haijing Wang,\* Sheng Dai and Zhenshan Hou\*

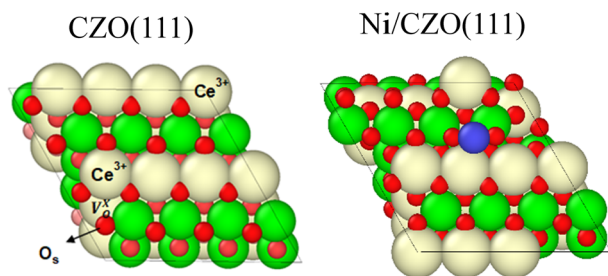
3406



### Hydrogenation of CO<sub>2</sub> into formate using an iridium catalyst containing proton-responsive imidazoline–amide ligands

Supriyo Majumder,\* Raj Kumar Das, Chanchal Samanta, Chiranjeevi Thota and Bharat L. Newalkar

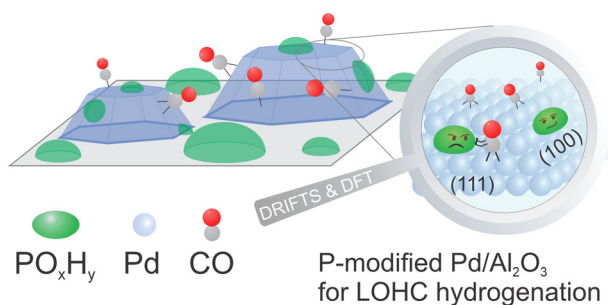
3412



### Vacancy formation, stability, and electronic properties of nickel on equimolar ceria–zirconia mixed oxide (111) catalyst

Sanjana Srinivas, George Yan, Stavros Caratzoulas and Dionisios G. Vlachos\*

3423



### Site blocking effects on P-modified Pd/Al<sub>2</sub>O<sub>3</sub> catalysts for LOHC hydrogenation: an *in situ* DRIFTS study

Yaoci Sheng, Adrian Seitz, Thobani Gambu, Kailun Zhang, Patrick Schühle and Tanja Retzer\*

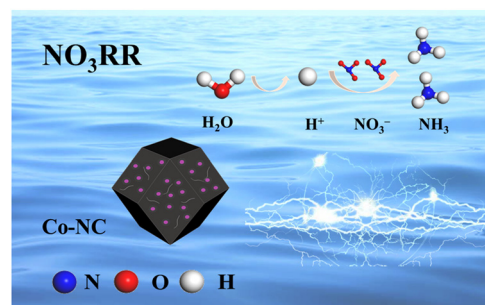


## PAPERS

3434

**Metal–organic framework derived Co–NC for electrocatalytic reduction of nitrate to ammonia**

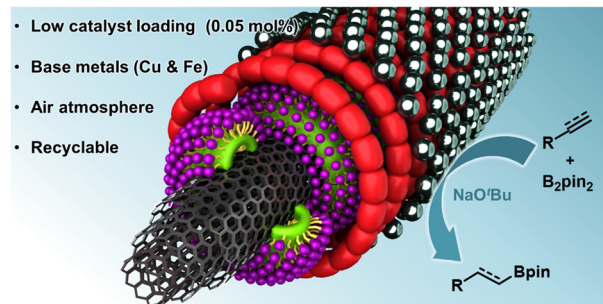
Zhuofan Wu, Haiding Zhu, Zi Wang, Yiming Sun, Meibing Jia, Xiaoxin Meng, Yushan Li, Lifen Liu, Anmin Liu and Xuefeng Ren\*



3445

**A swift and efficient approach to boron-functionalized scaffolds: borylation of alkenes and alkynes using a carbon nanotube–copper ferrite catalyst**

Mateus P. Nunes, Luana A. Machado, Hállen D. R. Calado, Guilherme A. M. Jardim, Joel A. Tchuiteng Kouatchou, Valérie Geertsen, Youzhu Yuan, Eric Doris,\* Eufrânio N. da Silva Júnior\* and Edmond Gravel\*



## RETRACTION

3450

**Retraction: Investigation of the effect of thermal annealing of Ni-cobaltite nanoparticles on their structure, electronic properties and performance as catalysts for the total oxidation of dimethyl ether**

Daniel Onana Mevoa, Stephane Kenmoe,\* Muhammad Waqas, Dick Hartmann Douma, Daniel Manhouli Daawe, Katia Nchimi Nono, Ralph Gebauer and Patrick Mountapmbeme Kouotou\*

