

# 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 Zhen Liu *et al.*, pp. 6137–6145.  
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### Inside cover

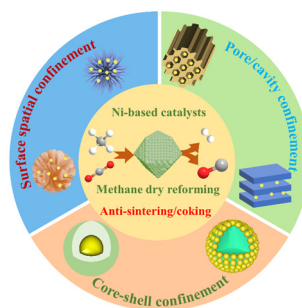
See Shinya Ariyasu, Osami Shoji *et al.*, pp. 6146–6152.  
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## MINI REVIEW

6089

### Confinement effects over Ni-based catalysts for methane dry reforming

Chongchong Chen, Jiaojiao Wei, Yao Lu, Melis Seher Duyar, Yuanyuan Huang, Ling Lin\* and Runping Ye\*

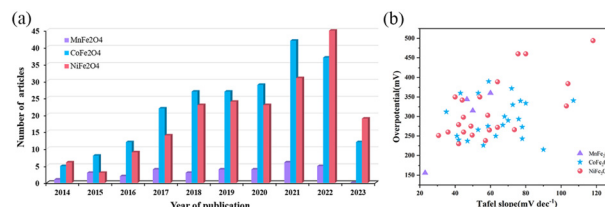


## REVIEW

6102

### Research progress of spinel $\text{CoFe}_2\text{O}_4$ as an electrocatalyst for the oxygen evolution reaction

Hongxin Wang, Qiming Hu, Jiangyuan Qiu, Rui Guo and Xuanwen Liu\*



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# Catalysis Science & Technology

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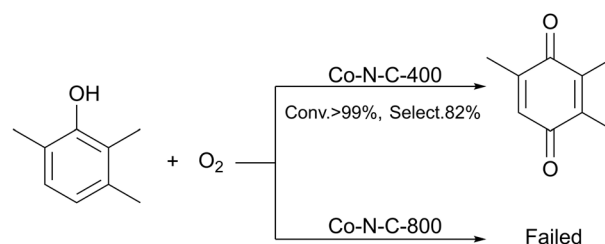


## COMMUNICATIONS

6126

**Selective oxidation of substituted phenols with Co–N–C catalysts fabricated *via* low temperature heat treatment**

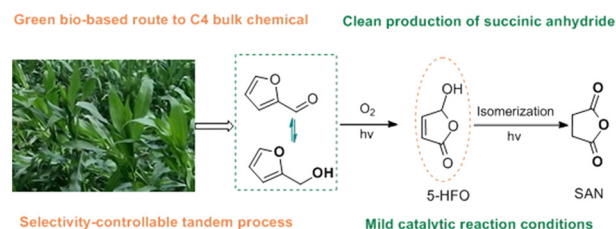
Bairui Guo, Zhongtian Du,\* Xiaoyu Shen, Mengjing Han, Yanbin Zhao, Jingjie Luo and Changhai Liang\*



6132

**From biomass to C4 chemicals: selective transformation of bio-based furans to succinic anhydride in the presence of oxygen**

Xiaoqian Gao, Xinli Tong,\* RuiChen Liu and Yi Zhang

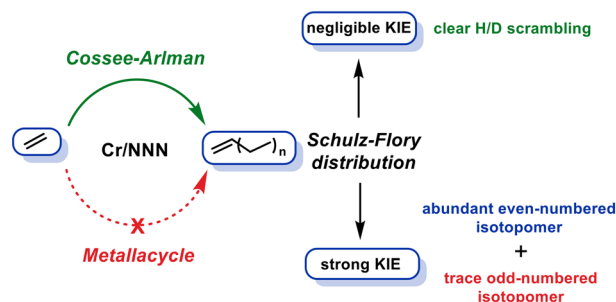


## PAPERS

6137

**Unravelling the chain growth mechanism in Cr/NNN-catalysed ethylene oligomerization**

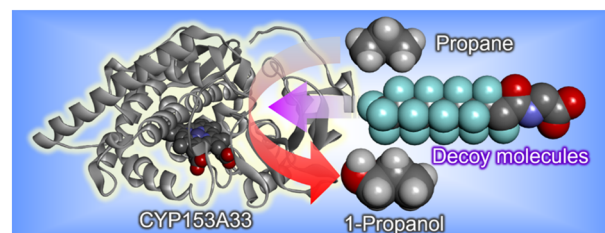
Jiale Peng, Mengyu Zhu, Long Chen and Zhen Liu\*



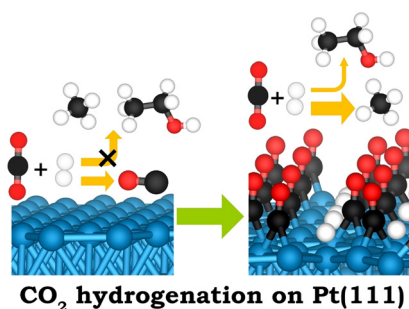
6146

**Highly selective hydroxylation of gaseous alkanes at the terminal position by wild-type CYP153A33**

Yusaku Kodama, Shinya Ariyasu,\* Masayuki Karasawa, Yuichiro Aiba and Osami Shoji\*



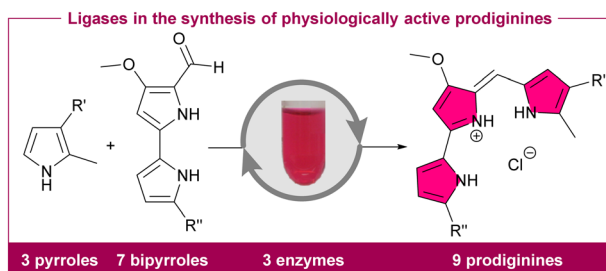
6153



### Essential role of CO coverage in CO<sub>2</sub> hydrogenation over Pt(111)

Yongjie Xi,\* Tingting Wang, Jia Wang, Jinlei Li and Fuwei Li\*

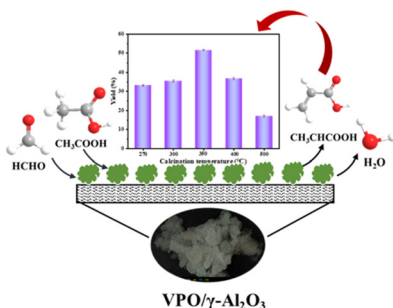
6165



### New prodiginosin derivatives – chemoenzymatic synthesis and physiological evaluation against cisplatin-resistant cancer cells

Tim Moritz Weber, Alexandra Leyens, Lena Berning, Björn Stork and Jörg Pietruszka\*

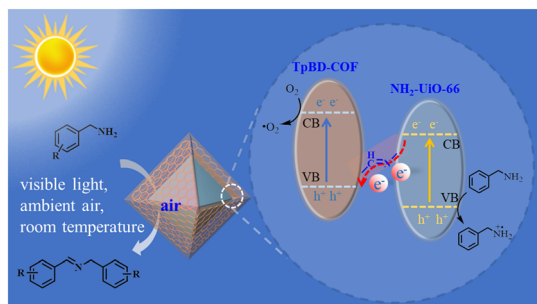
6185



### Kinetics and optimization studies of modified VPO/γ-Al<sub>2</sub>O<sub>3</sub> catalyst prepared *in situ* for cross-aldol condensation

Hui Guo, Tingting Ge,\* Yuchao Li, Yuxia Li, Yanxia Zheng, Xinpeng Guo, Haofer Huang, Ming Wang and Cuncun Zuo\*

6198



### Construction of core-shell MOF@COF hybrids with a Z-scheme heterojunction for efficient visible light photocatalysis

Jun Pang, Weijie Chen, Jintao Hu, Jie Cheng, Mingqiang Tang, Zewei Liu and Rong Tan\*

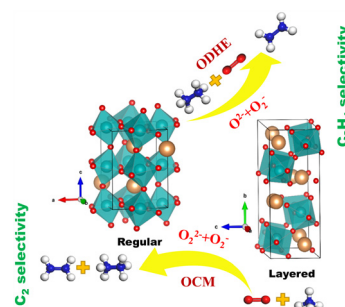


## PAPERS

6211

# $\text{ANbO}_3$ ( $A = \text{Na, K}$ ) and $A'_2\text{Nb}_2\text{O}_7$ ( $A' = \text{Ca, Sr}$ ) composite oxides for oxidative coupling of methane and oxidative dehydrogenation of ethane: perovskite vs. layered perovskite

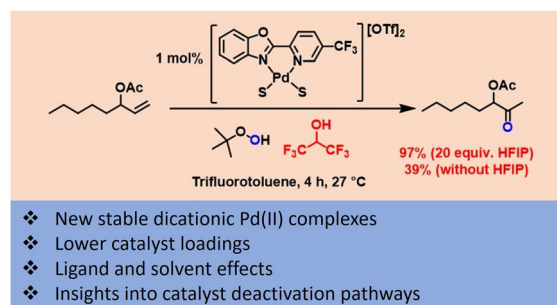
Junwei Xu,\* Xusheng Zhong, Rumeng Ouyang, Xiuzhong Fang, Xianglan Xu and Xiang Wang\*



6224

# Enhancing the performance for palladium catalysed *tert*-butyl hydroperoxide-mediated Wacker-type oxidation of alkenes

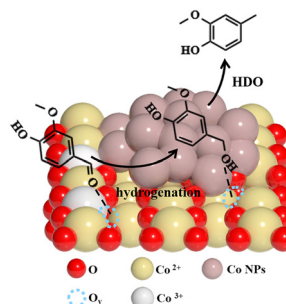
Matthew N. Blair, Meadhbh Murray-Williams, Calum Maguire, Clare L. Brown, Qun Cao, Hongxin Chai, Yitong Li, Róisín L. O'Hagan, Paul Dingwall, Panagiotis Manesiotis, Catherine L. Lyall, John P. Lowe, Ulrich Hintermair, Peter C. Knipe and Mark J. Muldoon\*



6233

# Carbon-supported Co/Co<sub>3</sub>O<sub>4</sub> hybrid catalyst: an efficient non-noble metal catalyst for the hydrodeoxygenation of vanillin

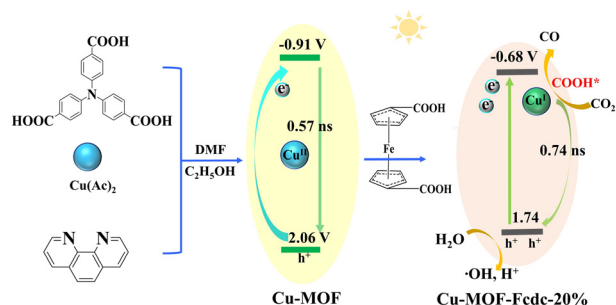
Zhihua Zhu, Chaochong Zhang, Peng Zhou,\* Bo Han,\* Zehui Zhang\* and Bing Liu\*



6238

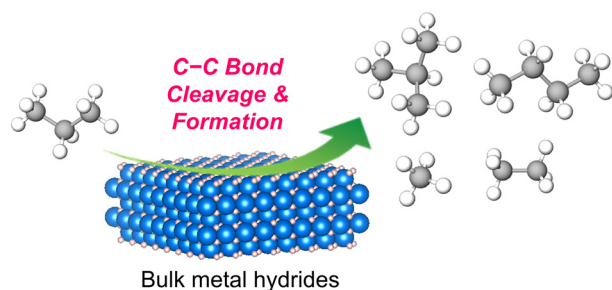
# Cu–Fe bimetallic MOF enhances the selectivity of photocatalytic CO<sub>2</sub> reduction toward CO production

Huayong Yang, Min Zhang, Zhongjie Guan and Jianjun Yang\*





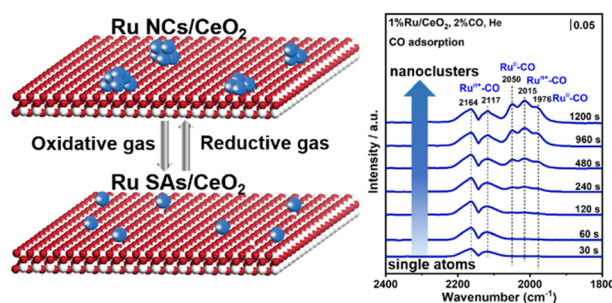
6247



### Propane metathesis and hydrogenolysis over titanium hydride catalysts

Mengwen Huang, Yosuke Tomimuro, Shinta Miyazaki, Shinya Mine, Takashi Toyao, Yoyo Hinuma, Yasuharu Kanda, Masaaki Kitano, Ken-ichi Shimizu\* and Zen Maeno\*

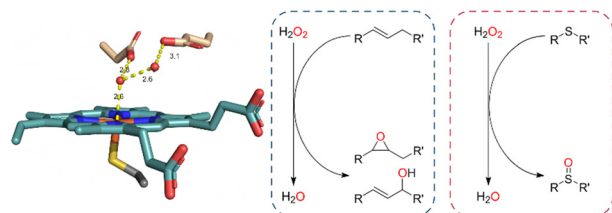
6254



### Spectroscopic investigation of the structural transformation of Ru in the Ru/CeO<sub>2</sub> catalyst

Kai Xu, Xiu-Cui Hu, Chao Ma, Peng Wang, Wei-Wei Wang\* and Chun-Jiang Jia\*

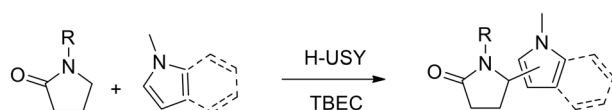
6264



### Natural alternative heme-environments allow efficient peroxxygenase activity by cytochrome P450 monooxygenases

Ana C. Ebrecht, Martha S. Smit\* and Diederik J. Opperman\*

6274



- ◆ Transition Metal-Free
- ◆ Broad Substrate Scope
- ◆ Mild Reaction Conditions
- ◆ Selective

### Transition-metal-free, oxidative C(sp<sup>3</sup>)-H arylation of amides with zeolite catalysts

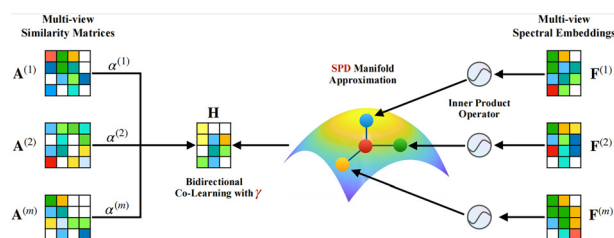
Jannick Vercammen,\* Besir Krasniqi and Dirk De Vos\*



6281

### Screening of steam-reforming catalysts using unsupervised machine learning

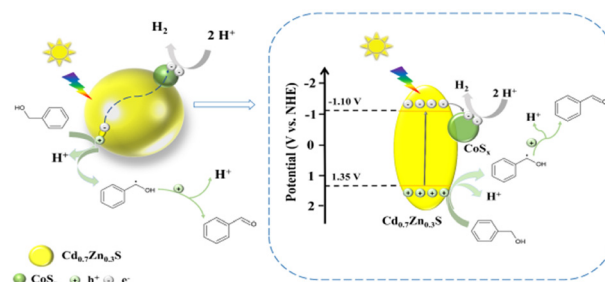
Yujia Liu, Zhenwei Liang, Jiazhun Huang, Biqi Zhong, Xiaojun Yang\* and Tiejun Wang\*



6291

### Dual-functional photocatalyst of $\text{CoS}_x/\text{Cd}_{0.7}\text{Zn}_{0.3}\text{S}$ without noble metals for efficient selective benzaldehyde synthesis coupled with $\text{H}_2$ production

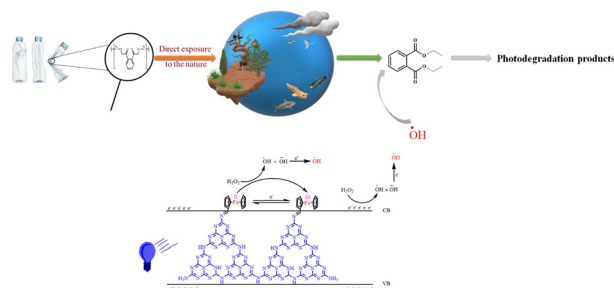
Xinan Chen, Jiaqi Yu, Zifan Zhang, Zizhong Zhang, Tao Ji and Wenyue Su\*



6297

### Removal of hazardous diethyl phthalate released from plastics using mesoporous graphitic carbon nitride boosted with ferrocene ( $\text{Fc/g-C}_3\text{N}_4$ ) under visible light

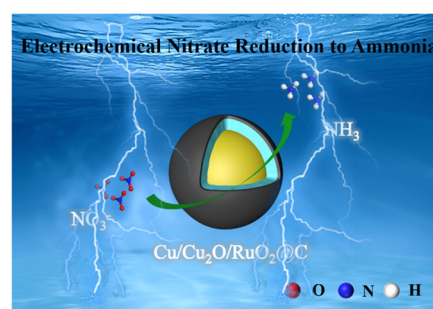
Mohammad Bashiri, Mona Hosseini-Sarvari,\* Yanlong Gu and Dengyue Zheng

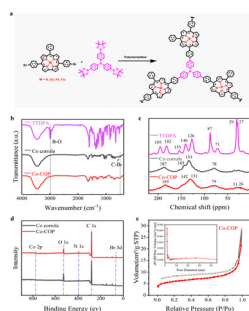


6313

### Preparation of Ru-doped Cu-based catalysts for enhanced electrochemical ammonia synthesis from efficient electrocatalytic nitrate reduction

Anmin Liu,\* Guangxin Li, Jianghui Cao, Fang Zhao, Xiru Chen, Qianqian Hua, Liguao Gao, Tingli Ma and Xuefeng Ren\*





## Spatial, well-defined metal-corrole-based covalent organic polymers for remarkably enhanced multipurpose electrocatalysis and high-performance zinc–air batteries

Yan-Fang Yao, Zhen-Yu Huang, Wan-Yue Xie, Si-Jing Huang,\* Zheng-Yan Liu, Gang Yang, Jian-Shan Ye, Hai-Yang Liu\* and Xin-Yan Xiao\*

