

# 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

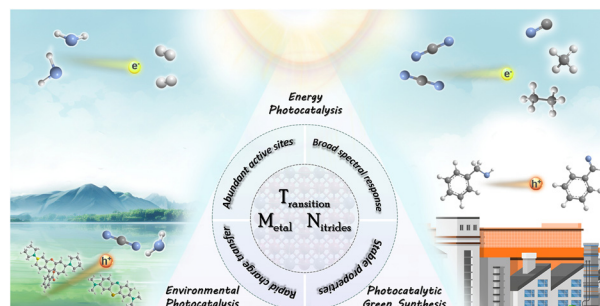
See Ewa M. Iwanek (née Wilczkowska) *et al.*, pp. 6910–6920.  
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### Emerging transition metal nitrides in solar energy conversion: design strategies and future perspectives for efficient photocatalysis

Weiliang Qi, Zhixing Cheng, Siqi Liu and Minghui Yang\*

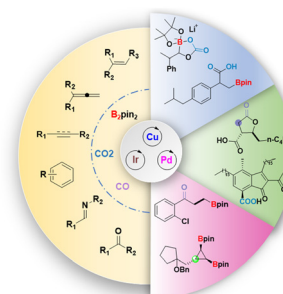


## REVIEW

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### Transforming carbon dioxide and carbon monoxide into value-added products: boracarboxylation and boracarbonylation

Suma Basappa, Ramesh Karupnaswamy and Shubhankar Kumar Bose\*



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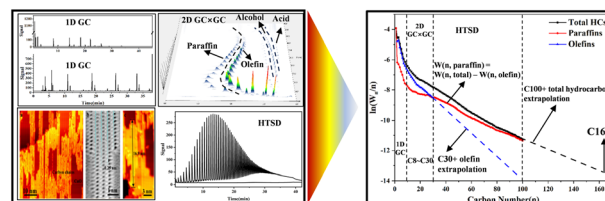


## COMMUNICATION

6903

### Comprehensive understanding of iron-catalyzed Fischer–Tropsch synthesis product distribution with extensive reliable data

Kunpeng Song, Xiaofeng Li, Wentao Li, Xiong Zhou, Liping Zhou,\* Hongwei Xiang, Yong Yang and Yongwang Li

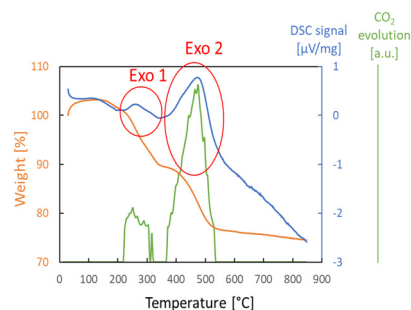


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### Anomalous behaviour of silver catalyst for soot oxidation explained: state of silver when operating and the influence of potassium ions

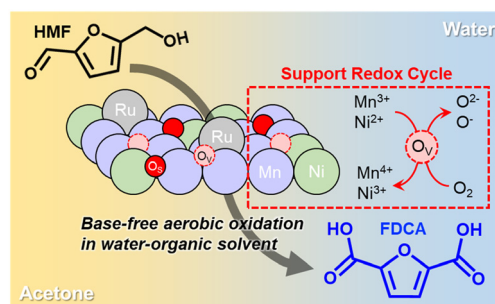
Ewa M. Iwanek (née Wilczkowska),\* Donald W. Kirk and Zbigniew Kaszkur



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### Highly active and stable Ru–(OH)-based catalysts supported on Ni–manganite for the base-free aerobic oxidation of 5-hydroxymethyl furfural to 2,5-furan dicarboxylic acid in a noble water–organic solvent system

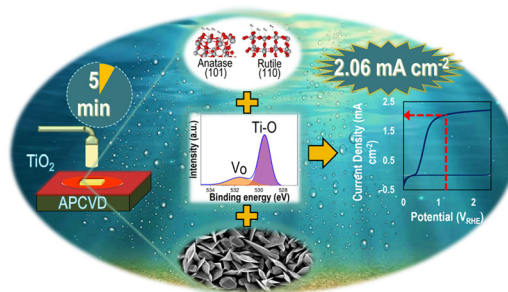
Bolla Srinivasa Rao, Marcel Jonathan Hidajat, Gwang-Nam Yun\* and Dong Won Hwang\*



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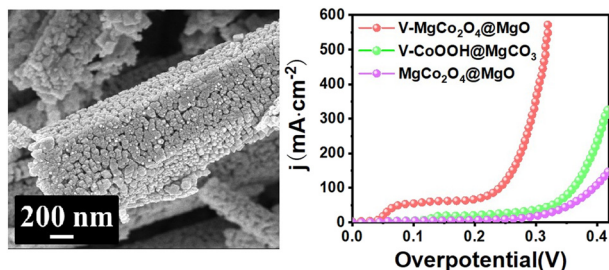
### Enhanced hydrogen evolution reaction performance of anatase–rutile TiO<sub>2</sub> heterojunction via charge transfer from rutile to anatase

Nurul Affiqah Arzaee, Nuttapon Yodsins, Habib Ullah,\* Sabiha Sultana, Mohamad Firdaus Mohamad Noh, Ahmad Wafi Mahmood Zuhdi, Abd Rashid Bin Mohd Yusoff,\* Siriporn Jungsuttiwong\* and Mohd Asri Mat Teridi\*



## PAPERS

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### Reversing Mg suppression effect on Co-site water oxidation of MgCo<sub>2</sub>O<sub>4</sub> based on vanadium-atom electronic affinity synergy with Mg sites toward electronic redistribution

Hui Zhang, Hui Han, Xuan Yang, Hongyu Ma, Zhifei Song and Xuqiang Ji\*

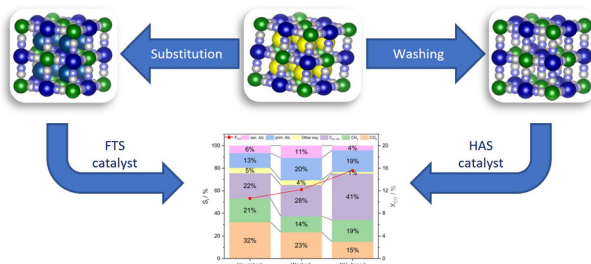
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### Improving the performance of ASA in the DAC of 2,5-DMF and ethylene

Ferdy J. A. G. Coumans, Aleksei Bolshakov, Rim C. J. van de Poll, Dimitra Anastasiadou, Brahim Mezari and Emiel J. M. Hensen\*

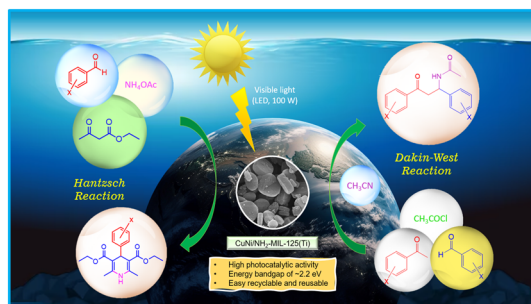
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### On the role of potassium in Prussian blue analogue-derived Mn-Co catalysts applied in the CO hydrogenation to higher alcohols

Pascal Telaar, Patrick Diehl, Tim Herrendorf, Sven Schaefer, Wolfgang Kleist and Martin Muhler\*

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### Preparation of CuNi/NH<sub>2</sub>-MIL-125(Ti) for the photocatalytic synthesis of 1,4-dihydropyridines and β-acetamido ketones

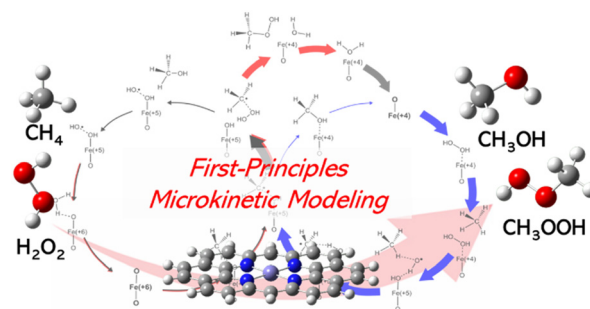
Shayan Movahedi and Mohammad Jafarzadeh\*



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# First-principles microkinetic modeling of partial methane oxidation over graphene-stabilized single-atom Fe-catalysts

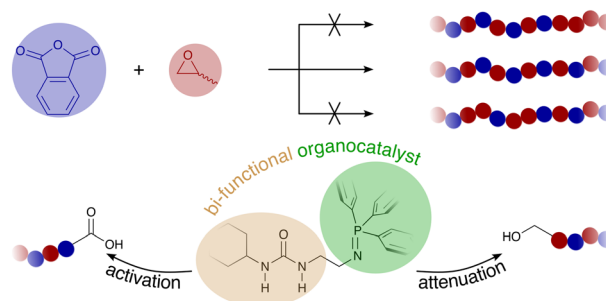
Sungil Hong, Minttu M. Kauppinen, Evan V. Miu, Giannis Mpourmpakis\* and Henrik Grönbeck\*



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# Bi-functional and mono-component organocatalysts for the ring-opening alternating copolymerisation of anhydride and epoxide

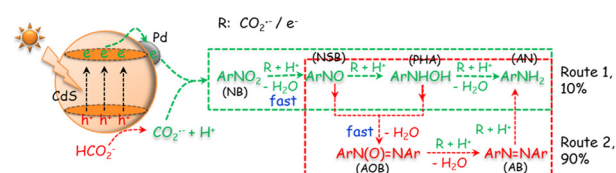
Max Hirschmann,\* Rachele Zunino, Sara Meninno, Laura Falivene\* and Tiziana Fuoco



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# Photocatalytic reduction of nitrobenzene to aniline over CdS nanorods: the impacts of reaction conditions and the hydrogenation mechanism

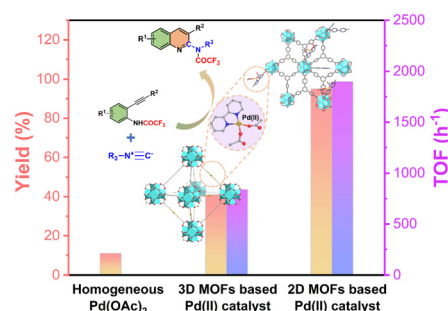
Xianliang Fu,\* Zhulin Qi, Wei Ren, Man Xu and Yang Yang\*



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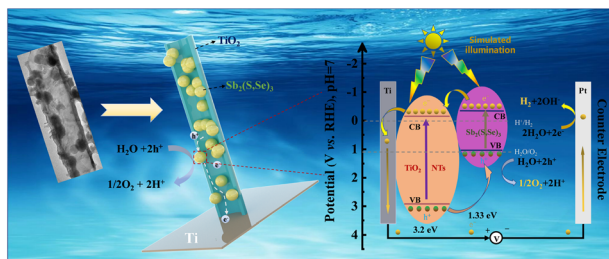
# Heterogenized molecular Pd(II) catalyst on ultrathin 2D metal-organic frameworks with nanoflower-like morphology for isonitrile-involved cyclization reaction

Xiao Feng, Yanwei Ren,\* Haosen Wang, Wanqing Wu and Huanfeng Jiang\*





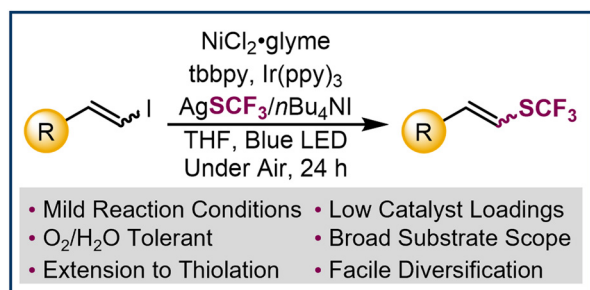
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### TiO<sub>2</sub> spatially confined growth of Sb<sub>2</sub>(S,Se)<sub>3</sub>@TiO<sub>2</sub> NT heterojunction photoanodes and their photoelectrochemical properties

Wei Jin, Dekang Liu, Liyuan Zhang, Qian Sun, Yishan Wang, Enzhou Liu, Xiaoyun Hu and Hui Miao\*

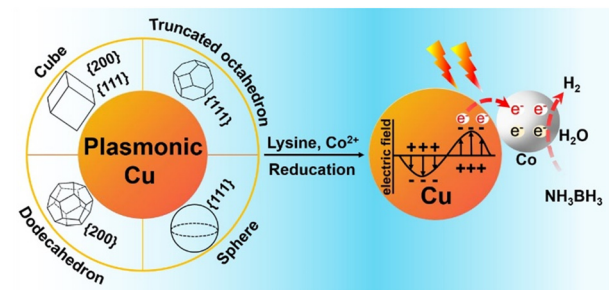
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### Metallaphotoredox catalysis enables facile (trifluoromethyl)thiolation of alkenyl iodides

Eric R. King,\* Maxime Tarrago and Avipsa Ghosh\*

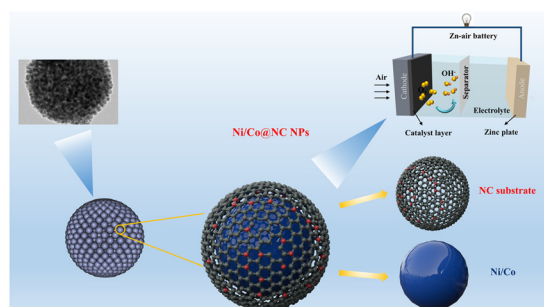
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### Regulating the electronic structure of plasmonic Co/Cu catalysts through morphology engineering to enhance visible-light-driven hydrogen generation from aqueous ammonia borane

Shoujun Guo, Yue Qiao, Junfang Ding,\* Yan Guo, Chenhui Han and Xiaojun Gu\*

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### General synthesis of carbon-guarded cobalt-based nanospheres for oxygen reduction electrocatalysis

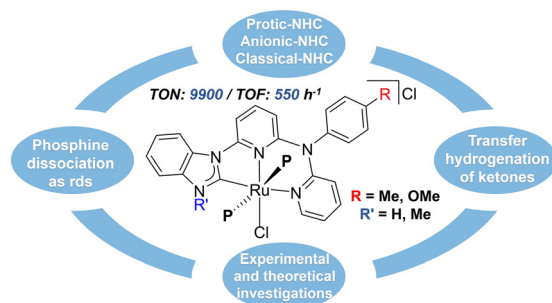
Shaoyang Niu, Sisi Wei, Dandan Yue, Yezheng Cai,\* Zhaoling Ma, Kui Liu, Youguo Huang, Hongqiang Wang, Qingyu Li\* and Tian-Nan Ye\*



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### Mechanistic insights and comparative analysis of Ru(II)–NNC pincer complexes with anionic-, protic-, and classical-NHCs for transfer hydrogenation of ketones

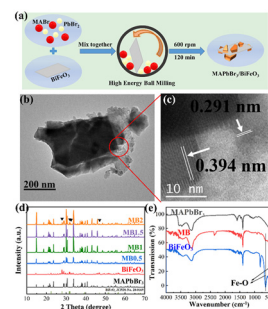
Shambhu Nath, Ekta Yadav, Abhinav Raghuvanshi and Amrendra K. Singh\*



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### Construction of a MAPbBr<sub>3</sub>/BiFeO<sub>3</sub> Z-scheme heterojunction with enhanced piezo-photocatalytic performance

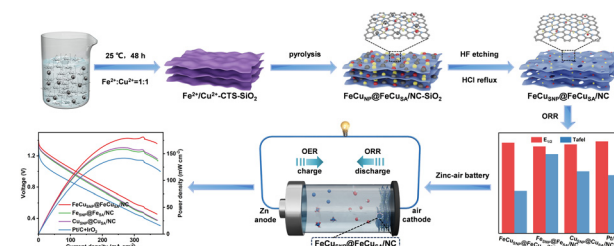
Dan-Yang Zhou, Yi-Ou Zhou, Su-Yan Fang, Guang-Yu Pan, Xiong He, Mei-Ling Xu, Fu-Tian Liu\* and Kui Li\*



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### Boosting the dynamic reconstitution of FeCu–N<sub>4</sub> sites via doping of bimetal nanoparticles during oxygen electrocatalysis

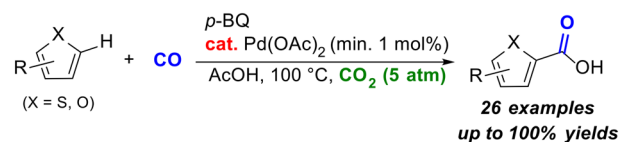
Jing Peng, Bihua Hu, Zhitong Li, Zhiwei Lei, Xiongwei Zhong, Xingzhu Wang\* and Baomin Xu\*



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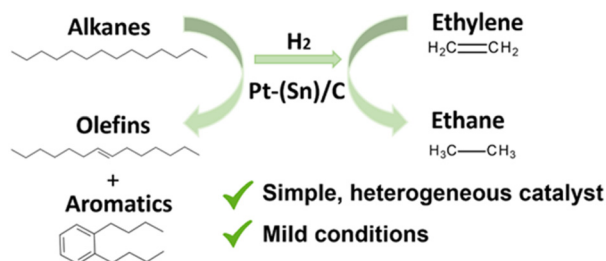
### Palladium-catalyzed direct carbonylation of thiophenes and furans under CO/CO<sub>2</sub>-binary conditions leading to carboxylic acids

Yuki Yamamoto, Daichi Kurata and Akiya Ogawa\*



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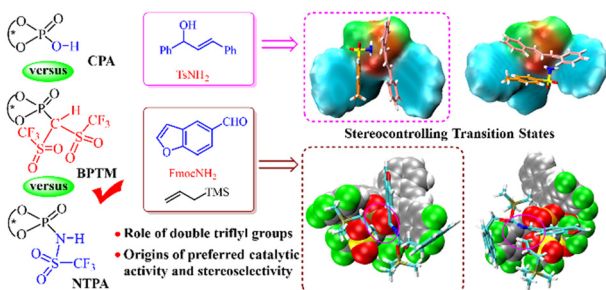
## Alkane Transfer Dehydrogenation



## Heterogeneous Pt-catalyzed transfer dehydrogenation of long-chain alkanes with ethylene

Tim de la Croix, Nathalie Claes, Samuel Eyley, Wim Thielemans, Sara Bals and Dirk De Vos\*

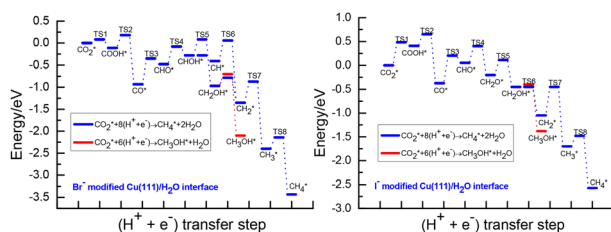
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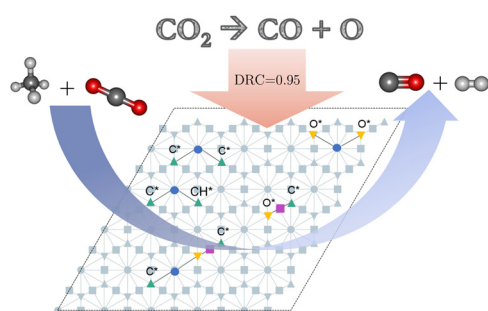
Lihan Zhu and Dongqi Wang\*

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Mechanistic insights into the effect of halide anions on electroreduction pathways of CO<sub>2</sub> to C<sub>1</sub> product at Cu/H<sub>2</sub>O electrochemical interfaces

Lihui Ou,\* Wanli You and Junling Jin

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CO<sub>2</sub> activation dominating the dry reforming of methane catalyzed by Rh(111) based on multiscale modelling

Estefanía Díaz López and Aleix Comas-Vives\*



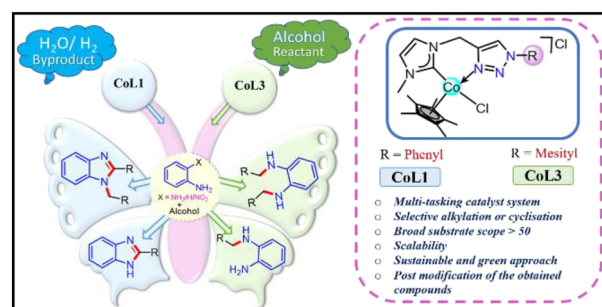


## PAPERS

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### Control over borrowing hydrogen and acceptorless dehydrogenative coupling process for the Co(III)–NHC catalysed chemoselective alkylation and cyclisation of 1,2-phenylenediamine with alcohols

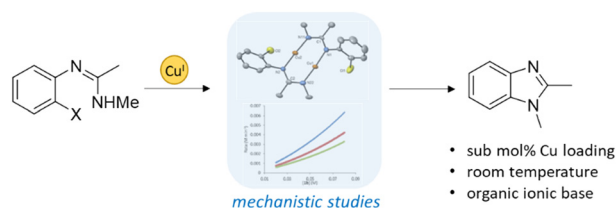
Misba Siddique, Biswaranjan Boity and Arnab Rit\*



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### On the mechanism of benzimidazole synthesis via copper-catalysed intramolecular *N*-arylation

Xiaodong Jin, Yongjie Lin and Robert P. Davies\*



## CORRECTION

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### Correction: Enhanced hydrogen evolution reaction performance of anatase–rutile $\text{TiO}_2$ heterojunction via charge transfer from rutile to anatase

Nurul Affiqah Arzaee, Nuttapon Yodsins, Habib Ullah,\* Sabiha Sultana, Mohamad Firdaus Mohamad Noh, Ahmad Wafi Mahmood Zuhdi, Abd Rashid Bin Mohd Yusoff,\* Siriporn Jungsuttiwong\* and Mohd Asri Mat Teridi\*

