

# 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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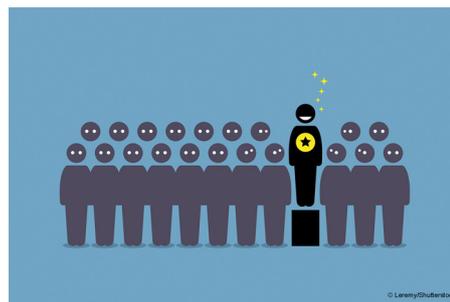


**Inside cover**  
See Akihiro Kushima,  
Titel Jurca *et al.*,  
pp. 4632–4636.  
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## EDITORIAL

4611

### Outstanding Reviewers for *Catalysis Science & Technology* in 2024

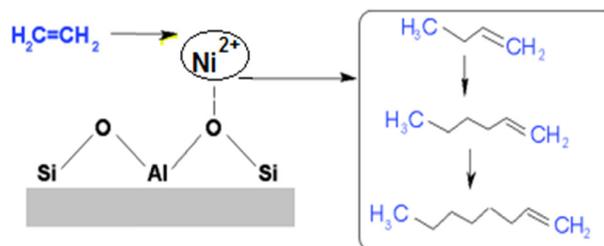


## REVIEW

4612

### Nickel-aluminosilicate catalysts for ethylene oligomerization: recent scientific progress

Vasile Hulea



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Elemental answers



## COMMUNICATION

4632

### Selective and sustainable quinoline hydrogenation with a robust hierarchical catalyst framework

Azina Rahmani, Diego R. Javier-Jiménez, Deborah Israel, Brian Butkus, Lei Zhai, Parag Banerjee, William E. Kaden, Akihiro Kushima\* and Titel Jurca\*

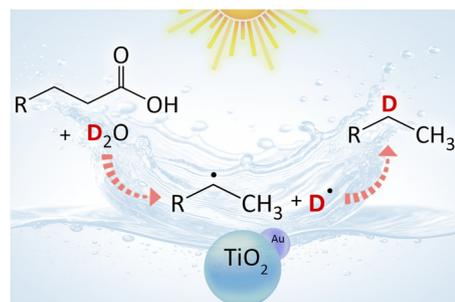


## PAPERS

4637

### Photocatalytic decarboxylative deuteration of lauric acid with heavy water for sustainable synthesis of deuterated alkanes

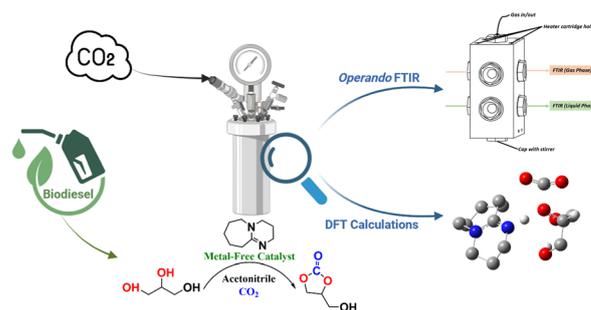
Haifan Huang, Zihan Lin, Akira Yamamoto, Yagna Bhoi Prakash, Kexin Zou, Shohichi Furukawa, Ken-ichi Fujita, Gunik Lee, Jun Kumagai and Hisao Yoshida\*



4649

### Unveiling the organocatalytic pathway to glycerol carbonate from glycerol and CO<sub>2</sub>: a comprehensive study using phase behavior, *operando* high-pressure FTIR, and DFT insights

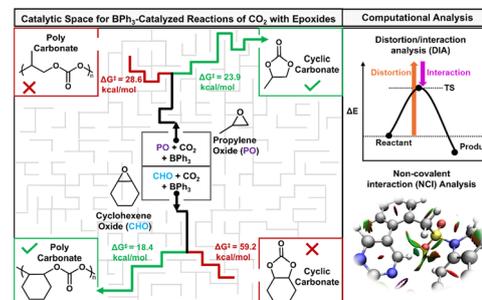
Taha Amine Chibane, Raphaël Méreau, Thierry Tassaing\* and Karine De Oliveira Vigier\*



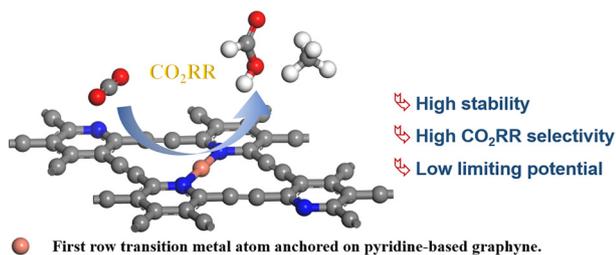
4661

### Mapping the catalytic landscape of triphenylborane (BPh<sub>3</sub>)-catalyzed CO<sub>2</sub>-epoxide coupling to carbonates: an *in silico* approach to solve substrate-dependent selectivity

Nikunj Kumar and Puneet Gupta\*



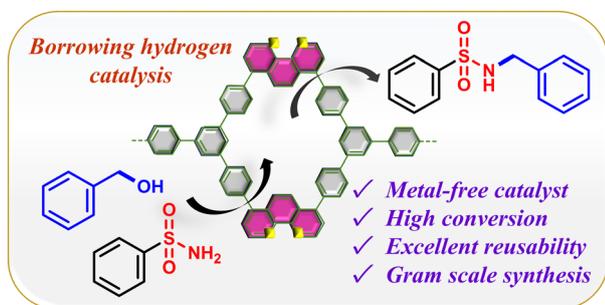
4672



### Density functional theory calculation of first-row transition metals anchored on pyridine-based graphynes as single-atom catalysts for electrocatalytic CO<sub>2</sub> reduction

Xin Li, Decheng Peng, Yuhang Wang, Congcong Liang, Qiang Wang,\* Jianguang Chen\* and Liangfu Zhao\*

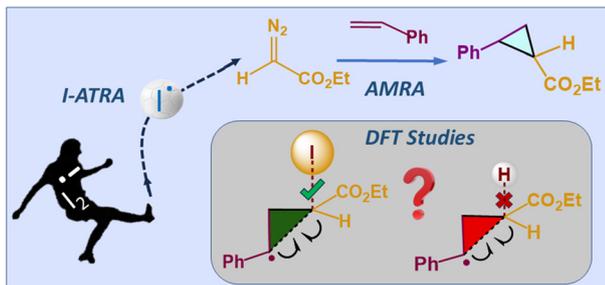
4684



### A metal-free porous organic polymer-based heterogeneous catalyst for the borrowing hydrogen-mediated N-alkylation of sulfonamides with alcohols

Ragupathi Vijay, Dasari Yogesh, Ramasamy Shanmugam, Nakka Lingaiah, Thanasekaran Ponpandian\* and Gunniya Hariyanandam Gunasekar\*

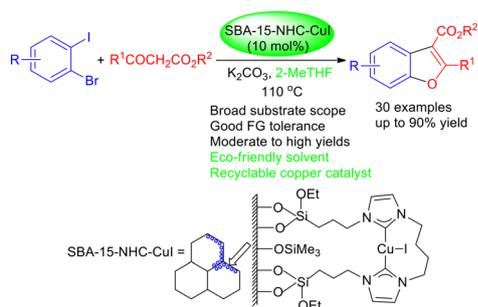
4692



### Single electron transfer (SET) and iodine-atom transfer radical addition (I-ATRA) induced cyclopropanation reaction: elucidating the role of iodine

Krishnapriya Anattil Unnikrishnan, Athul Santha Bhaskaran, Surya K and Rositha Kuniyil\*

4702



### Recyclable copper(I)-catalyzed coupling of 1-bromo-2-iodobenzenes and $\beta$ -keto esters in bioderived 2-MeTHF: green synthesis of 2,3-disubstituted benzofurans

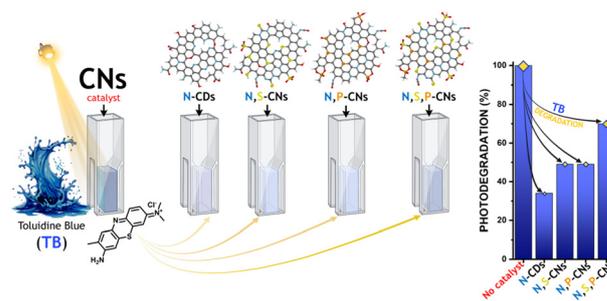
Ling Chen,\* Qian Ye, Yan Wang and Mingzhong Cai\*



4713

## On the enhanced photocatalytic activity of N-doped carbon dots

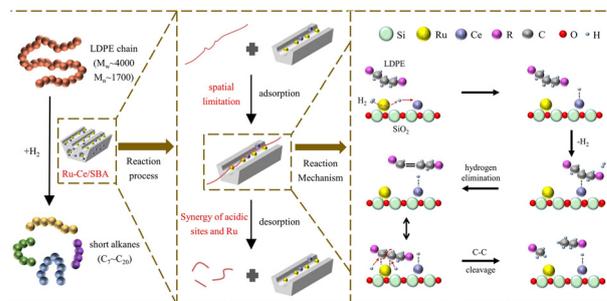
Hector Daniel Almeida Gonzalez, Gabriel Rafael Guerrero Porras, Hervé Vezin, Lisandra Morales Alvarez, Angel Luis Corcho Valdés, L. Julieth Bravo Martínez, Alicia M. Díaz-García, David González-Martínez, Jose M. Moran-Mirabal, Clarissa Murru, Johnny Deschamps, Claudia Iriarte-Mesa, Qixiang Jiang, Freddy Kleitz, Luis Felipe Desdin-García\* and Manuel Antuch\*



4727

## Synergistic effect of acidic sites and mesoporous confinement in Ce-doped Ru/SBA-15 catalysts for efficient hydrogenolysis of low-density polyethylene to liquid fuels

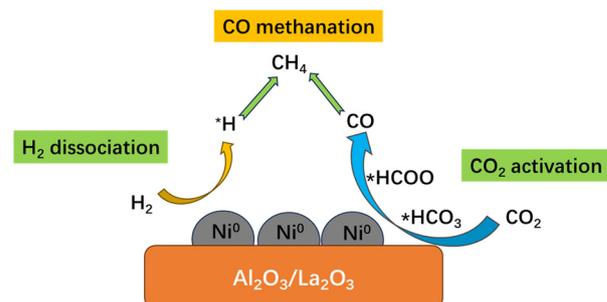
Zhenghang Ren, Zhicheng Luo\* and Huiyan Zhang\*



4741

## Enhanced low-temperature CO<sub>2</sub> methanation over a Ni-based catalyst supported on La<sub>2</sub>O<sub>3</sub>-Al<sub>2</sub>O<sub>3</sub> composite supports

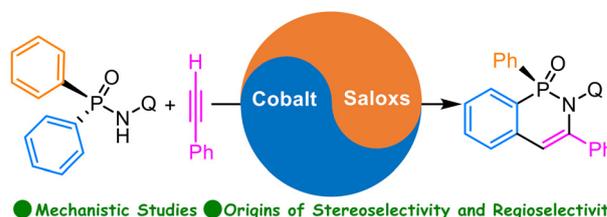
Longhao Xu, Wenhao Zhang, Liang Shen, Minghui Zhu\* and Yi-Fan Han\*



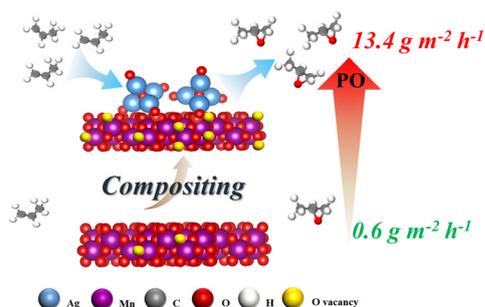
4750

## Mechanism and origin of stereoselectivity and regioselectivity in cobalt-catalyzed C-H functionalization of arylphosphinamide

Chuanchuan Luo, Saibo Cao, Hao-Ran Yang\* and Yang Wang\*



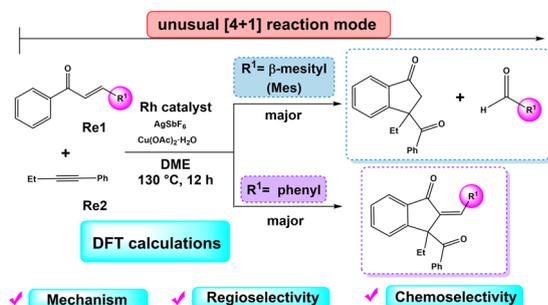
4759



### Ag<sub>2</sub>O-modified MnO<sub>2</sub> enhanced electrocatalytic propylene epoxidation with water as the sole oxygen source

Letian Yang, Yuyang Ge, Pengxin Ren, Jujin Xue, Yingjun Tian, Jianbin Chen,\* Wei Gao, Liyue Pei, Bingpeng Guo,\* Yan Tian, Yuehui Li, Li Ma, Siyuan Liu, Zunqi Liu and Baoying Li\*

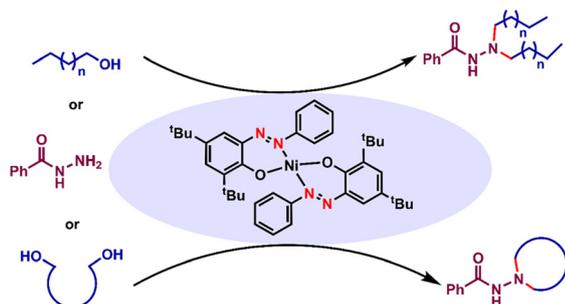
4766



### DFT investigation of mechanism, regioselectivity, and chemoselectivity in rhodium(III)-catalyzed oxidative cyclization of chalcones with internal alkynes

Simeng Qi, Ran Fang,\* Yanyun Dong, Jiacheng Fan, Alexander M. Kirillov and Lizi Yang\*

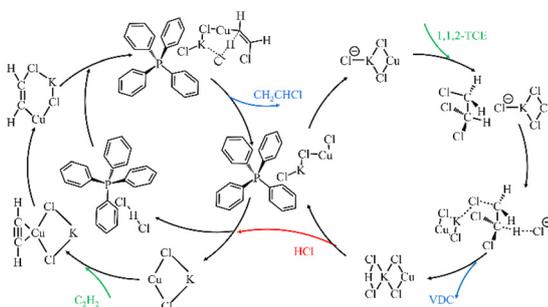
4776



### Ligand-assisted nickel catalysis enabling *N,N*-dialkylation and cyclization of acyl hydrazides using aliphatic alcohols

Ayanangshu Biswas, Sourav Mandal, Supriya Halder, Bikramaditya Mandal and Debashis Adhikari\*

4783



### Synergistic catalysis of chloroalkane dehydrochlorination with acetylene hydrochlorination by immobilized ionic liquid–metal ion co-catalysts: a DFT study

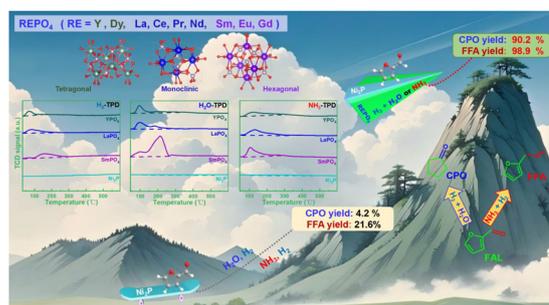
Yangzhen Jin, Yebin Zhou, Pengze Zhang, Qiuyuan Xiang, Kunming Liu, Yi Liu,\* Chunshan Lu\* and Xiaonian Li\*



4798

### Cooperative activation of H<sub>2</sub> with H<sub>2</sub>O or NH<sub>3</sub> enables efficient furfural upgradation over Ni<sub>2</sub>P/REPO<sub>4</sub> catalysts: a family feature of lanthanide rare-earth phosphates

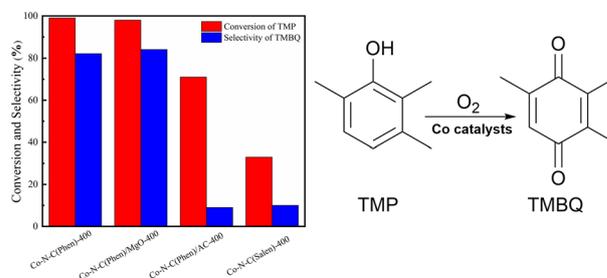
Wen-yi Xu, Chao Cheng, Wei-ming Xiao, Sheng-jun Deng, Shun-li Shi, Dan Zhao,\* Shu-hua Wang, Shun-min Ding and Chao Chen



4816

### Selective oxidation of 2,3,6-trimethylphenol into 2,3,5-trimethyl-1,4-benzoquinone with dioxygen over heterogeneous Co catalysts

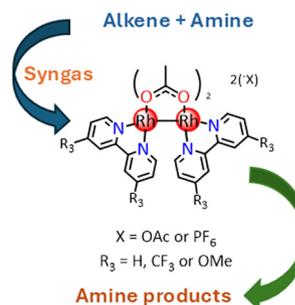
Mengjing Han, Bairui Guo, Zhengzhuo Qin, Xu Chen, Zhongtian Du\* and Changhai Liang\*



4824

### Dirhodium(II,II) catalyst optimisation for chemoselective hydroaminomethylation: towards efficient amine synthesis

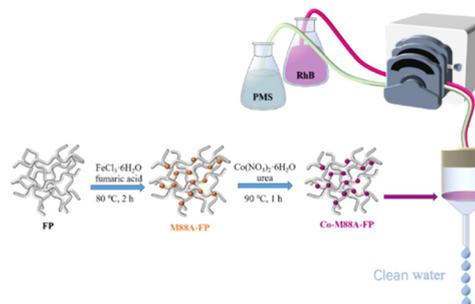
Stephen de Doncker, Gregory S. Smith\* and Siyabonga Ngubane\*



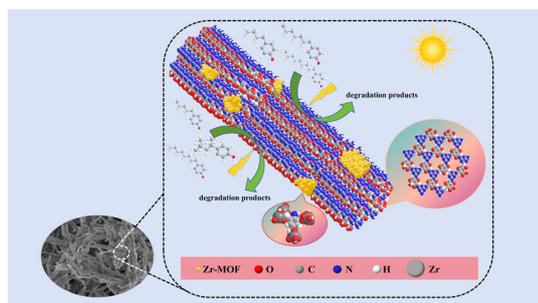
4838

### Cobalt-doped MIL-88A anchored on a cellulose filter paper: a recyclable flow-through catalyst for peroxymonosulfate activation during the degradation of organic dyes

Yaru Li, Jing-jing Shao, Thomas L. Eberhardt and Hui Pan\*



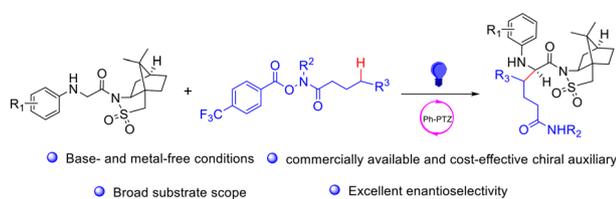
4850



### Designing an S-scheme heterojunction based on MOF-808-NH<sub>2</sub> and TpTt-COF for enhanced photocatalytic degradation of alkylphenols under visible light

Haiyue Yuan, Jianhui Zhu, Desheng Liu, Mengyao Wang, Siyue Zhu, Xiping Hu, Yongqiang Ma\* and Yan Wang\*

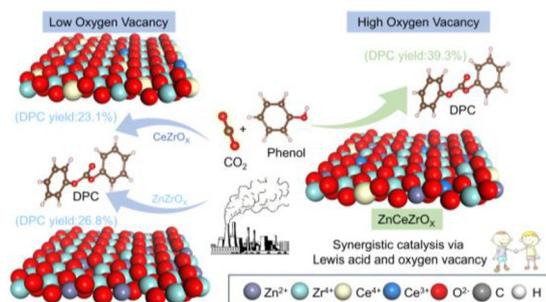
4866



### Cost-effective chiral auxiliary-assisted remote asymmetric C(sp<sup>3</sup>)-H alkylation of hydroxamic acid derivatives with glycine derivatives

Zhongzhen Yang, Li Li, Jian Chen, Jinyu Hou, Hongying Fan, Xue Zhang, Guanghui Lv\* and Yong Wu\*

4872



### Diphenyl carbonate synthesis from CO<sub>2</sub> over a ZnCeZrO<sub>x</sub> ternary solid solution: synergistic catalysis using oxygen vacancies and Lewis acid sites

Mengke Xing, Tianli Hui,\* Rui Zhang, Tao Zheng, Zhichang Liu, Haiyan Liu, Chunming Xu and Xianghai Meng\*

