Catalysis Science & Technology

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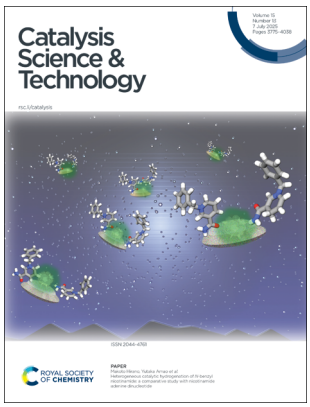

Cover
See Makoto Hirano, Yutaka Amao *et al.*, pp. 3806–3815.
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Inside cover
See Kaushik Ghosh *et al.*, pp. 3816–3826.
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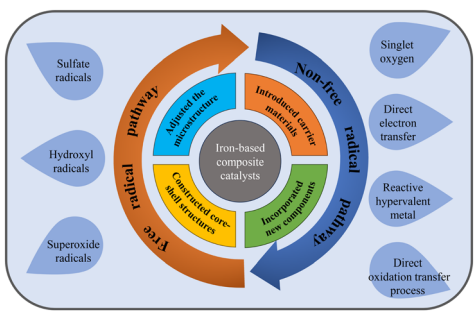
The authors would like to acknowledge the help of Tanya Pattnaik in preparing the cover artwork.

PERSPECTIVE

3784

Advancements in transition metal iron-based catalysts: enhancing catalytic activity through electron transfer

Lu Huang, Weigang Zhu and Yunxin Wu*



REVIEW

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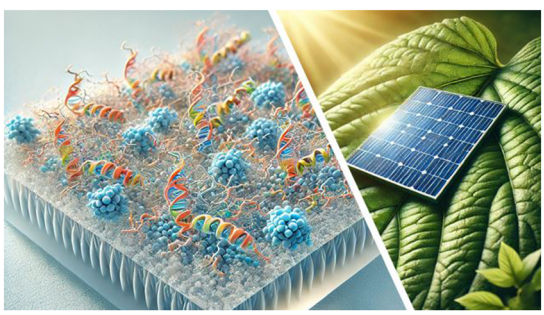
Bioelectrocatalysis for solar fuels and sustainable energy

Rodrigo M. Iost, Senentxu Lanceros-Méndez and Frank N. Crespilho*



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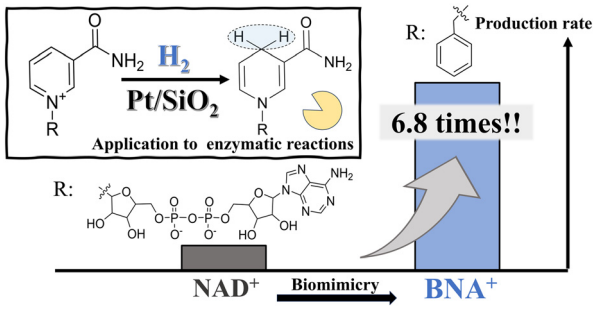
Heterogeneous catalytic hydrogenation of *N*-benzyl nicotinamide: a comparative study with nicotinamide adenine dinucleotide

Makoto Hirano,* Wataru Onodera, Masazumi Tamura and Yutaka Amao*



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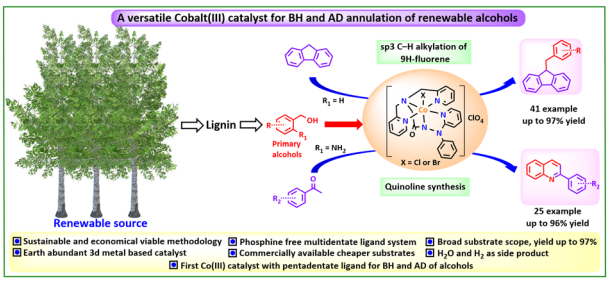
A passage from pincer complexes to rationally designed phosphine-free Co(III) catalysts supported by a pentadentate ligand for activation of alcohols: studies on sp^3 C–H alkylation of 9*H*-fluorene and quinoline synthesis

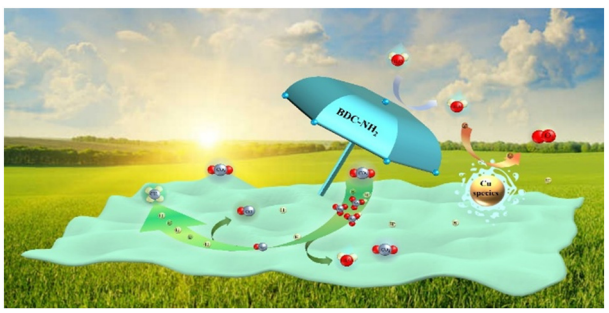
Prashant Kukreti, Rahul Chauhan and Kaushik Ghosh*



3827

Copper species-loaded hydrophobic Bi_2WO_6 for photocatalytic reduction of carbon dioxide with water to methane

Jingkai Yan, Ning Jiang, Min Zhao, Li Zhao, Feifei Li and Xuzhuang Yang*



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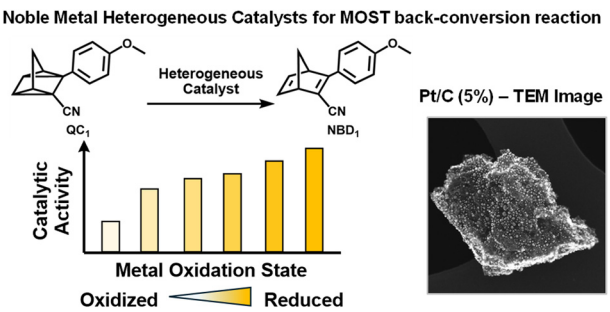
Design, testing and characterization of noble-metal catalysts for the heat-release reaction of a molecular solar thermal energy storage isomer pair

Benjamin Rollins,* Alberto Gimenez-Gomez, Andrew M. Steele, Helen Hölzel, Rebecca J. Salthouse, Kevin Moreno, Kasper Moth-Poulsen, Ignacio Funes-Ardoiz* and Diego Sampedro*



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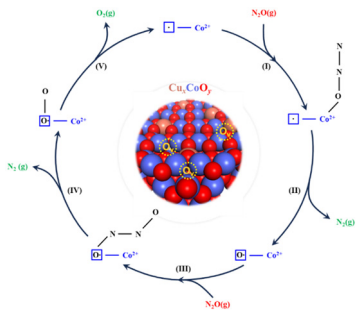

Unveiling intrinsic active sites and pivotal intermediate species in N_2O decomposition over Co_3O_4-based catalysts

Yihuai Zhang, Qi Dong, Jianning Zhang, Tao Zhang* and Junhua Li

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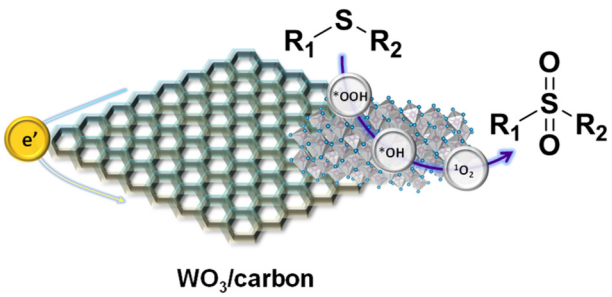

Selective oxidation of sulfides catalysed by WO_3 supported on chitosan-derived carbon

Gabriel Franco Yamakawa, Lara Kelly Ribeiro,* Roberta Yonara Nascimento Reis, Lucia Helena Mascaro, Elson Longo and Marcelo Assis*

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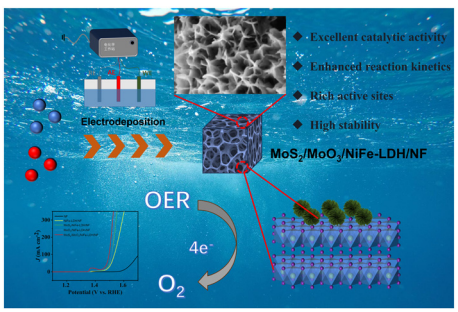

Construction of an advanced MoS_2/MoO_3/NiFe-LDH/NF heterostructure catalyst toward boosting efficient alkaline oxygen evolution reaction

Hui-Zhan Wen, Yang Zhao, Hai-Tao Zhang, Zha-Xi Wan-Me, Xue-Ying Wan and Yu-Long Xie*

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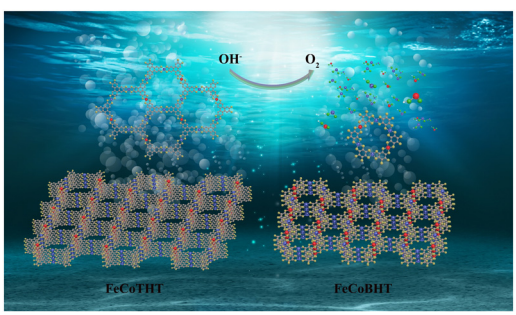

The effect of organic ligand skeletons of 2D π–d conjugated metal–organic frameworks on their OER performance and stability

Xiaolong Yang, Haoqiang Ai,* Zheng Cui,* Xiaohan Song, Yuanyuan Liu, Baibiao Huang,* Huixuan Wang and Danning Xing*

PAPERS

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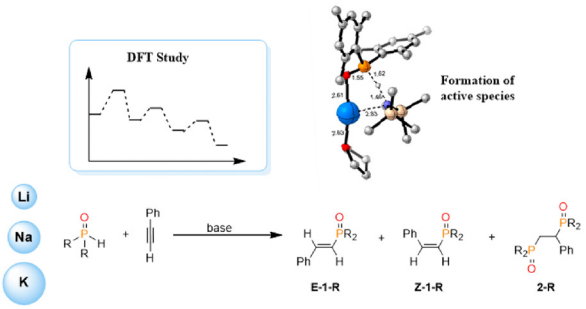
Understanding alkali-metal driven hydrophosphorylation: mechanism and challenges in the Pudovik reaction

Irina Bozhinovska, Gregori Ujaque, Matthias Westerhausen* and Agustí Lledós*



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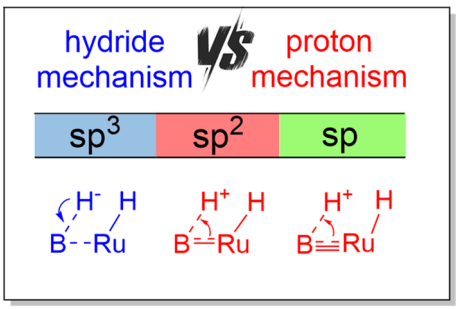
The critical role of boron hybridization (sp^3 *vs.* sp^2 *vs.* sp) in hydrogenation mechanisms by boron-based Ru catalysts

Chuanyi Xiong, Huayu Liang, Yinwu Li* and Zhuofeng Ke*



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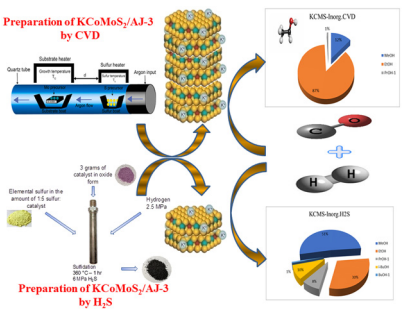
Tuning ethanol synthesis pathways from syngas: nanosheet-structured K-doped Co–MoS_2 catalysts and the role of CVD sulfidation

Mohamed E. Osman,* Anton S. Konopatsky, Nikita A. Repev, Dmitry V. Shtansky, Pavel A. Nikulshin and Victor M. Kogan



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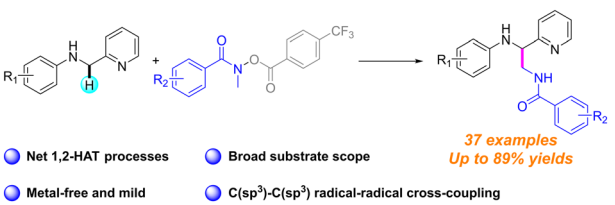
Visible-light-induced C–H alkylation of pyridine derivatives *via* 1,2-hydrogen atom transfer

Meiling Ye, Zeyu Tian, Yuanyuan Li, Hang Wang, Tianle Huang, Zhongzhen Yang* and Yong Wu*



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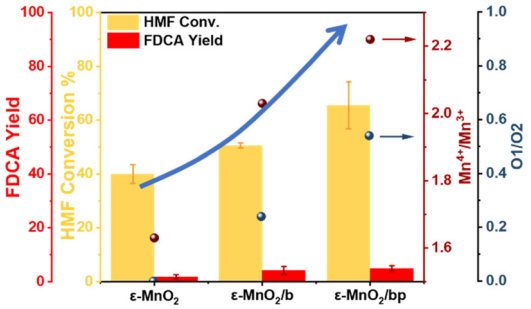

Electrocatalytic oxidation of 5-hydroxymethylfurfural by MnO_2 with tunable surface oxidation states

Yongle Zhang, Yingyi Tu, Yunying Huo, Guang Pan, Qiao Zhang,* Zhiting Liu, Guangxing Yang and Feng Peng*

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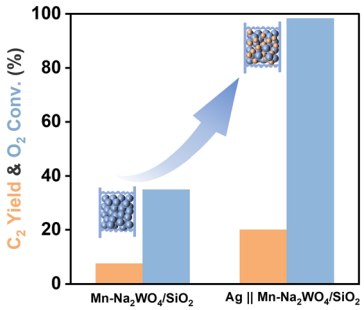

Silver enhanced oxidative coupling of methane over the Mn–Na_2WO_4/SiO_2 catalyst

Yilin Zhao, Fangwei Liu, Jingbo Hu, Yang Yang, Jianzhou Wu,* Shihui Zou* and Jie Fan*

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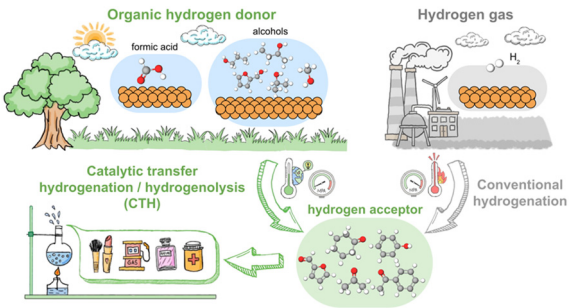

Elucidating the essential role of hydrogen bonding and direct H-transfer in transfer hydrogenation on transition metal catalysts

Aojie Li and Srinivas Rangarajan*

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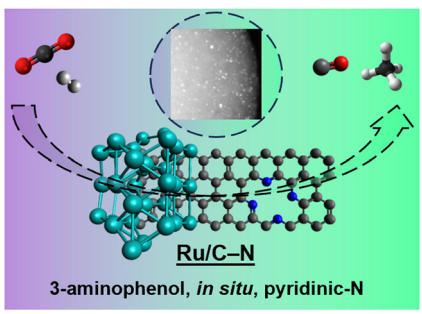

Enhancing CO_2 hydrogenation *via* nitrogen-doped carbon nanospheres and *in situ* ruthenium nanoparticle synthesis

Pradeep S. Murthy, Oliver J. Conquest, Lizhuo Wang, Xiaoyan Liu,* Jian Liu,* Catherine Stampfl* and Jun Huang*

PAPERS

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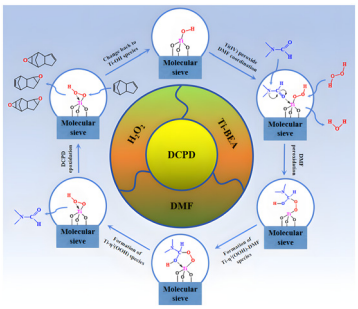
Novel DMF-mediated cyclic intermediates facilitating the epoxidation of dicyclopentadiene over a Ti-BEA/H_2O_2 system

Tianzeng Zhao, Zhongpeng Zhu,* Xinxin Peng, Weiping Zheng, Dandan Jia, Zhaolin Fu, Wenzheng Gao, Ge Wang,* Zhiping Tao* and Xingtian Shu



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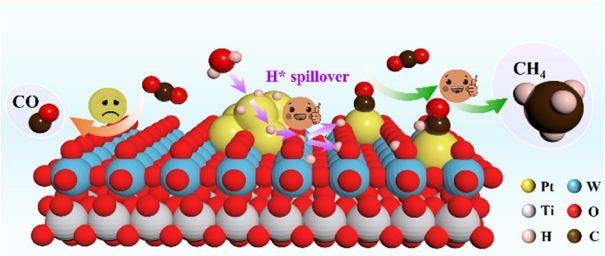
Regulating protonation paths for enhanced photocatalytic CO_2 methanation by coupling Pt sites on $WO_{2.9}/TiO_2$

Jiajun Du, Jun Deng, ChangAn Zhou, Hairong Yue, Chong Liu, Patrik Schmuki, Štěpán Kment and Xuemei Zhou*



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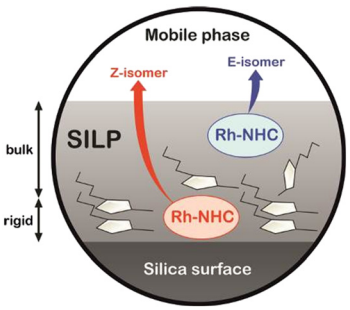
Influence of the supported ionic-liquid layer thickness on *Z*-selectivity in 1-alkyne hydrosilylation under continuous flow

André Böth, Florian Kaltwasser, Christian Priedigkeit, Boshra Atwi, Wolfgang Frey, Michael R. Buchmeiser* and Ulrich Tallarek*



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Minimizing radiative and nonradiative energy leakage in red-light-absorbing supramolecular nanoassemblies to boost oxidative photocatalytic activity in water

Aditya Singh, Manoj Kumar and Vandana Bhalla*