

Catalysis Science & Technology

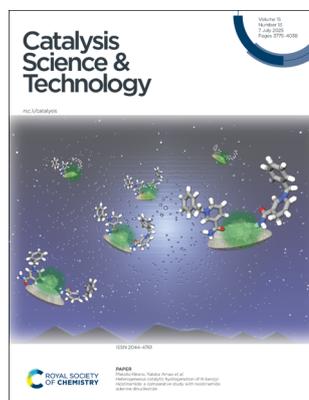
A multidisciplinary journal focussing on all fundamental science and technological aspects of catalysis

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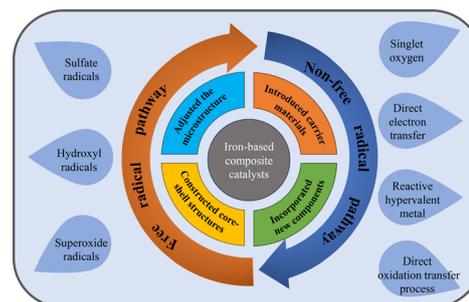
Inside cover
See Kaushik Ghosh *et al.*, pp. 3816–3826.
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The authors would like to acknowledge the help of Tanya Pattnaik in preparing the cover artwork.

PERSPECTIVE

3784

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

Lu Huang, Weigang Zhu and Yunxin Wu*

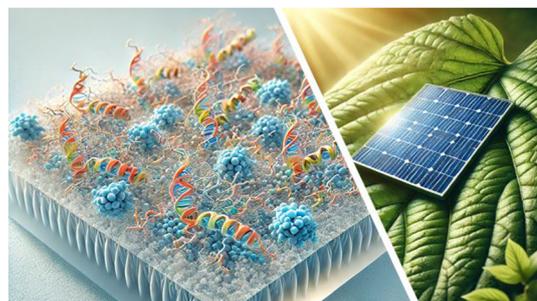


REVIEW

3793

Bioelectrocatalysis for solar fuels and sustainable energy

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



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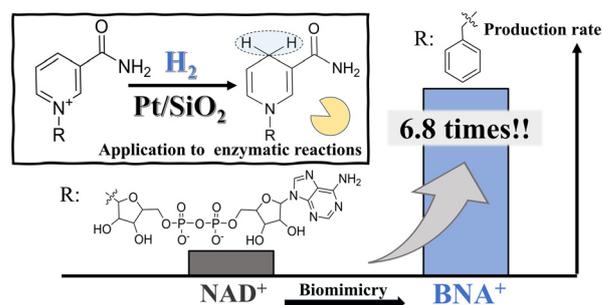
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3806

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

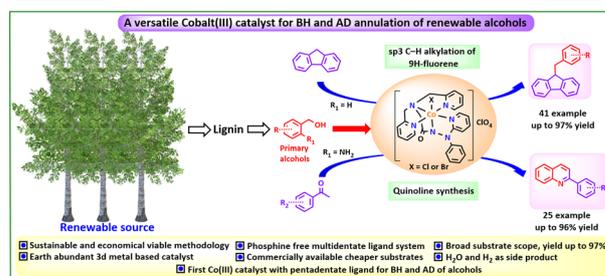
Makoto Hirano,* Wataru Onodera, Masazumi Tamura and Yutaka Amao*



3816

A passage from pincer complexes to rationally designed phosphine-free Co(III) catalysts supported by a pentadentate ligand for activation of alcohols: studies on sp³ C–H alkylation of 9*H*-fluorene and quinoline synthesis

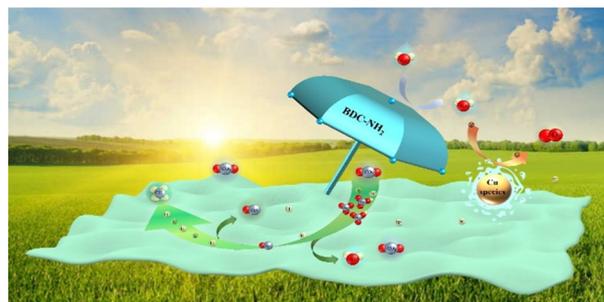
Prashant Kukreti, Rahul Chauhan and Kaushik Ghosh*



3827

Copper species-loaded hydrophobic Bi₂WO₆ for photocatalytic reduction of carbon dioxide with water to methane

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

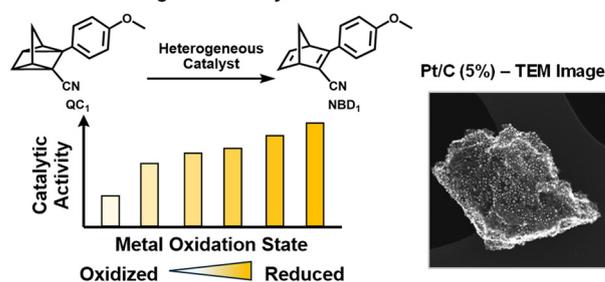


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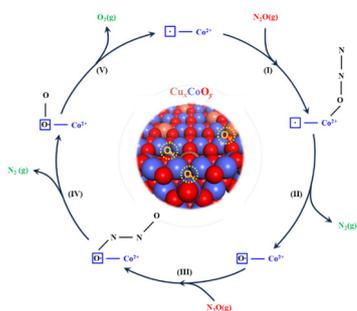
Design, testing and characterization of noble-metal catalysts for the heat-release reaction of a molecular solar thermal energy storage isomer pair

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

Noble Metal Heterogeneous Catalysts for MOST back-conversion reaction



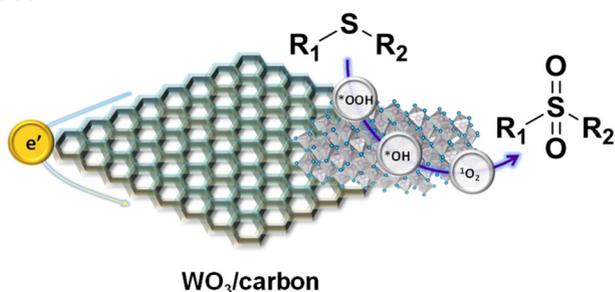
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Unveiling intrinsic active sites and pivotal intermediate species in N_2O decomposition over Co_3O_4 -based catalysts

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

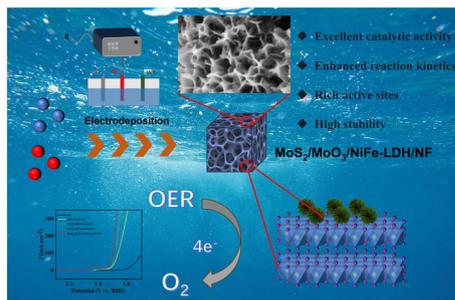
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Selective oxidation of sulfides catalysed by WO_3 supported on chitosan-derived carbon

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

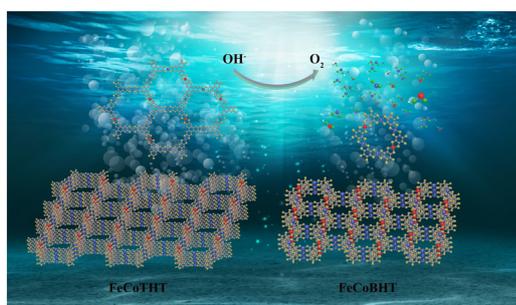
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Construction of an advanced $MoS_2/MoO_3/NiFe-LDH/NF$ heterostructure catalyst toward boosting efficient alkaline oxygen evolution reaction

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

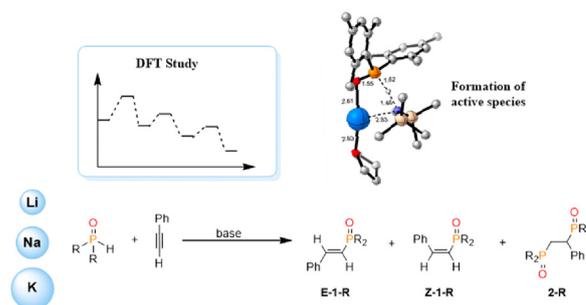
Xiaolong Yang, Haoqiang Ai,* Zheng Cui,* Xiaohan Song, Yuanyuan Liu, Baibiao Huang,* Huixuan Wang and Danning Xing*



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

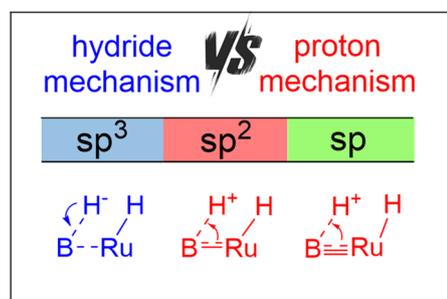
Irina Bozhinovska, Gregori Ujaque, Matthias Westerhausen* and Agustí Lledós*



3906

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

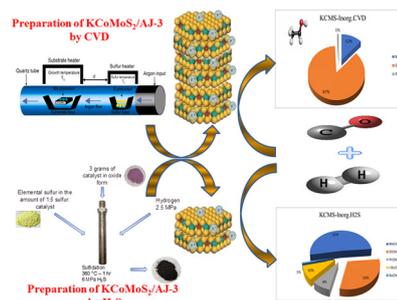
Chuanyi Xiong, Huayu Liang, Yinwu Li* and Zhuofeng Ke*



3918

Tuning ethanol synthesis pathways from syngas: nanosheet-structured K-doped Co-MoS₂ catalysts and the role of CVD sulfidation

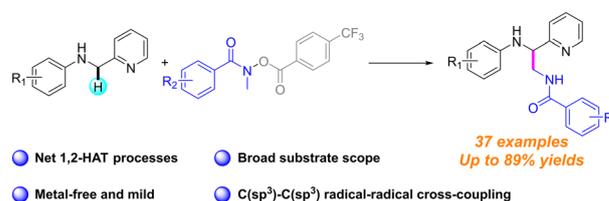
Mohamed E. Osman,* Anton S. Konopatsky, Nikita A. Repev, Dmitry V. Shtansky, Pavel A. Nikulshin and Victor M. Kogan



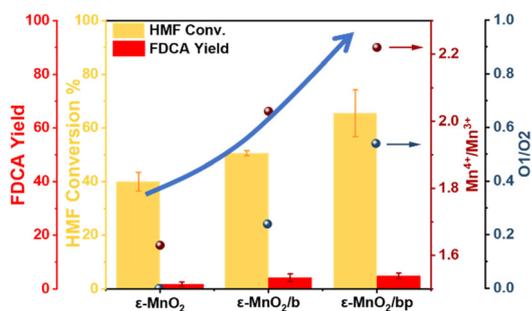
3940

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*



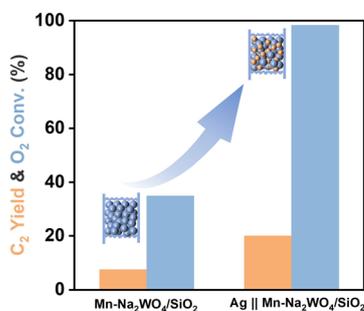
3946



Electrocatalytic oxidation of 5-hydroxymethylfurfural by MnO₂ with tunable surface oxidation states

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

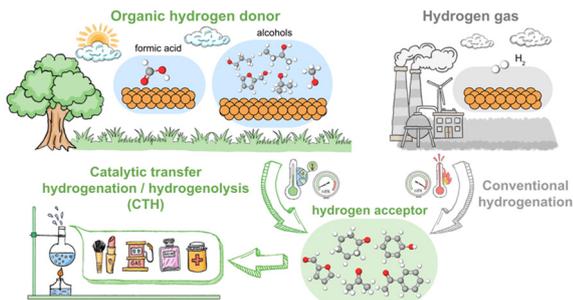
3955



Silver enhanced oxidative coupling of methane over the Mn-Na₂WO₄/SiO₂ catalyst

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

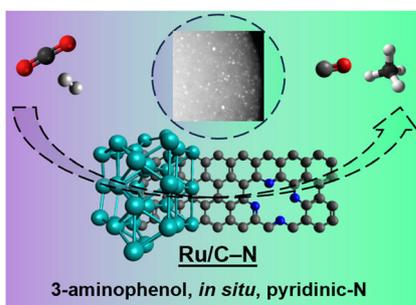
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Elucidating the essential role of hydrogen bonding and direct H-transfer in transfer hydrogenation on transition metal catalysts

Aojie Li and Srinivas Rangarajan*

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Enhancing CO₂ hydrogenation via nitrogen-doped carbon nanospheres and *in situ* ruthenium nanoparticle synthesis

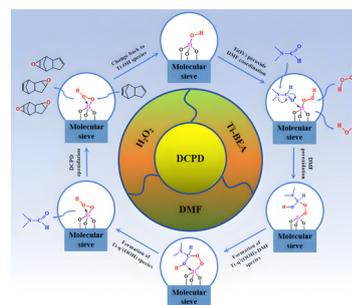
Pradeep S. Murthy, Oliver J. Conquest, Lizhuo Wang, Xiaoyan Liu,* Jian Liu,* Catherine Stampfl* and Jun Huang*



3991

Novel DMF-mediated cyclic intermediates facilitating the epoxidation of dicyclopentadiene over a Ti-BEA/H₂O₂ system

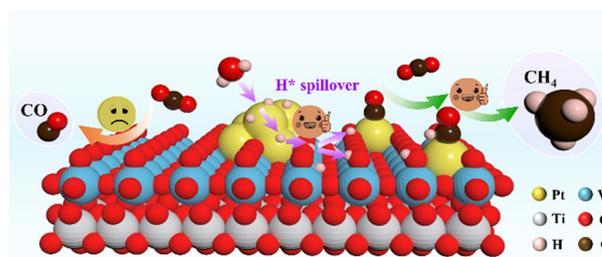
Tianzeng Zhao, Zhongpeng Zhu,* Xinxin Peng, Weiping Zheng, Dandan Jia, Zhaolin Fu, Wenzheng Gao, Ge Wang,* Zhiping Tao* and Xingtian Shu



4002

Regulating protonation paths for enhanced photocatalytic CO₂ methanation by coupling Pt sites on WO_{2.9}/TiO₂

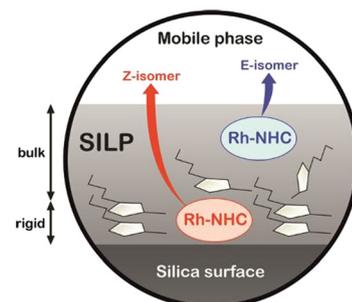
Jiajun Du, Jun Deng, ChangAn Zhou, Hairong Yue, Chong Liu, Patrik Schmuki, Štěpán Kment and Xuemei Zhou*



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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*

