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IN THIS ISSUE

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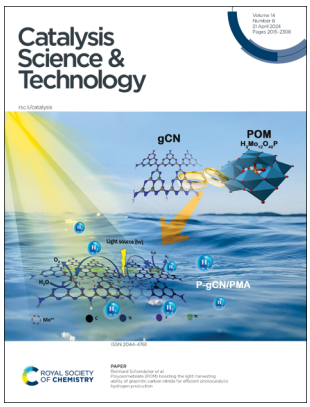

Cover
See Reinhard Schomäcker *et al.*, pp. 2114–2129.
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Inside cover
See Erisa Saraçi *et al.*, pp. 2130–2138.
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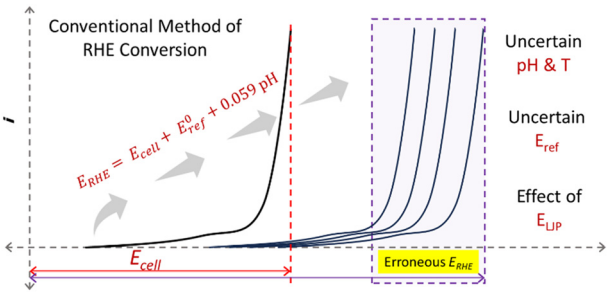
PERSPECTIVE

2025

How reliable are the overpotentials reported in energy conversion electrocatalysis?

Anantharaj Sengeni*

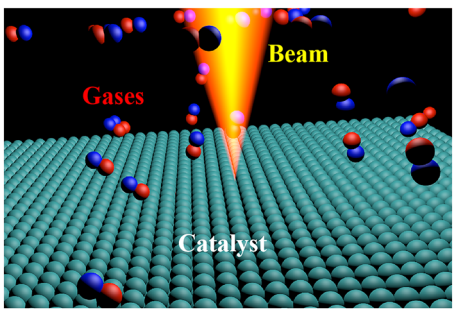


REVIEWS

2040

Advances of *in situ* transmission electron microscopy research on gas phase catalyst particles

Mingjun Xiao,* Huizhen Sun, Yanshuang Meng and Fuliang Zhu



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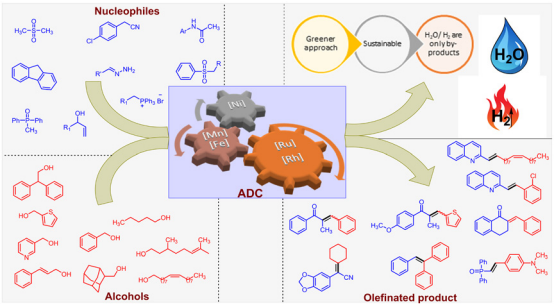
REVIEWS

2064

Olefins from alcohols *via* catalytic acceptorless dehydrogenation coupling reactions

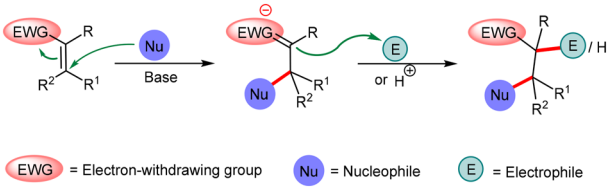
Triptesh Kumar Roy, Reshma Babu, Ganesan Sivakumar, Virendrakumar Gupta* and Ekambaram Balaraman*



2090

Hydrotalcite-based catalysts for 1,4-conjugate addition in organic synthesis

Ranjay Shaw* and Ashish Kumar

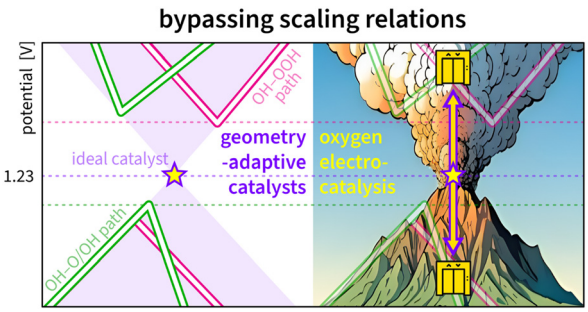


COMMUNICATION

2105

Bypassing the scaling relations in oxygen electrocatalysis with geometry-adaptive catalysts

Ritums Cepitis, Vladislav Ivaništšev,* Jan Rossmeisl and Nadezda Kongi*



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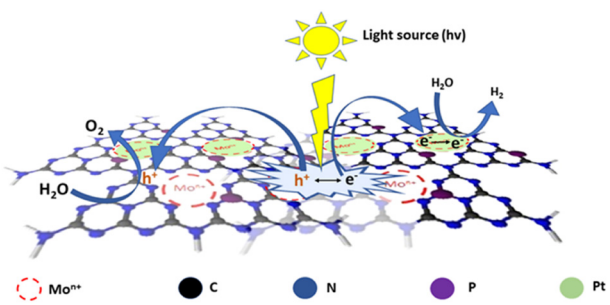
Polyoxometalate (POM) boosting the light-harvesting ability of graphitic carbon nitride for efficient photocatalytic hydrogen production

Simon Yves Djoko T., Estella Njoyim T., Anh Dung Nguyen, Jin Yang, Hüseyin Küçükkeçeci, Edith Mawunya Kutorglo, Babu Radhakrishnan, Klaus Schwarzburg, Shahana Huseyinova, Prasenjit Das, Minoo Tasbihi, Michael Schwarze, Arne Thomas and Reinhard Schomäcker*



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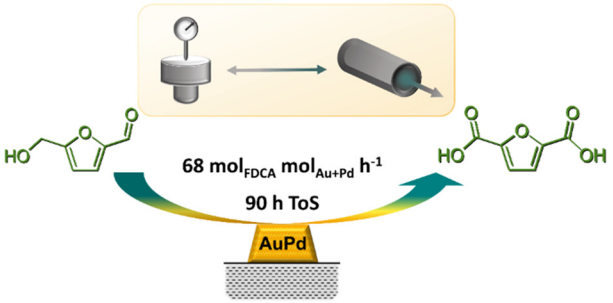
2130



Continuous flow oxidation of HMF using a supported AuPd-alloy

Dominik Neukum, Ajai R. Lakshmi Nilayam, Maya E. Ludwig, Athanasios A. Vadarlis, Jan-Dierk Grunwaldt and Erisa Saraçi*

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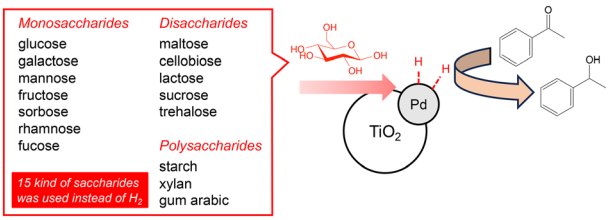

Photocatalytic hydrogenation of acetophenone over Pd–TiO_2 using saccharides as hydrogen sources

Takahiro Oto, Kazuma Ikeuchi, Kosuke Tanaka, Ayumu Onda and Kazuya Imamura*

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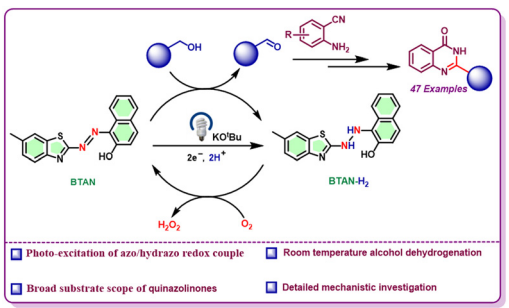

Photochemical dehydrogenative transformation to heterocycles facilitated by an azo/hydrazo redox couple

Ayanangshu Biswas, Sourav Mandal, Supriya Halder, Rahul Singh and Debashis Adhikari*

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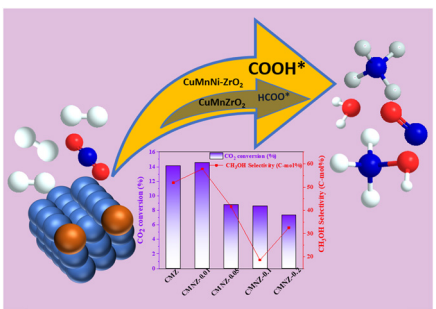

Effect of Ni content on Cu–Mn/ZrO_2 catalysts for methanol synthesis from CO_2 hydrogenation

Hengbi Zhang, Jinhai Yang, Shiwei Wang, Ning Zhao,* Fukui Xiao* and Yanhong Wang*

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PAPERS

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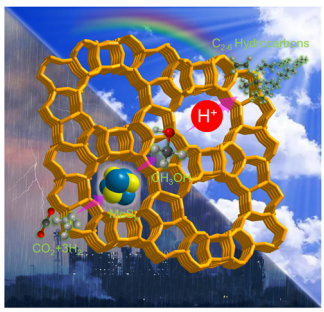
Bifunctional catalyst MoS_x@H-Beta for highly selective conversion of CO_2 to C_{2-6} hydrocarbons

Taotao Zhao, Chenyang Shen, Yuchi Liu, Gui Liu, Xiaofeng Qian, Qiang He, Feifei Mei, Yu He, Xiangke Guo, Nianhua Xue,* Xi Liu and Weiping Ding*



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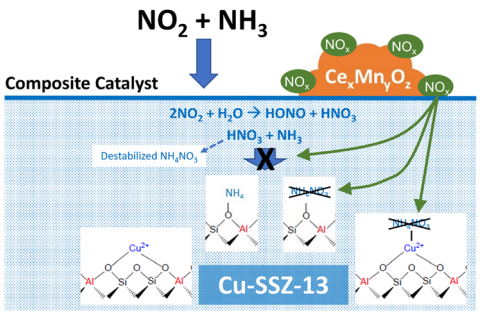
Mitigated ammonium nitrate inhibition in SCR over Cu-SSZ-13 + Ce/Mn-oxide composite catalysts: insights from temperature-programmed desorption analysis

Tahrizi Andana, Kenneth G. Rappé,* Feng Gao and Yong Wang



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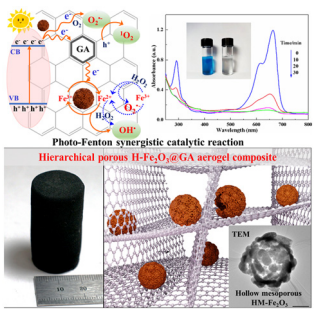
Novel hierarchical porous Fe_2O_3@GA composites for solar-Fenton catalysis of dyes

Xiaomei Li, Jun Qin, Xiao Zhang, Yu Zhang, Zhixiong Liu, Jianfeng Jia,* Haishun Wu, Feng Feng* and Yunfeng Bai



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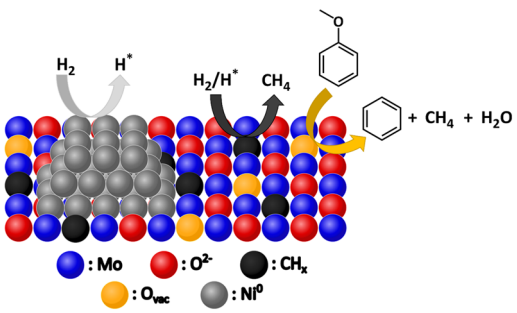
Investigations into the influence of nickel loading on MoO_3-modified catalysts for the gas-phase hydrodeoxygenation of anisole

Simon Haida, Sebastian Löbner, Henrik Lund, Stephan Bartling, Carsten Kreyenschulte, Hanan Atia, Ali M. Abdel-Mageed, Christoph Kubis* and Angelika Brückner*



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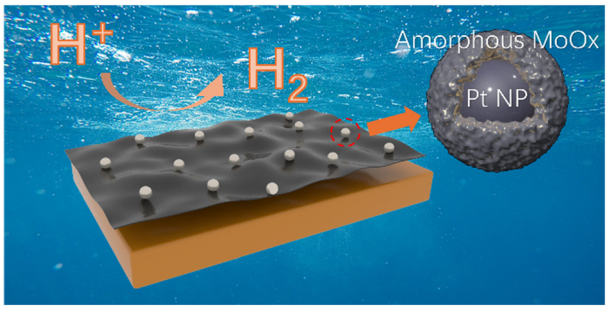

Breaking the activity and stability bottlenecks for acid hydrogen evolution by strong metal–support interaction between Pt nanoparticles and amorphous MoO_x

Bo Ning, Zhen-Feng Huang,* Chengxiang Shi, Lun Pan, Ruijie Gao,* Xiangwen Zhang and Ji-Jun Zou*

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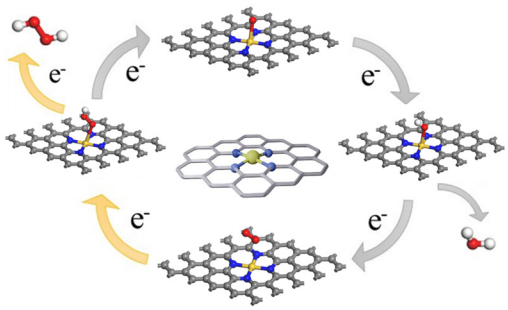

Theoretical study of Au–N_X–C catalysts for H_2O_2 electrosynthesis *via* two-electron oxygen reduction reaction

Xuefeng Ren,* Xiaoman Dong, Zhuofan Wu, Jianghui Cao, Xiaoxuan Yang, Jian Hao,* Lifen Liu, Gang Wu* and Anmin Liu*

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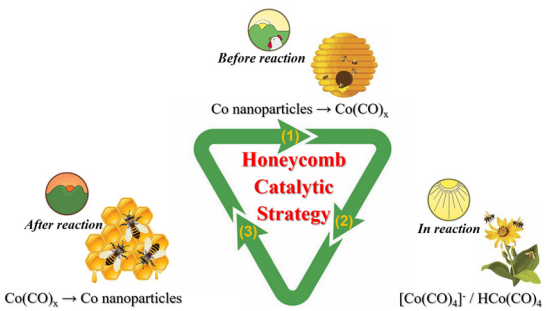

"Honeycomb catalytic strategy" for carbonylation reaction based on the structural evolution of cobalt species

Peng Zhang, Liying An, Chunqiu Zhao, Qiang Chang, Fei Wang,* Chenghua Zhang,* Yulei Zhu, Yong Yang and Yongwang Li

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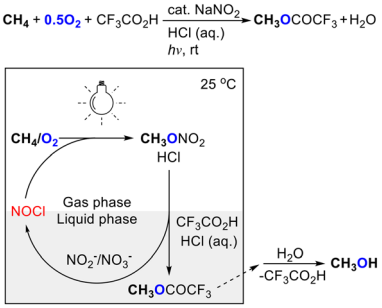

High conversion of methane to methyl ester at 298 K

Lai Xu, Chong Mei, Mengdi Zhao and Wenjun Lu*

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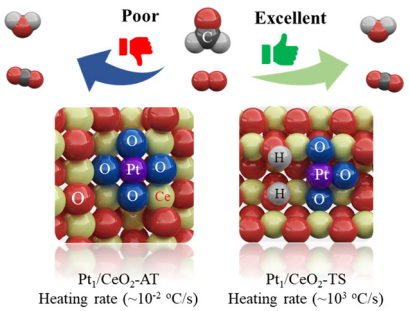
High-temperature stable hydroxyls tuning the local environment of Pt single atoms for boosting formaldehyde oxidation

Mingyi Xiao, Lina Zhang, Shuzhe Zheng, Ling Fang, Tulai Sun, Yonghe Li, Mingwu Tan, Jianghao Zhang, Yihan Zhu, Jinshu Tian* and Haifeng Xiong*



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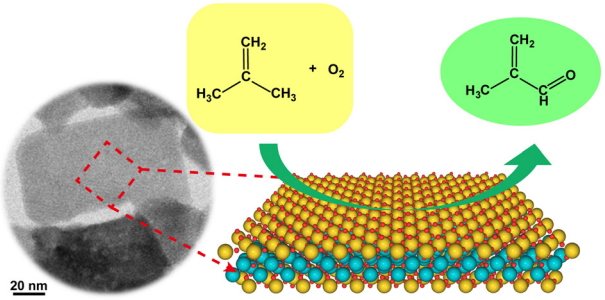
Facet-dependent catalysis of γ-Bi_2MoO_6 for selective oxidation of isobutene to methacrolein

Haiyang You, Shuang Liu, Na Ta, Yong Li* and Wenjie Shen



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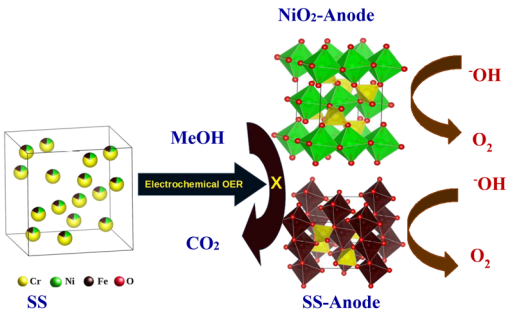
Investigation of electrocatalytic oxygen evolution reaction (OER) selectivity against methanol oxidation on stainless steel

P. Esakki Karthik,* Luigi Sangaletti, Matteo Ferroni and Ivano Alessandri



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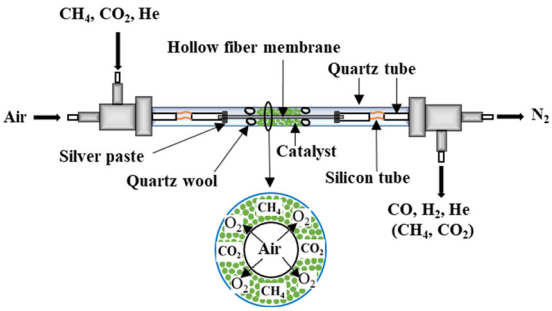
Dual-phase $Ce_{0.8}Sm_{0.2}O_{2-\delta}$–$La_{0.8}Ca_{0.2}Al_{0.3}Fe_{0.7}O_{3-\delta}$ oxygen permeation hollow fiber membrane for oxy-CO_2 reforming of methane

Yuepeng Hei, Shuang Wu, Zuojun Lu, Xiuxia Meng, Jian Song,* Naitao Yang, Bo Meng, Claudia Li, Jaka Sunarso, Sibudjing Kawi, Xiaoyao Tan and Shaomin Liu*



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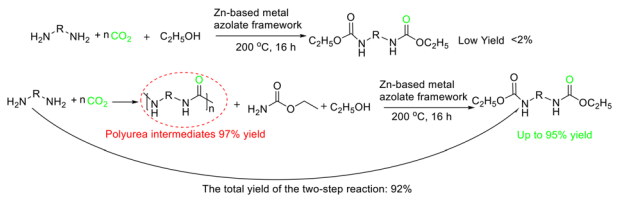

Indirect use of CO_2: synthesis of N-substituted dicarbamates *via* polyurea intermediates over a Zn-based metal azolate framework

Peixue Wang, Shimin Liu, Xinjiang Cui, Yang Wu and Feng Shi*

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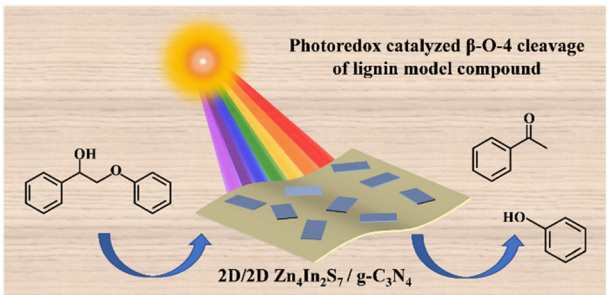

Dispersing agglomerated $Zn_4In_2S_7$ on g-C_3N_4 nanosheets to form a 2D/2D S-scheme heterojunction for highly selective photocatalytic cleavage of lignin models

Yitong Lu, Yu Fan, Shuai Xu and Yuliang Li*

CORRECTIONS

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Correction: Unravelling potential reaction intermediates during catalytic pyrolysis of polypropylene with microscopy and spectroscopy

Ina Vollmer, Michael J. F. Jenks, Sebastian Rejman, Florian Meirer, Andrei Gurinov, Marc Baldus and Bert M. Weckhuysen*

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Correction: Continuous flow oxidation of HMF using a supported AuPd-alloy

Dominik Neukum, Ajai R. Lakshmi Nilayam, Maya E. Ludwig, Athanasios A. Vadarlis, Jan-Dierk Grunwaldt and Erisa Saraçi*

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