

Catalysis Science & Technology

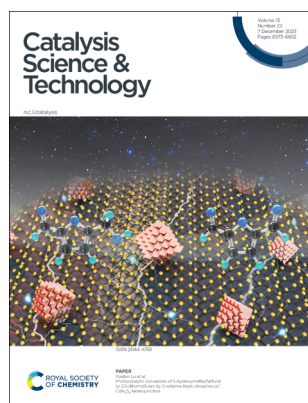
A multidisciplinary journal focussing on all fundamental science and technological aspects of catalysis

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IN THIS ISSUE

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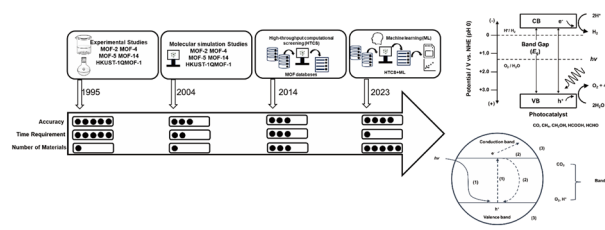
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MINI REVIEW

6583

Computational modeling guided design of metal–organic frameworks for photocatalysis – a mini review

Sheng Yu, Qiaomin Wang, Jinglei Wang, Cong Fang, Yuanzhe Li,* Jiankai Ge* and Baizeng Fang*

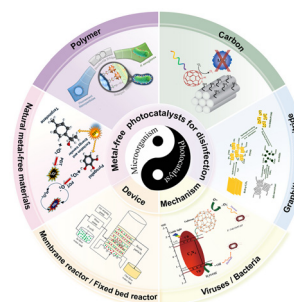


REVIEW

6604

Metal-free photocatalysts for solar-driven water disinfection: recent progress and challenges

Zeyu Gong, Jiaxing Yu, Linjing Tong, Yu Hou, Huajie Zhong, Yuan Tao, Guosheng Chen, Junhui Wang,* Fang Zhu and Gangfeng Ouyang



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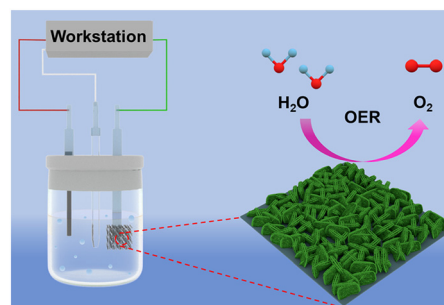


COMMUNICATIONS

6625

Bimetal synergistically regulates Ni and P oxidation states for efficient oxygen evolution reaction

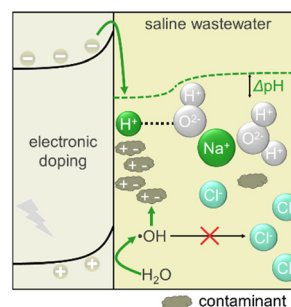
Di Wang, Mengzhao Liu, Zhe Sun, Chaofan Zhang, Wenguang Cui, Chaozhen He and Zhongkui Zhao*



6631

Electrostatic induction promotes photocatalytic contaminant mineralization in saline wastewater

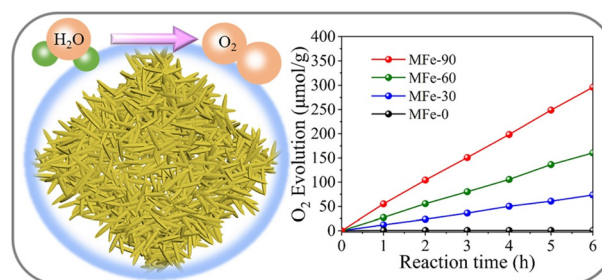
Shugong Gao, Tingyun Ge, Bo Li* and Jiazang Chen*



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***In situ* preparation of MOF-derived Fe₂O₃ nanorods for visible-light-driven oxygen evolution**

Heng Wu, Longjie Lai, Zhengdao Li,* Jiyue Hu, Li Zhang, Waqar Younas and Qi Liu*



PAPERS

6640

Photocatalytic conversion of 5-hydroxymethylfurfural to 2,5-diformylfuran by S-scheme black phosphorus/CdIn₂S₄ heterojunction

Ming Zhang, Zhihao Yu, Yuxin Zhang, Linhao Sun, Jifang Cui, Jian Xiong, You Han and Xuebin Lu*

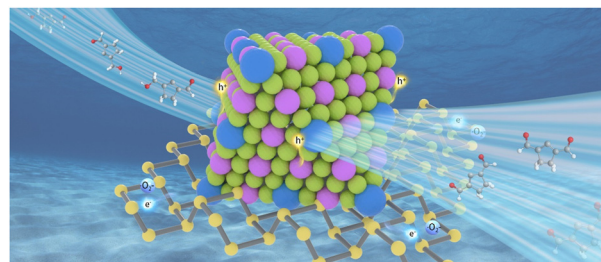


Figure 1 consists of two panels. Panel (a) is a line graph showing the 'Stability number' on the y-axis (ranging from 0 to 5x10⁴) versus 'Calcination temperature / °C' on the x-axis (ranging from 200 to 700). The data points are connected by a dashed line. A red circle highlights the peak at approximately 350°C and 4.2x10⁴. A blue circle highlights the point at 200°C, which is labeled 'Amorphous'. Panel (b) is a high-resolution transmission electron microscopy (HRTEM) image showing 'Highly crystalline RuO₂ nanoparticles'. A scale bar indicates 2 nm. A yellow curved arrow points from the text 'O₂ + 4H⁺ + 4e⁻' to '2H₂O', indicating the oxygen evolution reaction (OER). Below the image, the text 'high OER activity and stability' is written.

Kosuke Beppu, Kazuki Obigane and Fumiaki Amano*

The diagram illustrates the synthesis of Au-modified DP. It starts with a Zr-O-Zr-O-Zr structure with OH groups. A 'Normal DP' step leads to a structure with a blue 'Au' cluster. A 'Modified-DP' step leads to a structure with a purple 'Au' cluster and 'OX' groups. A final step shows the structure with 'OH' groups and 'V_O' sites. A chemical structure of a Zr-O-Zr-O-Zr unit with OH groups is shown in a box.

Shin-ichi Naya,* Miwako Teranishi and Hiroaki Tada*

Azidecat

Asymmetric olefin hydrogenation

Propargylation

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- 3d-Metal catalysis ✓
- High enantioselectivity ✓
- Commercially available ligand ✓
- Active pharmaceutical synthesis ✓
- Mechanistic studies ✓

Soumyadeep Chakraborty, Felix J. de Zwart,
Demi D. Snabilié, Ekambaram Balaraman,
Joost N. H. Reek, Bas de Bruin
and Johannes G. de Vries*

CH_3CH_2
 CH_3CH_2
 CO_2
 CO_2
 CO_2
 $\text{FE}_{(\text{C}_2\text{H}_4)} = 54.4\%$
 28.4 mA/cm^2
 $-1.19 \text{ V (vs. RHE)}$
 in-situ Raman spectroscopy

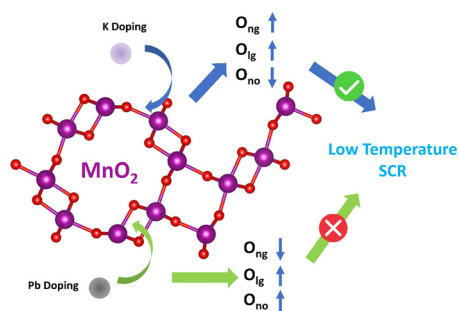
Zhen-Hong He,* Cui-Cui Li, Shao-Yan Yang, Jiajie Liu,
Hui-Hui Cao, Kuan Wang, Weitao Wang, Yang Yang
and Zhao-Tie Liu*

PAPERS

6685

Modulating active oxygen species on α - MnO_2 with K and Pb for SCR of NO at low temperatures

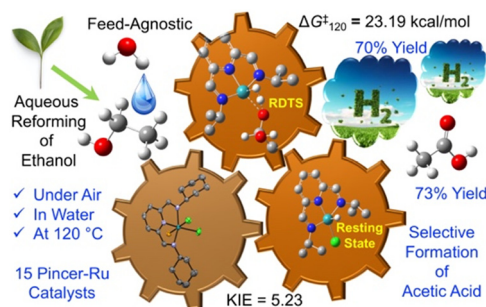
Gang Yang, Xiang Luo, Shuai Liu, Chenggong Sun and Tao Wu*



6699

Reforming of ethanol to hydrogen and acetic acid catalyzed by pincer-ruthenium complexes

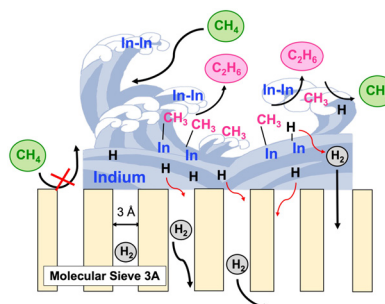
Vinay Arora, Sunil Dhole and Akshai Kumar*



6712

Selective conversion of methane to ethane and hydrogen over In/molecular-sieve-3A catalyst

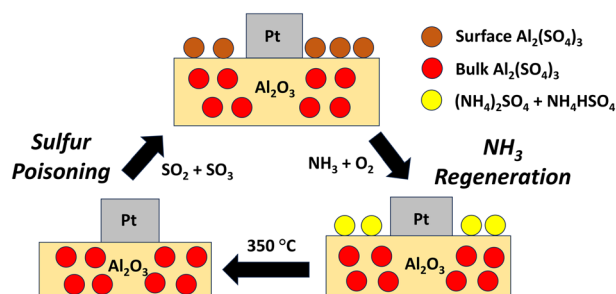
Ayumi Nakaya, Ayako Suzuki, Shoji Iguchi and Ichiro Yamanaka*



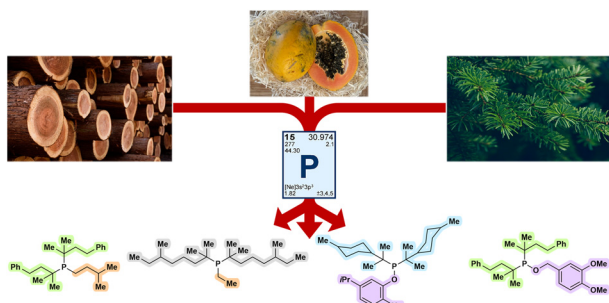
6718

Low temperature NH_3 regeneration of a sulfur poisoned Pt/ Al_2O_3 monolith catalyst

Chenhao Fang and Michael P. Harold*



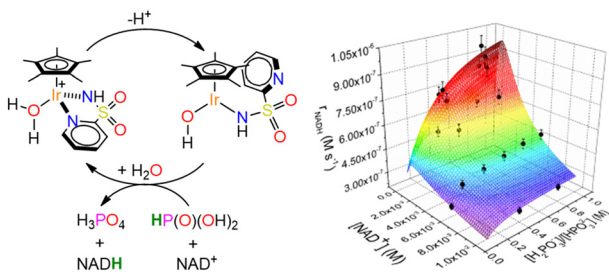
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Bulky, electron-rich, renewable: analogues of Beller's phosphine for cross-couplings

Danielle van der Westhuizen, Abril C. Castro, Nilay Hazari and Ashot Gevorgyan*

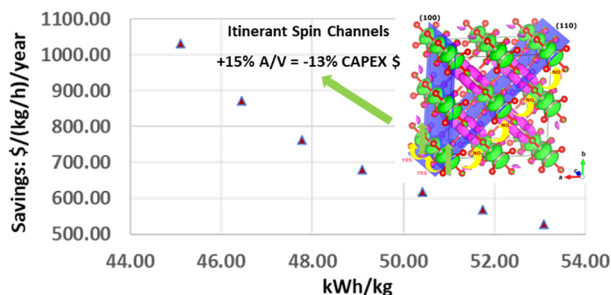
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Elucidating the intimate mechanism of NAD⁺ hydrogenation with phosphonic acid catalysed by Cp*Ir(pyridine-2-sulfonamide) complexes

Leonardo Tensi, Luca Rocchigiani,* Gabriel Menendez Rodriguez, Edoardo Mosconi, Cristiano Zuccaccia, Filippo De Angelis* and Alceo Macchioni*

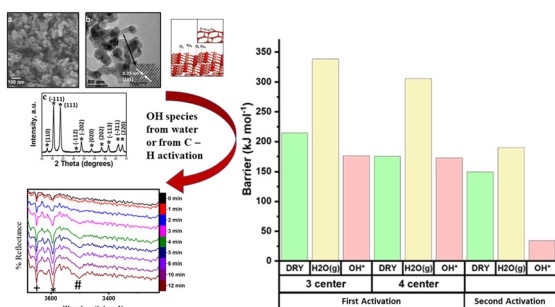
6751



How advances in theoretical chemistry meet industrial expectations in electrocatalysts for water splitting

Jose Gracia,* Chiara Biz, Mauro Fianchini* and Sebastian Amthor*

6764



Insights into the role of water and surface OH species in methane activation on copper oxide: a combined theoretical and experimental study

Kartavya Bhola, Quang Thang Trinh, Dapeng Liu, Yan Liu* and Samir H. Mushrif*

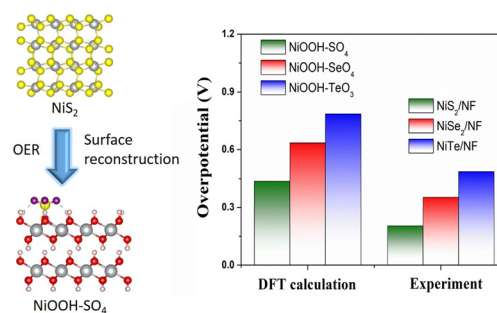


PAPERS

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Understanding activity diversity among Ni-based chalcogenide pre-catalysts under oxygen evolution conditions: the role of oxyanions

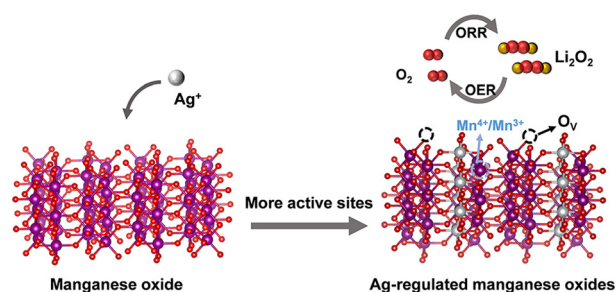
Haoxiang Xu, Kai Li, Ning Liu, Wei Xia, Wenhao Liu, Dong Cao, Lipeng Zhang and Daojian Cheng*



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Optimization effect of Ag-regulated manganese oxides on electrocatalytic performance for Li-O₂ batteries

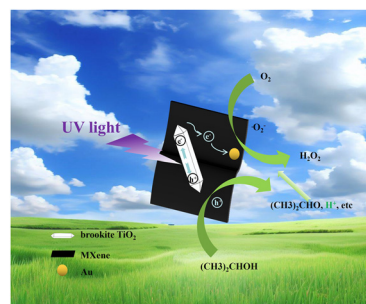
Qiang Huang, Linna Dai,* Shengnan Zhang, Pei Hu* and Lijie Ci*



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Boosting hydrogen peroxide production of brookite TiO₂ with Au and MXene co-catalysis under UV light

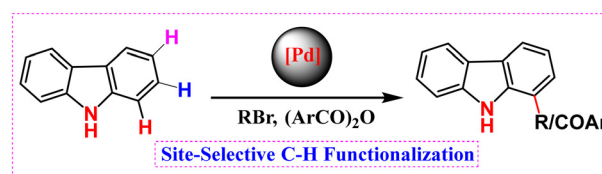
Xiaoyu Sun, Tianyi Wang,* Chengyin Wang* and Teruhisa Ohno*



6812

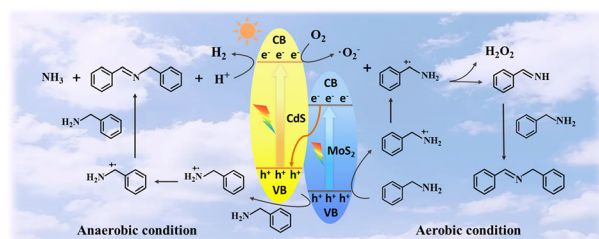
Mechanism insight into palladium-catalyzed site-selective C-H functionalization of carbazoles

Feiyun Jia,* Yongsheng Yang and Bo Zhang



PAPERS

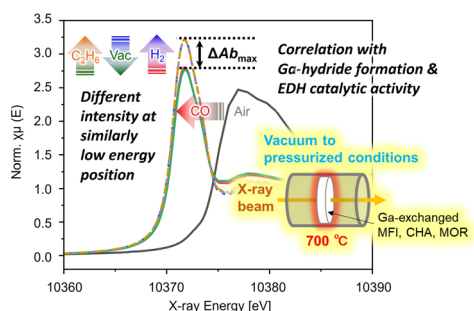
6823



Construction of MoS₂/CdS heterojunction catalysts with crystal plane modulation for photocatalytic coupling of benzylamines under aerobic and anaerobic conditions

Fangfang Huang, Songyue Zhang, Yuhong Chang, Wenwen Chen,* Haishun Wu and Jianfeng Jia*

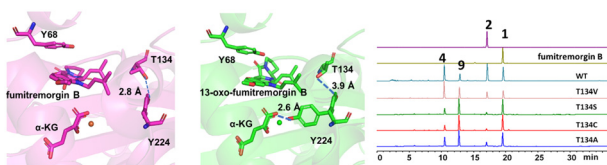
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In situ Ga K-edge XANES study of Ga-exchanged zeolites at high temperatures under different atmospheres including vacuum, CO, and pressurized H₂

Mengwen Huang, Tetsuya Kinjo, Shunsaku Yasumura, Takashi Toyao, Daiju Matsumura, Hiroyuki Saitoh, Ken-ichi Shimizu, Norikazu Namiki and Zen Maeno*

6839



Structure-based insights into mechanism of endoperoxidase FtmOx1 catalyzed reactions

Fei Wang, Yanqing Gao, Chunxi Wang, Wenxian Lan, JianHua Gan* and Chunyang Cao*

CORRECTION

6850

Correction: Tuning the catalytic performance of CaSnO₃ by developing an S-scheme p–n heterojunction through Ag₆Si₂O₇ doping

Navid Hussain Shah, Muhammad Abbas, Muhammad Qasim, Muhammad Sulaman, Muhammad Imran, Sohail Azmat, Yanyan Cui* and Yaling Wang*

