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Special Issue on Celebrating the 100th Anniversary of Nankai University

Guest Editors: Zhong-Yong Yuan (袁忠勇), Landong Li (李兰冬)

Nankai Catalysis



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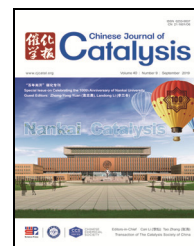
Editors-in-Chief Can Li (李灿) Tao Zhang (张涛)
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Special Issue on Celebrating the 100th Anniversary of Nankai University

Guest Editors: Zhong-Yong Yuan, Landong Li

Chinese Journal of Catalysis

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Editorials

Chin. J. Catal., 2019, 40: 1231 doi: S1872-2067(19)63428-5

The 2018 Impact Factor of *Chinese Journal of Catalysis* is 4.914

Can Li, Tao Zhang

Dalian Institute of Chemical Physics, CAS; Chinese Academy of Sciences, China



Chin. J. Catal., 2019, 40: 1232 doi: S1872-2067(19)63425-X

Preface to Special Issue on Celebrating the 100th Anniversary of Nankai University

Zhong-Yong Yuan, Landong Li

Nankai University



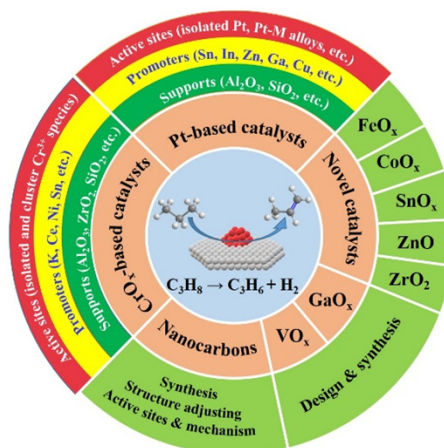
Reviews

Chin. J. Catal., 2019, 40: 1233–1254 doi: S1872-2067(19)63360-7

State-of-the-art catalysts for direct dehydrogenation of propane to propylene

Zhong-Pan Hu, Dandan Yang, Zheng Wang, Zhong-Yong Yuan *
Nankai University;
Ningxia University

This review presents the state-of-the-art catalysts (including Pt, CrO_x , VO_x , GaO_x , ZnO , FeO_x , CoO_x , SnO_x , ZrO_2 -based catalysts, and nanocarbons) that have been reported in recent years for direct dehydrogenation of propane to propylene.

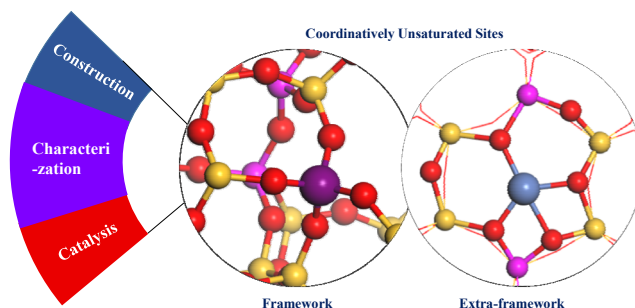


Chin. J. Catal., 2019, 40: 1255–1281 doi: S1872-2067(19)63381-4

Coordinatively unsaturated sites in zeolite matrix: Construction and catalysis

Weijie Li, Lanan Sun, Linjun Xie, Xin Deng, Naijia Guan,
Landong Li *
Nankai University

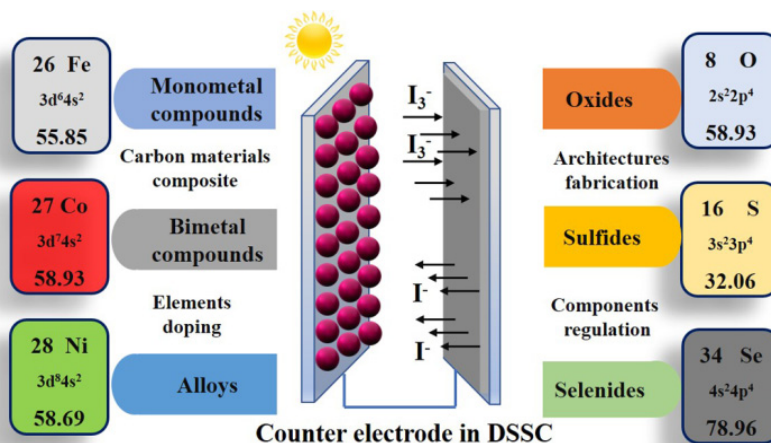
This review presents the recent progresses on the construction, characterization and catalytic applications of coordinatively unsaturated sites in zeolite matrix from the specific view of coordination chemistry.



Chin. J. Catal., 2019, 40: 1282–1297 doi: S1872-2067(19)63361-9

Recent advances in cobalt-, nickel-, and iron-based chalcogen compounds as counter electrodes in dye-sensitized solar cells

Pengwei Wei, Xue Chen, Guizhu Wu, Jing Li, Yang Yang, Zeiwei Hao, Xiao Zhang *, Jing Li *, Lu Liu *
Nankai University; Civil Aviation University of China



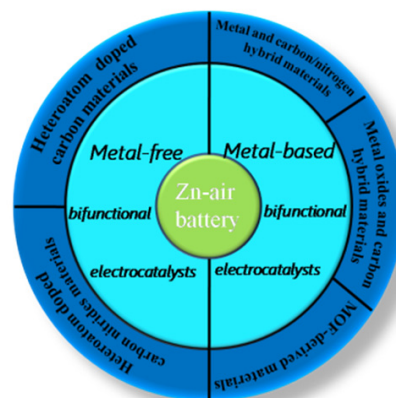
As promising counter electrodes, chalcogen compounds of iron, cobalt, and nickel exhibit excellent electrocatalytic activities. Moreover, fabrication of architectures, regulation of the components, formation of composites with carbon materials, and elemental doping can effectively improve their electrochemical properties.

Chin. J. Catal., 2019, 40: 1298–1310 doi: S1872-2067(19)63349-8

Bifunctional electrocatalysts for rechargeable Zn-air batteries

Yibo Guo, Ya-Nan Chen, Huijuan Cui*, Zhen Zhou*
Nankai University

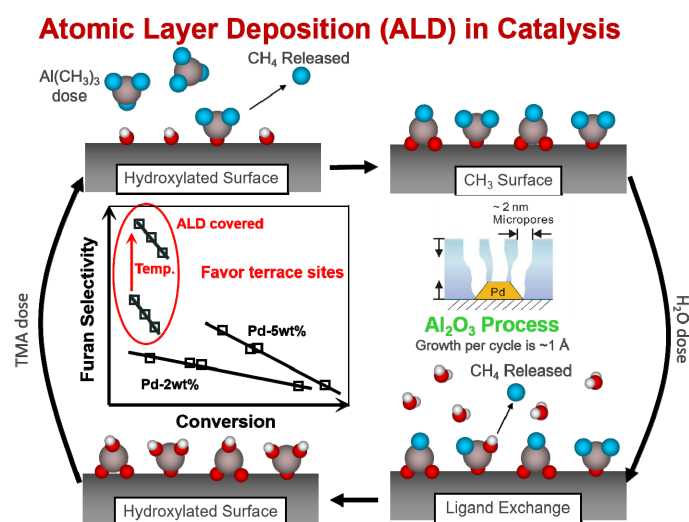
This review summarizes bifunctional oxygen electrocatalysts for Zn-air batteries, including heteroatom-doped carbon and carbon nitride materials, metal and carbon/nitrogen hybrid materials, metal oxides and carbon hybrid materials, and metal-organic frameworks MOF-derived materials.



Chin. J. Catal., 2019, 40: 1311–1323 doi: S1872-2067(19)63321-8

Atomic layer deposition: Catalytic preparation and modification technique for the next generation

Hongbo Zhang*, Christopher L. Marshall*
Nankai University, China; Argonne National Laboratory, USA



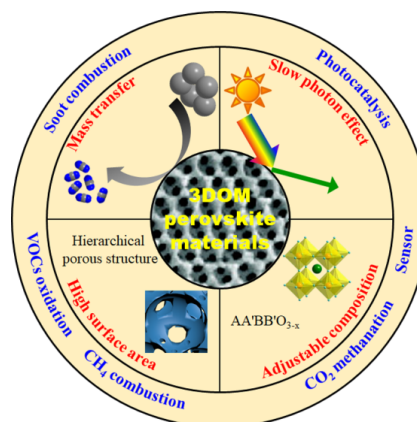
This mini-review describes the advantages of atomic layer deposition in catalyst preparation and modification. Specifically, people could use this technique to improve the catalytic stability, tune the reaction selectivity and enhance the reaction activity.

Chin. J. Catal., 2019, 40: 1324–1338 doi: S1872-2067(19)63341-3

Three-dimensionally ordered macroporous perovskite materials for environmental applications

Chenxi Zhang, Peiyuan Zhao, Shuangxi Liu, Kai Yu*
Nankai University, China; University of New Hampshire, USA

The applications of three-dimensionally ordered macroporous perovskite materials in environmental fields are summarized, including photocatalysis, soot combustion, oxidation of volatile organic compounds, carbon dioxide methanation and sensors for gas or liquid. The materials present a good performance owing to the properties, such as slow photon effect, strong mass transfer ability, high surface area and adjustable composition.



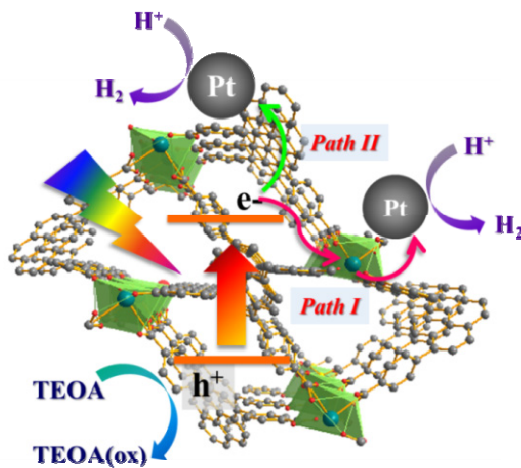
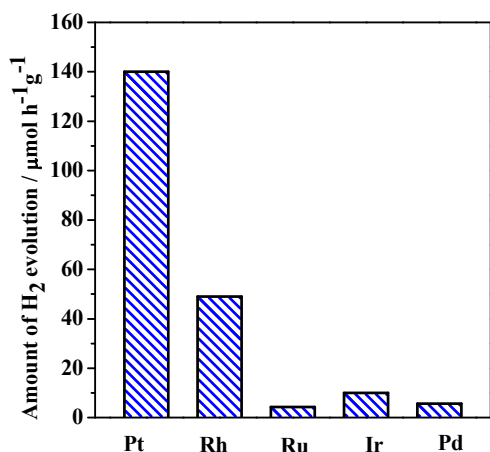
Communication

Chin. J. Catal., 2019, 40: 1339–1344 doi: S1872-2067(19)63329-2

Development of a bismuth-based metal-organic framework for photocatalytic hydrogen production

Yejun Xiao, Xiangyang Guo, Junxue Liu, Lifang Liu, Fuxiang Zhang*, Can Li*

Dalian Institute of Chemical Physics, Chinese Academy of Sciences; University of Chinese Academy of Sciences



A new 3D bismuth-organic framework (Bi-TBAPy) with ligand-to-metal charge transfer (LMCT) process was synthesized to exhibit for the first time robust photocatalytic water reduction, demonstrating its promising future in solar energy conversion.

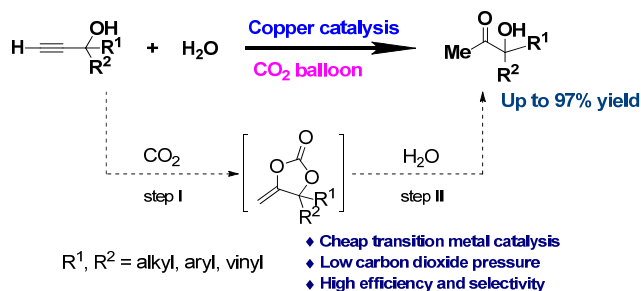
Articles

Chin. J. Catal., 2019, 40: 1345–1351 doi: S1872-2067(19)63313-9

Synthesis of α-hydroxy ketones by copper(I)-catalyzed hydration of propargylic alcohols: CO₂ as a cocatalyst under atmospheric pressure

Zhi-Hua Zhou, Xiao Zhang, Yong-Fu Huang, Kai-Hong Chen*,
Liang-Nian He*
Nankai University

Efficient and inexpensive copper(I) catalysis was realized for the synthesis of α-hydroxy ketones via the hydration of propargylic alcohols by using CO₂ as a cocatalyst under atmospheric pressure.

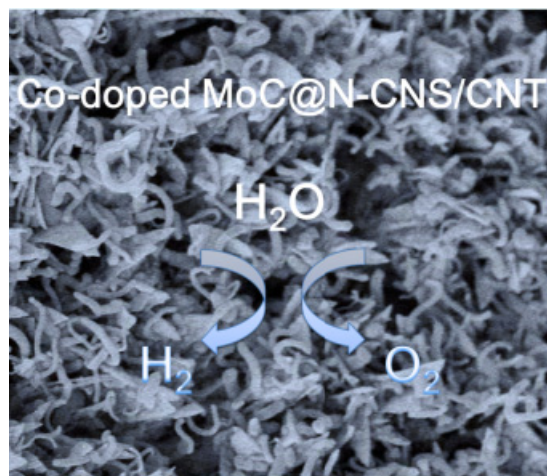


Chin. J. Catal., 2019, 40: 1352–1359 doi: S1872-2067(19)63406-6

Coupled cobalt-doped molybdenum carbide@N-doped carbon nanosheets/nanotubes supported on nickel foam as a binder-free electrode for overall water splitting

Jiangnan Xing, Fei Lin, Liutao Huang, Yuchang Si*, Yijing Wang,
Lifang Jiao*
Nankai University; Logistics University of People's Armed Police Force

We propose a facile and controllable strategy to develop highly efficient and stable Co-doped MoC@N-doped carbon nanosheets/nanotubes by direct growth on 3D conductive Ni foam as a self-supported electrode for both the HER and OER.

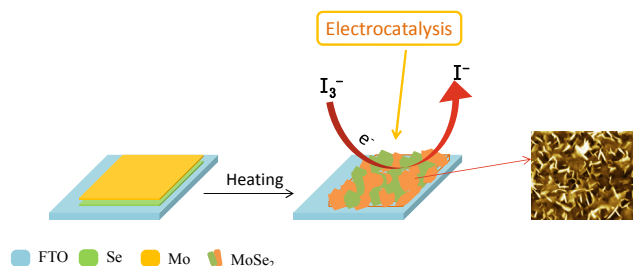


Chin. J. Catal., 2019, 40: 1360–1365 doi: S1872-2067(19)63380-2

Electrocatalytically active MoSe₂ counter electrode prepared *in situ* by magnetron sputtering for a dye-sensitized solar cell

Xueqin Cao, Hanfang Li, Guoran Li *, Xueping Gao
Nankai University

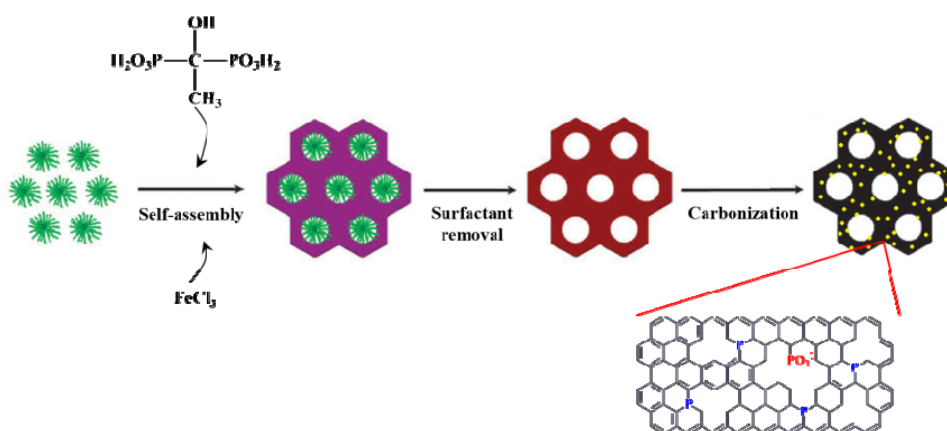
The in-situ magnetic sputtering method is used to obtain the dye-sensitized solar cell counter electrode material MoSe₂ with special structure, which not only has good electron transport performance, but also has excellent electrocatalytic performance.



Chin. J. Catal., 2019, 40: 1366–1374 doi: S1872-2067(19)63363-2

P-doped mesoporous carbons for high-efficiency electrocatalytic oxygen reduction

Hui Zhao, Zhong-Pan Hu, Yun-Pei Zhu, Li Ge, Zhong-Yong Yuan *
Nankai University

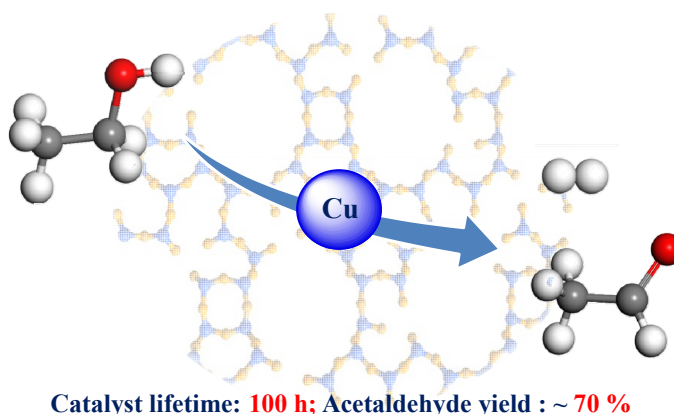


P-doped mesoporous carbons were synthesized by a soft-templating method with the use of organophosphonic acid as the P source and iron species as a graphitization catalyst, exhibiting superior catalytic activity towards ORR in alkaline media.

Chin. J. Catal., 2019, 40: 1375–1384 doi: S1872-2067(19)63378-4

Stabilizing copper species using zeolite for ethanol catalytic dehydrogenation to acetaldehyde

Dongni Yu, Weili Dai *, Guangjun Wu, Naijia Guan, Landong Li *
Nankai University

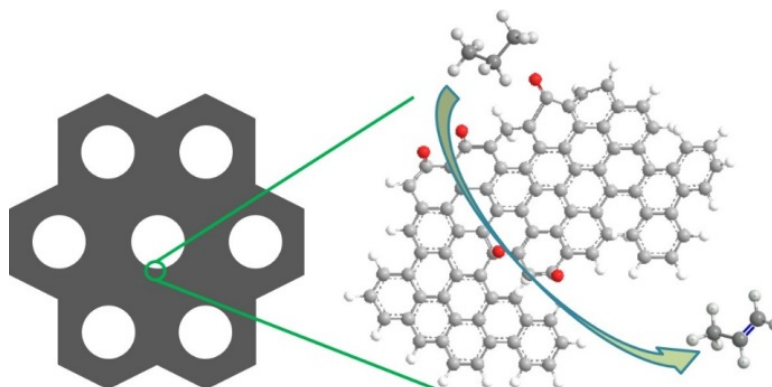


A Cu/Beta confined catalyst constructed via the post-synthesis route exhibited good structural stability against Cu sintering; a long lifetime of 100 h with an acetaldehyde yield of ~70% could be achieved.

Chin. J. Catal., 2019, 40: 1385–1394 doi: S1872-2067(19)63334-6

Mesoporous carbons as metal-free catalysts for propane dehydrogenation: Effect of the pore structure and surface property

Zhong-Pan Hu, Jin-Tao Ren, Dandan Yang, Zheng Wang, Zhong-Yong Yuan*
Nankai University; Ningxia University



Mesoporous carbons with different pore ordering and concentrations of surface oxygenated functional groups were synthesized and used as metal-free catalysts for direct dehydrogenation of propane to propylene.

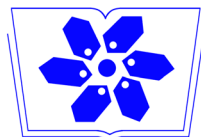
Chin. J. Catal., 2019, 40: 1395–1404 doi: S1872-2067(19)63403-0

Facile immobilization of Ni nanoparticles into mesoporous MCM-41 channels for efficient methane dry reforming

Jingqing Tian, Haocheng Li, Xin Zeng, Zichun Wang, Jun Huang*, Chen Zhao*
East China Normal University, China; The University of Sydney, Australia



The developed encapsulated Ni/MCM-41 catalyst highly rendered metal sintering and carbon deposition at 700 °C and exhibited long-term (200 h) high activity for DRM.



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