

Industrial Chemistry & Materials

An international journal of significant innovative research and major technological breakthroughs in all aspects of industrial chemistry and materials

rsc.li/icm

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

IN THIS ISSUE

ISSN 2755-2500 CODEN ICMNCZ 2(1) 1-166 (2024)



Cover

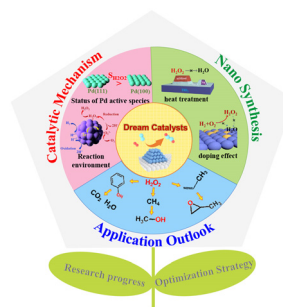
See Dong Cao,
Daojian Cheng et al.,
pp. 7-29.
Image reproduced by
permission of Daojian Cheng
from *Ind. Chem. Mater.*,
2024, 2, 7.

REVIEWS

7

Progress and perspectives of Pd-based catalysts for direct synthesis of hydrogen peroxide

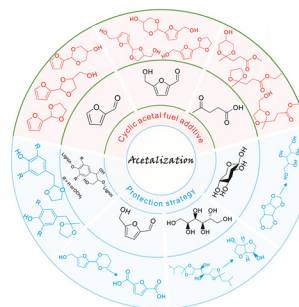
Jiamei Wei, Shen Wang, Jianguo Wu, Dong Cao*
and Daojian Cheng*



30

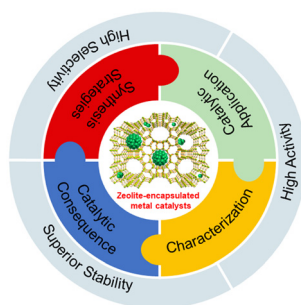
Acetalization strategy in biomass valorization: a review

Jian He, Qian Qiang, Li Bai, Wentao Su, Huazhong Yu,
Shima Liu and Changzhi Li*



REVIEWS

57

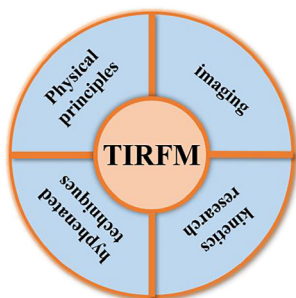


Recent advances in the synthesis, characterization, and catalytic consequence of metal species confined within zeolite for hydrogen-related reactions

Meng Liu, Caixia Miao and Zhijie Wu*

MINI REVIEW

85

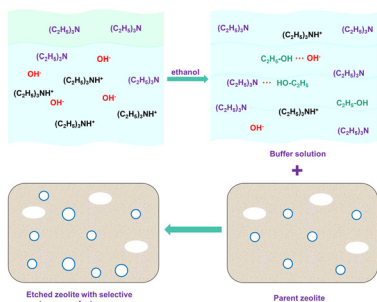


Practical applications of total internal reflection fluorescence microscopy for nanocatalysis

Chengyang Yan, Xuanhao Mei, Xue Gong* and Weilin Xu*

COMMUNICATION

100

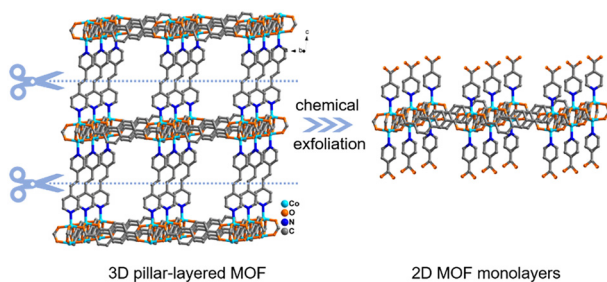


A route to selectively increase the microporous structure of zeolite and its optimization in the ethanol to butadiene reaction

Tian Ye, Yuhao Bai, Kewei Wang, Weijie Hu,* Meng Zhang* and Li-Ming Wu

PAPERS

110



Ozonolysis-oxidation-driven top-down strategy for the target preparation of ultrathin 2D metal-organic framework monolayers

Baoliu Zhuo, Aidong Tan, Zhipeng Xiang,* Jinhua Piao, Wenhao Zheng, Kai Wan, Zhenxing Liang* and Zhiyong Fu*

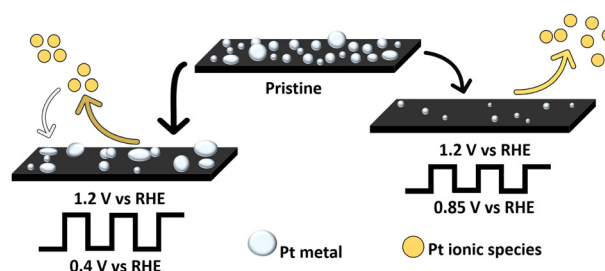


PAPERS

118

Electrochemical recovery of Pt/C electrocatalyst: optimization of the potential range on the leaching process and application to an aged MEA

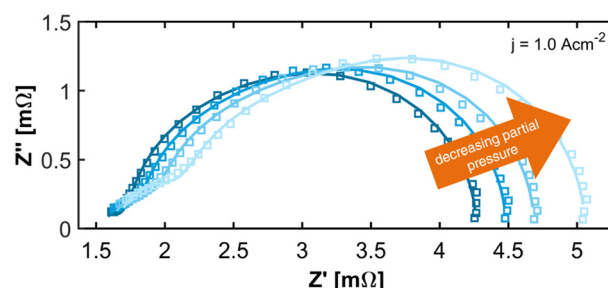
François Guillet, Marian Chatenet, Alex Paul, Lenka Svecova* and Laetitia Dubau*



132

Electrochemical impedance spectroscopy of PEM fuel cells at low hydrogen partial pressures: efficient cell tests for mass production

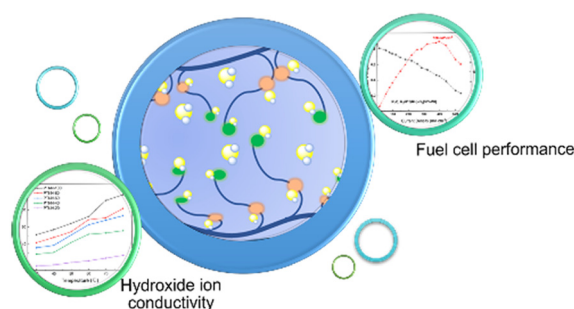
Felix Haimerl,* Sunil Kumar, Michael Heere and Aliaksandr S. Bandarenka*



141

Synergistic functionalization of poly(*p*-terphenyl isatin) anion exchange membrane with quaternary ammonium and piperidine cations for fuel cells

Yiman Gu, Yanchao Zhang, Zhe Wang,* Di Liu, Yan Wang, Tianming Dong, Song Wang, Zhanyu Li, Jingyi Wu and Yijia Lei



154

Preparation of carbon nanotube-reinforced polyethylene nanocomposites with better anti-scaling and corrosion-resistant properties

Binbin Sun, Qian Liu, Yuxin Gao, Liang Han, Rui Zhang, Chenxi Zhang and Xilai Jia*

