



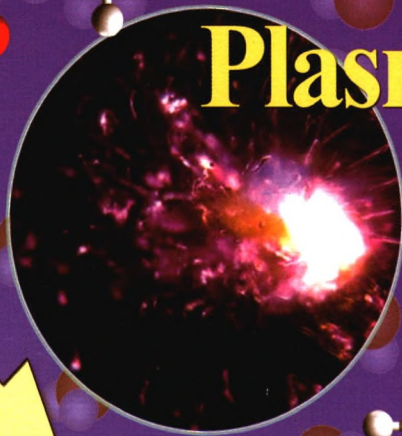
Engineering
Transactions of CAE



ISSN 2095-0179
Volume 14 · Number 4
August 2020



Frontiers of Chemical Science and Engineering



Plasma

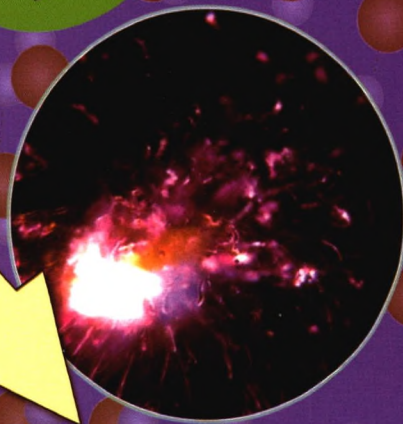


HO_2^\cdot

OH^\cdot

H^\cdot

e^-_{aq}



Higher Education Press



Springer

万方数据

REVIEW ARTICLE

- 471** Selective catalytic reduction of NO_x with ethanol and other C_{1-4} oxygenates over $\text{Ag}/\text{Al}_2\text{O}_3$ catalysts: A review
Pavlo I. Kyriienko

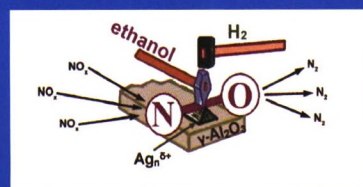
- 492** Recent development and application of thin-film thermoelectric cooler
Yuedong Yu, Wei Zhu, Xixia Kong, Yaling Wang, Pengcheng Zhu, Yuan Deng

- 504** A review on co-pyrolysis of coal and oil shale to produce coke
Xiangchun Liu, Ping Cui, Qiang Ling, Zhigang Zhao, Ruilun Xie

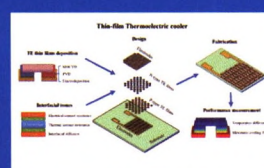
RESEARCH ARTICLE

- 513** Plasma-assisted oxidation of benzoic acid
Anna Khlyustova, Nikolay Sirotkin
- 522** Preparation and investigation of Pd doped Cu catalysts for selective hydrogenation of acetylene
Xinxiang Cao, Tengpeng Lyu, Wentao Xie, Arash Mirjalili, Adelaide Bradicich, Ricky Huitema, Ben W.-L. Jang, Jong K. Keum, Karren More, Changjun Liu, Xiaoliang Yan
- 534** Catalytic combustion of methane over a highly active and stable NiO/CeO_2 catalyst
Xiuhui Huang, Junfeng Li, Jun Wang, Zeqiu Li, Jiayin Xu
- 546** Catalytic oxidative desulfurization of gasoline using phosphotungstic acid supported on MWW zeolite
Hanlu Wang, Idris Jibrin, Xingye Zeng
- 561** Morphology selective construction of β -cyclodextrin functionalized $\text{Fe}_3\text{O}_4\text{-Bi}_2\text{WO}_6$ nanocomposite with superior adsorptivity and visible-light-driven catalytic activity
Maher Darwish, Ali Mohammadi, Navid Assi, Samer Abuzerr, Youssef Alahmad

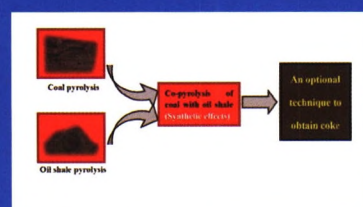
471



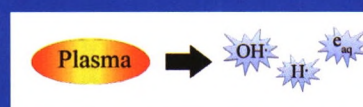
492



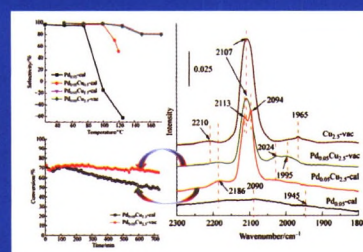
504



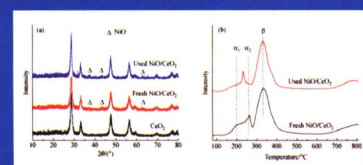
513



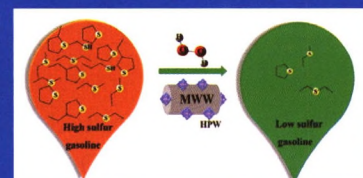
522



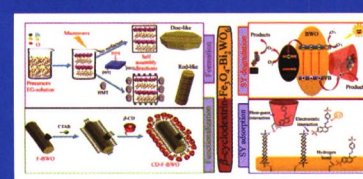
534



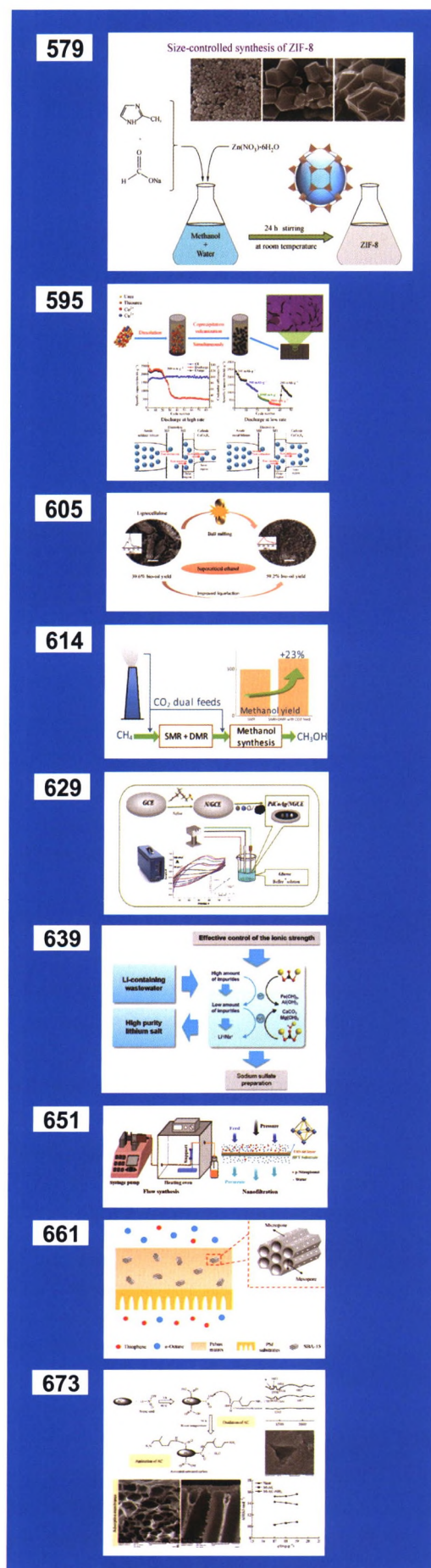
546



561



- 579** Parametric study on the mixed solvent synthesis of ZIF-8 nano- and micro-particles for CO adsorption: A response surface study
Alireza Hadi, Javad Karimi-Sabet, Abolfazl Dastbaz
- 595** One-step synthesis of recoverable CuCo_2S_4 anode material for high-performance Li-ion batteries
Tongzhou Lu, Yongzheng Zhang, Chun Cheng, Yanbin Wang, Yongming Zhu
- 605** Ball milling promoted direct liquefaction of lignocellulosic biomass in supercritical ethanol
Chunyan Yang, Xiaoliang Yuan, Xueting Wang, Kejing Wu, Yingying Liu, Changjun Liu, Houfang Lu, Bin Liang
- 614** An efficient technique for improving methanol yield using dual CO_2 feeds and dry methane reforming
Yang Su, Liping Lü, Weifeng Shen, Shun'an Wei
- 629** Electrochemical sensor investigation of carbon-supported PdCoAg multimetal catalysts using sugar-containing beverages
Firat Salman, Hilal C. Kazici, Hilal Kivrak
- 639** Investigation of solution chemistry to enable efficient lithium recovery from low-concentration lithium-containing wastewater
Chunlong Zhao, Mingming He, Hongbin Cao, Xiaohong Zheng, Wenfang Gao, Yong Sun, He Zhao, Dalong Liu, Yanling Zhang, Zhi Sun
- 651** Flow synthesis of a novel zirconium-based UiO-66 nanofiltration membrane and its performance in the removal of *p*-nitrophenol from water
Feichao Wu, Yanling Wang, Xiongfu Zhang
- 661** Enhanced desulfurization performance of hybrid membranes using embedded hierarchical porous SBA-15
Ye Zhang, Jian Song, Josue Quispe Mayta, Fusheng Pan, Xue Gao, Mei Li, Yimeng Song, Meidi Wang, Xingzhong Cao, Zhongyi Jiang
- 673** Preparation of adsorptive nanoporous membrane using powder activated carbon: Isotherm and thermodynamic studies
Majid Peyravi



Frontiers of Chemical Science and Engineering

Vol. 14 No. 4 August 2020

Cover story

(Anna Khlyustova, Nikolay Sirotkin, pp. 513–521)

Benzoic acid is used in textiles, plastics, chemicals, powders, catalyst, and for wood bleaching. The solutions of benzoic acid are corrosive, toxic and poisonous and they should be removed from water. Plasma in contact with liquids is one of the methods of advanced oxidation processes. Plasma treatment can lead to destruction as well as synthesis processes. It was proved in the experiments with benzoic acid. At the small time of treatment the mono- and dihydroxyderivatives of benzoic acid are formed. At the long time of treatment, benzoic acid is destroyed via formation of quinones.



Anna Khlyustova gained her Ph.D. at the Institute of Solution Chemistry of RAS (Russia) in 2004, working on Plasma in contact with liquids with Prof. Alexander I. Maksimov. After a post-doc position at the Universitat Politècnica de Catalunya (Barcelona, Spain), she returned to the Institute of Solution Chemistry. Her research interests include removing metal ions from wastewater, the detection of reactive species in the liquid phase, and the synthesis of nanostructured composites by plasma in contact with liquids.

Available online

<http://www.springerlink.com>

化学科学与工程前沿
CN 11-5981/TQ
邮发代号: 80-969

ISSN 2095-0179

