

# Korean Journal of Chemical Engineering

August 2022  
Volume 39, Number 8

Korean J. Chem. Eng. 39(8) 1975-2262  
Print ISSN 0256-1115  
Online ISSN 1975-7220

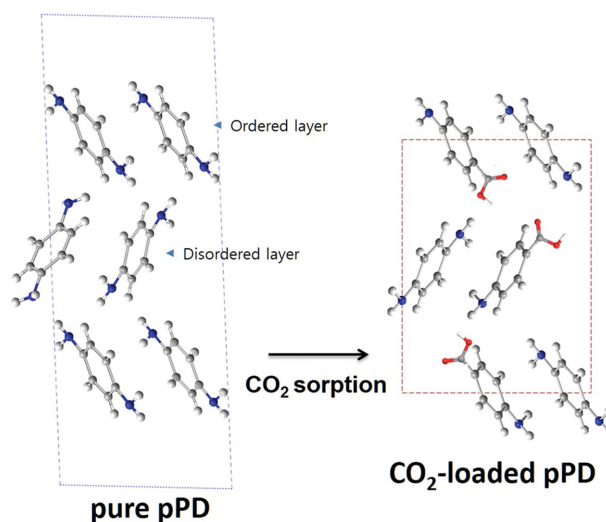
SPECIAL ISSUE: 18th INTERNATIONAL CONFERENCE ON CARBON DIOXIDE UTILIZATION (ICCDU 2021)

Leading Editor: Jae W. Lee  
Guest Editor: Dong-Yeun Koh  
Associate Editors: Doh Chang Lee,  
Minkee Choi

Scope of Topic: ICCDU covers a wide range of topics for  
1) thermal/catalytic, electrochemical, photochemical, and biological CO<sub>2</sub> conversion, 2) CO<sub>2</sub> capturing processes, and 3) economical, environmental and social aspects of CO<sub>2</sub> utilization.

## ARTICLE

Suk Lee, Yun-Ho Ahn, 1975 Sustainable building materials employing solid diamines as CO<sub>2</sub> sorbents  
and Dong-Yeun Koh



Fei Gao, Cailin Ji, Shougui Wang, 1981 Sterically hindered amine-functionalized MCM-41 composite for efficient carbon dioxide capture  
Weiwen Wang, Jipeng Dong,  
Changqing Guo, Yuwen Gao,  
and Guanghui Chen

Jae Hun Jeong, Yoori Kim, 1989 Modeling of a methanol synthesis process to utilize CO<sub>2</sub> in the exhaust gas from an engine plant  
Se-Young Oh, Myung-June Park,  
and Won Bo Lee

Seonghun Kim and Dong Hwi Jeong 1999 Techno-economic analysis of methanol and ammonia co-producing process using CO<sub>2</sub> from blast furnace gas

Yang Jia-xi, Gao Dan, Qi You-wei, 2010 Experimental study on CO<sub>2</sub> bubble dynamics under different solution viscosity and absorbent concentration  
and Zhang Heng

## REVIEW PAPER

HyunA Park, Ha-Yan Kim, 2020 Solubility enhancement of indigo dye through biochemical reduction and structural modification  
Sushma Chauhan,  
Pamidimarri DVN Sudheer,  
and Kwon-Young Choi

## PROCESS SYSTEMS ENGINEERING, PROCESS SAFETY

Namjin Jang, Ian Cho, Hyelynn Jeon, 2028 Optimization of the wood pellet supply during the continued increase of the renewable energy's proportion in the energy portfolio  
and Jamin Koo

## TRANSPORT PHENOMENA

- Weichuan Tan, Shanlin Du, Yunfei He, Guoqiang Lv, Wenhui Ma, Aimin Xing, and Jie Huang 2034 **Effects of opening design of gas distribution plate on fluidization of the synthesis process of organosilicon monomer**
- Guanghui Chen, Zhongcheng Zhang, Fei Gao, Jianlong Li, and Jipeng Dong 2044 **Experimental studies of bubble cutting in a lab-scale micro-structured bubble column with different liquid viscosity**
- Sida Wu, Weimin Yang, Jin Zhan, Hua Yan, Xianghao Kong, and Xiahua Zuo 2055 **The effects of under-ribs convection on enhanced drainage parallel flow field for proton exchange membrane fuel cell**
- Helin Wang, Xueye Chen, Jianqing Hu, and Xiangwei Zeng 2069 **Multi-objective optimization of microchannel heat sink with Cantor fractal structure based on Pareto genetic algorithm**

## CATALYSIS, REACTION ENGINEERING

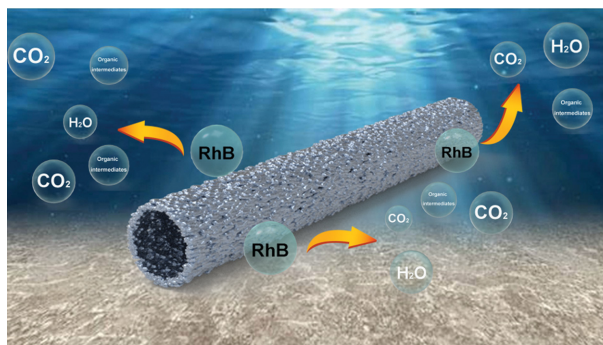
- Heon Lee, Young-Kwon Park, and Sang-Chul Jung 2080 **Preparation of N and Eu doped TiO<sub>2</sub> using plasma in liquid process and its photocatalytic degradation activity for diclofenac**

## ENERGY

- Ho Lim, Yumi Park, Yongwoon Lee, Youngjae Lee, Taeyoung Chae, Jaewook Lee, Won Yang, and Jaekwan Kim 2089 **Impact of ammonium sulfate and kaolin on ash deposition during co-firing of straw pellets and pulverized coal**
- Davoud Jahani, Amin Nazari, Mohammadreza Yazdan Panah, Nader Javani, and Fatemeh Moharaminezhad 2099 **An experimental study on polymer cathode materials in lead-acid battery energy storage systems**
- Min Ku Jeon and Sung-Wook Kim 2109 **Chlorination behavior of LiCoO<sub>2</sub>**

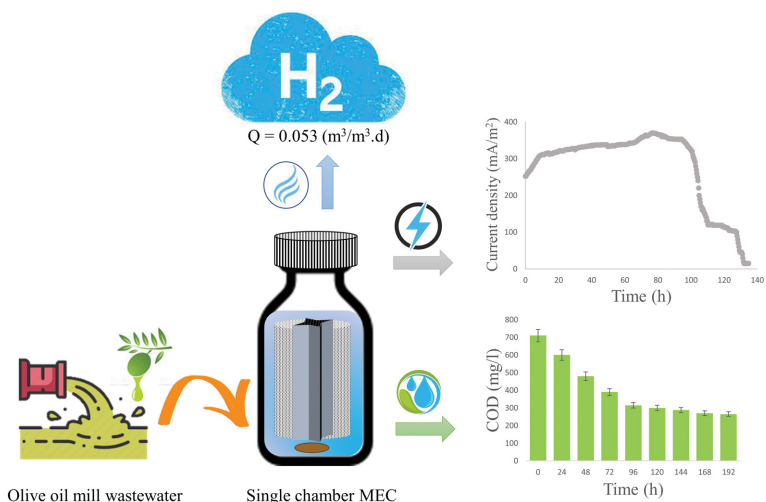
## ENVIRONMENTAL ENGINEERING

- Seung-Joon Yoo 2117 **Adsorption behavior of phosphate on 2-L ferrihydrite adsorbent predicted by partial charge model under varying pH conditions**
- Ze Luo, Jinlong Li, Guozhe Sui, Yan Zhuang, Dongxuan Guo, Rongping Xu, Shuang Liang, Hong Yao, Chao Wang, and Shijie Chen 2127 **Metal organic frameworks template-directed fabrication of rod-like hollow BiOCl<sub>x</sub>Br<sub>1-x</sub> with adjustable band gap for excellent photocatalytic activity under visible light**



- Ali Hosseinian Naeini, Mohammadreza Kalaei, Omid Moradi, Ramin Khajavi, and Majid Abdouss 2138 **Eco-friendly inorganic-organic bionanocomposite (Copper oxide - Carboxyl methyl cellulose - Guar gum): Preparation and effective removal of dye from aqueous solution**

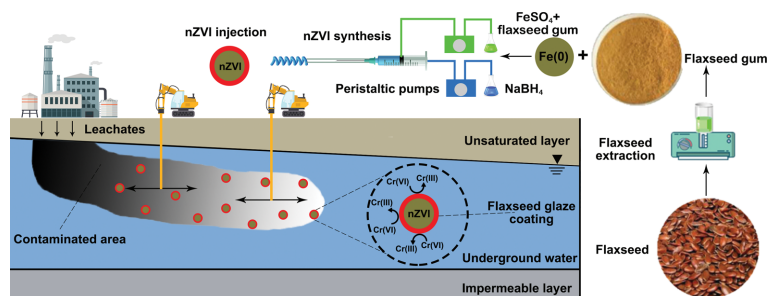
- Anis Askari, Milad Taherkhani, 2148 **Bioelectrochemical treatment of olive oil mill wastewater using an optimized microbial electrolysis cell to produce hydrogen**  
and Farzaneh Vahabzadeh



- Sang Hyun Kim, Hyun Joong Kim, 2156 **Biohydrogen production from glycerol by novel *Clostridium* sp. SH25 and its application to biohydrogen car operation**  
Shashi Kant Bhatia, Ranjit Gurav,  
Jong-Min Jeon, Jeong-Jun Yoon,  
Sang-Hyoun Kim, Jungoh Ahn,  
and Yung-Hun Yang

**MATERIALS (Organic, Inorganic, Electronic, Thin Films)**

- Kaleemullah Kalwar, Juqun Xi, 2165 **Coating of Au@Ag on electrospun cellulose nanofibers for wound healing and antibacterial activity**  
Chuanli Ren, and Ming Shen
- Keziban Atacan, Nuray Güy, 2172 **Preparation of gold decorated MoS<sub>2</sub>/NiO nanocomposite in the production of a new electrochemical sensor for ascorbic acid detection**  
and Mahmut Özacar
- Fan-Long Jin, Na Chu, Shan-Shan Yao, 2182 **Thermal and electrical conductivity improvement in epoxy resin with expanded graphite and silver plating**  
and Soo-Jin Park
- Ramya Ramkumar, Ganesh Dhakal, 2192 **Differential pulse voltammetric sensor for tetracycline using manganese tungstate nanowafers and functionalized carbon nanofiber modified electrode**  
Jae-Jin Shim, and Woo Kyoung Kim
- Lele Sun, Jin Yang, and Jun Yan 2201 **The structure and properties of water-based silicone blended phenolic resin and its application in oil filter paper-based materials**
- Dong Hyun Kim, Ki Hun Park, 2211 **Structure determination of clathrate hydrates formed from alcoholic guests with NH<sub>4</sub>F and H<sub>2</sub>O**  
Minjun Cha, and Ji-Ho Yoon
- Neman Izadi, Banafsheh Haji Ali, 2217 **The removal of Cr(VI) from aqueous and saturated porous media by nanoscale zero-valent iron stabilized with flaxseed gum extract: Synthesis by continuous flow injection method**  
Mohammad Sajjad Shahin,  
and Majid Baghdadi



POLYMER, INDUSTRIAL CHEMISTRY

---

- Lei He, Yong Dai, Zhe Wang, 2229 **A novel recyclable nano-adsorbent for enhanced oil recovery with efficient removal of Ca<sup>2+</sup> and Cr<sup>6+</sup> from oilfield wastewater**  
Lutao Yang, Luxia Zhang,  
Pengpeng Hu, Yu Tian, Hong Mo,  
Haomiao Zhu, and Jun Zhang
- Sabrina Zghal, Ilyes Jedidi, Marc Cretin, 2239 **Electroactive adsorbent composites of porous graphite carbon/carbon nanotube for highly efficient organic dye removal**  
Sophie Cerneaux, Didier Cot,  
Serge Lagerge, Stefano Deabate,  
and Makki Abdelmouleh
- Hamidreza Azimi, Davoud Jahani, 2252 **Experimental and numerical investigation of bubble nucleation and growth in supercritical CO<sub>2</sub>-blown poly(vinyl alcohol)**  
Sogand Aghamohammadi,  
and Mohammadreza Nofar