

## INVITED REVIEW PAPER

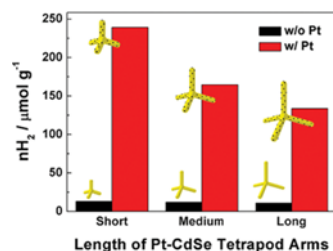
- Rakhi Singh, Hyune-Jea Lee, 2253 **Recent advances for serial processes of hazardous chemicals in fully integrated microfluidic systems**  
Ajay Kumar Singh, and Dong-Pyo Kim

## REVIEW PAPER

- Prakash Parthasarathy, Hang Seok Choi, 2268 **Influence of process conditions on product yield of waste tyre pyrolysis- A review**  
Hoon Chae Park, Jae Gyu Hwang,  
Ho Seong Yoo, Byeong-Kyu Lee,  
and Mukesh Upadhyay

## PAPID COMMUNICATION

- Younghun Sung, Jaehoon Lim, 2287 **Arm length dependency of Pt-decorated CdSe tetrapods on the performance of photocatalytic hydrogen generation**  
Jai Hyun Koh, Byoung Koun Min,  
Jeffrey Pyun, and Kookheon Char



Pt-decorated CdSe tetrapods with different arm length were prepared for photocatalytic hydrogen generation reaction. CdSe tetrapods with controlled wurtzite CdSe tetrapod arms were synthesized by continuous precursor injection (CPI) approach. Pt nanocrystals with extremely small size were directly decorated onto overall surface of CdSe tetrapods. Ligand-exchanged Pt-decorated CdSe tetrapods with different arm length were used as photocatalysts in photocatalytic hydrogen generation reaction in the presence of hole scavengers. Pt-decorated CdSe tetrapods with shorter arm length showed higher photocatalytic efficiency, which is assumed due to higher chance of charge separation for shorter CdSe tetrapods.

## PROCESS SYSTEMS ENGINEERING, PROCESS SAFETY

- ShuJiao Tong, ZongZhi Wu, 2291 **Study on risk assessment of chemical process based on an advanced layers of protection analysis method**  
RuJun Wang, and YingQuan Duo

## TRANSPORT PHENOMENA

- Sangkyun Koo 2298 **Large-scale calculation of hydrodynamic transport properties for random suspensions of hard-sphere particles**

## CATALYSIS, REACTION ENGINEERING

- Jinsuk Choi, ByungIn Choi, Jiho Lee, 2308 **Simulation-based optimization of gas condensate wells to mitigate the heavy hydrocarbon condensation through supercritical CO<sub>2</sub> injection**  
and Kun Sang Lee
- Hamed Rashidi, Ahmad Shariati, 2319 **A selective catalyst for methanol conversion into light olefin with a high propylene to ethylene ratio**  
Mohammad Reza Khosravi-Nikou,  
and Touba Hamoule
- Song Yi Moon, Brundabana Naik, 2325 **Photocatalytic activity of metal-decorated SiO<sub>2</sub>@TiO<sub>2</sub> hybrid photocatalysts under water splitting**  
and Jeong Young Park

## ENERGY

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- Wei Chen, Kalyan Annamalai, Jiafeng Sun, and Yuming Chen 2330 **Chemical kinetics of bean straw biofuel pyrolysis using maximum volatile release method**
- Yu Ri Lee, Yu Jin Lee, Wanwan Ma, and Kyung Ho Row 2337 **Determination of deep eutectic solvents as eco-friendly catalysts for biodiesel esterification from an alcohol-palmitic acid mixture**
- María Belén García-Jarana, Jezabel Sánchez-Oneto, Juan Ramón Portela, Lourdes Casas, Casimiro Mantell, and Enrique Martínez de la Ossa 2342 **Use of supercritical methanol/carbon dioxide mixtures for biodiesel production**
- Young-Min Kim, Tae Uk Han, ByeongAh Hwang, Boram Lee, Hyung Won Lee, Young-Kwon Park, and Seungdo Kim 2350 **Pyrolysis kinetics and product properties of softwoods, hardwoods, and the nut shell of softwood**

## ENVIRONMENTAL ENGINEERING

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- Ge Yan, Huichao Weng, Jiaqi Yang, Weichao Bao, Yuxing Gao, and Yingwu Yin 2359 **Hydrogen sulfide removal by copper sulfate circulation method**
- Abdelkader Hellal, Salah Chafaa, and Lasnoui Touafri 2366 **An eco-friendly procedure for the efficient synthesis of diethyl  $\alpha$ -aminophosphonates in aqueous media using natural acids as a catalyst**
- Mokkapati Ramya Prasanthi, Mokkapati Jayasravanthi, and Ratnakaram Venkata Nadh 2374 **Kinetic, thermodynamic and equilibrium studies on removal of hexavalent chromium from aqueous solutions using agro-waste biomaterials, casuarina equisetifolia L. and sorghum bicolor**
- Mohsen Moussavi and Sina Matavos-Aramyan 2384 **Chelate-modified fenton treatment of sulfidic spent caustic**
- Mun-Seon Song, Kalimuthu Vijayarangamuthu, EunJi Han, Ki-Joon Jeon, and Jeong-Won Seo 2392 **Enhancement of photocatalytic disinfection of surface modified rutile TiO<sub>2</sub> nanocatalyst**

## BIOTECHNOLOGY

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- Yuvraj, Ambarish Sharan Vidyarthi, and Jeeoot Singh 2396 **Enhancement of *Chlorella vulgaris* cell density: Shake flask and bench-top photobioreactor studies to identify and control limiting factors**
- Chaeyeon Son, Wooho Song, Dong Soo Hwang, Yong-Ki Hong, Jin Joo, and Yoo Seong Choi 2406 **Recombinant production and biochemical characterization of a hypothetical acidic shell matrix protein in *Escherichia coli* for the preparation of protein-based CaCO<sub>3</sub> biominerals**

## SEPARATION TECHNOLOGY, THERMODYNAMICS

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- Sungsu Jung and Myoung-Jin Kim 2411 **Optimal conditions for recovering boron from seawater using boron selective resins**
- Yun Jae Lee, Hyeyun Jeong, Hoey Kyung Park, Kyun Young Park, Tae Won Kang, Junggho Cho, and Dong-Sun Kim 2418 **Separation of triethoxysilane from tetraethoxysilane by batch distillation in a packed column**
- Hamed Tavasoli and Farzaneh Feyzi 2426 **Four phase hydrate equilibria of methane and carbon dioxide with heavy hydrate former compounds: Experimental measurements and thermodynamic modeling**
- Ahmad Akbari and Maryam Homayoonfal 2439 **Sulfonation and mixing with TiO<sub>2</sub> nanoparticles as two simultaneous solutions for reducing fouling of polysulfone loose nanofiltration membrane**
- Yang Zou, Hong Jiang, Huanxin Gao, and Rizhi Chen 2453 **Efficient recovery of ultrafine catalysts from oil/water/solid three-phase system by ceramic microfiltration membrane**
- Jun Wang, Hao Song, Xuzhao Yang, Wenyuan Zou, Yufei Chen, Shaochan Duan, and Jun Sun 2460 **Density, viscosity, refraction index and excess properties of binary mixtures of 1-(1-methylpiperidinium-1-yl) pentane-(1-pyridinium) bis(trifluoromethane) sulfonamide with acetonitrile at  $T=(293.15$  to  $323.15)$  K**

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

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- Sangmi Lee and KiRyong Ha 2469 **Spectroscopic analysis of methacrylate groups introduced on silica particle surfaces by the aza-Michael addition reaction**

## POLYMER, INDUSTRIAL CHEMISTRY

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- Lihua Zhou, Yu Niu, Jinbei Yang, 2478 **Reaction kinetics for synthesis of isopropyl myristate catalyzed by sulfated titania**  
Chenggang Li, Xiaoting Guo, Ling Li,  
and Ting Qiu
- Hyungmin Lee, Dong-seob Jeong, 2486 **Formation and characterization of CuInSe<sub>2</sub> thin films from binary CuSe and In<sub>2</sub>Se<sub>3</sub>**  
Taehong Mun, Babu Pejjai, **nanocrystal-ink spray**  
Vasudeva Reddy Minnam Reddy,  
Timothy James Anderson,  
and Chinho Park

## FLUIDIZATION, PARTICLE TECHNOLOGY

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- Salah Mohamed El-Bahy 2492 **Synthesis and characterization of a new iminodiacetate chelating resin for removal**  
and Zeinhom Mohamed El-Bahy **of toxic heavy metal ions from aqueous solution by batch and fixed bed column**  
**methods**
- Syed Shatir Asghrar Syed-Hassan 2502 **Optimization of the preparation of activated carbon from palm kernel shell for**  
and Mohd Saufi Md Zaini **methane adsorption using Taguchi orthogonal array design**