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Research highlight**Factors affecting the direct mineralization of CO₂ with olivine**

Soonchul Kwon, Maohong Fan, Herbert F. M. DaCosta, Armistead G. Russell 1233

The research is focused on investigation of factors affecting the CO₂ carbonation with olivine. Initial CO₂ concentration, residence time, temperature, and water concentration affect the CO₂ carbonation capacity of olivine.

Aquatic environment**Solubilization and degradation of perchloroethylene (PCE) in cationic and nonionic surfactant solutions**

Sivaram Harendra, Cumaraswamy Vipulanandan 1240

This work is focused on the degradation of solubilized high concentration PCE using Fe/Ni particles in a short time period.

Temporal and spatial variations of low-molecular-weight organic acids in Dianchi Lake, China

Min Xiao, Fengchang Wu, Runyu Zhang, Liying Wang, Xinqing Li, Rongsheng Huang 1249

LMWOAs in Dianchi Lake exhibited different spatiotemporal distributions at P1 and P2 where they were influenced by microbial activity and by metabolic mechanism of massive algae, respectively.

Enhancement of thermophilic anaerobic digestion of thickened waste activated sludge by combined microwave and alkaline pretreatment

Yongzhi Chi, Yuyou Li, Xuening Fei, Shaopo Wang, Hongying Yuan 1257

Microwave and alkaline pretreatment has the potential to increase the biodegradability of thickened waste activated sludge in full-scale, continuous-flow thermophilic digestion digesters.

Physical characteristics of conditioned anaerobic digested sludge – A fractal, transient and dynamic rheological viewpoint

Yili Wang, Emilie Dieude-Fauvel, Steven K Dentel 1266

Mostly conditioning was proved to be able to enhance the yield stress, elastic, and fractal properties of biosolids for anaerobic digested sludge.

Interspecific competition effects on phosphorus accumulation by *Hydrilla verticillata* and *Vallisneria natans*

Xiufeng Zhang, Zhengwen Liu 1274

H. verticillata has a competitive advantage over *V. natans*, when the two species are grown in competition, and is able to accumulate a greater quantity of phosphorus.

Removal of ammonium-N from ammonium-rich sewage using an immobilized *Bacillus subtilis* AYC bioreactor system

Jingjing Xiao, Changxiong Zhu, Dongyuan Sun, Ping Guo, Yunlong Tian 1279

It has been proved that the immobilized *Bacillus subtilis* AYC beads had a high efficiency for ammonium nitrogen removal.

Humic acid and metal ions accelerating the dechlorination of 4-chlorobiphenyl by nanoscale zero-valent iron

Yu Wang, Dongmei Zhou, Yujun Wang, Xiangdong Zhu, Shengyang Jin 1286

To better understand the dechlorination mechanisms of PCBs in real environment, we investigated the effects of pH, humic acid, and three metals ions on the 4-CIBP dechlorination by using nanoscale zero-valent iron.

Preparation and characterization of a lipid adsorption material and its atrazine removal performance

Zhiqiang Chen, Qinxue Wen, Jiexiang Lian, Nanqi Ren 1293

A novel lipid adsorption material (LAM) was synthesized to remove atrazine from aqueous solution; a 69.3% removal efficiency was achieved within 6–12 hr contact time.

Effect of water matrices on removal of veterinary pharmaceuticals by nanofiltration and reverse osmosis membranes

Davor Dolar, Ana Vuković, Danijela Ašperger, Krešimir Košutić 1299

Efficiencies of nanofiltration and reverse osmosis membranes were investigated on the removal of five selected veterinary pharmaceuticals in different water matrices (Milli-Q, model, tap water, and real pharmaceuticals wastewater).

Sedimentary record of polycyclic aromatic hydrocarbons in Lake Erhai, Southwest China

Jiayang Guo, Zhang Liang, Haiqing Liao, Zhi Tang, Xiaoli Zhao, Fengchang Wu 1308

The primary sources of polycyclic aromatic hydrocarbons in sediment from Lake Erhai were low- and moderate temperature combustion processes, and a change of PAHs sources to high-temperature combustion was found.

Atmospheric environment

Characteristics of ozone vertical profile observed in the boundary layer around Beijing in autumn

Zhiqiang Ma, Xiaoling Zhang, Jing Xu, Xiujuan Zhao, Wei Meng 1316

Ozone accumulated in the residual layer played an important role in the next day's surface ozone maximum in Beijing.

Performance of biotrickling filters packed with structured or cubic polyurethane sponges for VOC removal

Chunping Yang, Guanlong Yu, Guangming Zeng, Haining Yang, Fayuan Chen, Congying Jin 1325

This study investigates the performance of biotrickling filters packed with structured or cubic sponge media at various conditions, and shows that the biofilters could remove toluene from waste gas streams effectively.

Comprehensive characterization of ambient nanoparticles collected near an industrial science park: Particle size distributions and relationships with environmental factors

Yuhjeen Huang, Lingyen Hsu, Yunghsun Chang 1334

We studied the characteristics of ambient particles and their relationships with various environmental factors, including gaseous pollutants (CH₄, non-methane hydrocarbons (NMHC), total hydrocarbons (THC), NO_x, CO, SO₂), meteorological parameters (humidity, temperature), and time (day/night, workday/weekend).

Pollution characteristics of organic and elemental carbon in PM_{2.5} in Xiamen, China

Fuwang Zhang, Jinping Zhao, Jinsheng Chen, Ya Xu, Lingling Xu 1342

The abundances, sources, spatial and seasonal variations, distributions of carbonaceous aerosols in PM_{2.5}, were systematically studied at different environmental sites (suburban, urban and industrial) in Xiamen during 2009–2010.

Chemical characteristics of precipitation at Nanping Mangdang Mountain in eastern China during spring

Yanli Cheng, Ying Liu, Mingqun Huo, Qian Sun, Huixiang Wang, Zhongming Chen, Yuhua Bai 1350

This article demonstrated that the precipitation with acidic characteristics at Nanping Mangdang Mountain and acidity were combined result of acidic and neutralizing ions in rainwater.

Terrestrial environment

Environmental pollution by persistent toxic substances and health risk in an industrial area of China

Jing Li, Yonglong Lu, Yajuan Shi, Tieyu Wang, Guang Wang, Wei Luo, Wentao Jiao, Chunli Chen, Feng Yan 1359

This article aims at determining pollution characteristics of persistent toxic substances (PTS) in an industrial area in China to unravel the relationship between soil pollution by PTS and human health.

Bioaccumulation and translocation of cadmium in cole (*Brassica campestris* L.) and celery (*Apium graveolens*) grown in the polluted oasis soil, Northwest of China

Yiming Yang, Zhongren Nan, Zhuangjun Zhao, Zhaowei Wang, Shengli Wang, Xia Wang, Wangqiang Jin, Cuicui Zhao 1368

The experimental results demonstrated that cole and celery grown in the Cd-polluted oasis soil have highly potential risk to human health.

Effects of spatial resolution of remotely sensed data on estimating urban impervious surfaces

Weifeng Li, Zhiyun Ouyang, Weiqi Zhou, Qiuwen Chen ... 1375

This study developed the object based multiple regression models to estimate the surface imperiousness within dense urban areas, especially focusing on the comparison of the impacts of multi-resolution images.

Environmental biology

Biodegradation of Crystal Violet by *Agrobacterium radiobacter*

G. K. Parshetti, S. G. Parshetti, A. A. Telke, D. C. Kalyani, R. A. Doong, S. P. Govindwar 1384

Overall findings in this manuscript suggested the ability of *Agrobacterium radiobacter* for the decolorization of triphenylmethene dye and ensured the eco-friendly degradation of Crystal Violet.

Efficacy of natural biocide on control of microbial induced corrosion in oil pipelines mediated by *Desulfovibrio vulgaris* and *Desulfovibrio gigas*

Meeta Lavania, Priyangshu M. Sarma, Ajoy K. Mandal, Simrita Cheema, Banwari Lal 1394

It is found in this study that the cow urine mediated control of microbially induced corrosion, and this is indicative of its potential as a viable substitute of toxic biocides.

Municipal solid waste and green chemistry

Effects of mixture ratio on anaerobic co-digestion with fruit and vegetable waste and food waste of China

Jia Lin, Jiane Zuo, Lili Gan, Peng Li, Fenglin Liu, Kaijun Wang, Lei Chen, Hainan Gan 1403

The co-digestion with fruit and vegetable waste as well as food waste could not only improve the stability of anaerobic process, but also achieve high biogas production and organic matter removal efficiency.

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