

FESE's Best Papers of 2011

Frontiers of Environmental Science & Engineering (FESE), formerly known as *Frontiers of Environmental Science & Engineering in China*, is pleased to announce the best paper award of 2011. As a young academic journal covering all major fields of environment research, it had a rapid development, not only changing from quarterly to bi-monthly, but also the improvement of paper quality and the increase in manuscript submission. In order to acknowledge the past contribution and encourage more submission from environmental scholars, *FESE* editorial board chose three distinguished papers from all published papers of 2011 for their outstanding achievement in the theory exploration and practical technology of environmental science and engineering. We hope these papers representing the highest level of *FESE* can bring more attention and promote the innovation in the environmental research field.

Tonggang SHEN, Hanchang SHI, Huiming SHI, He JING, Huilei XIONG. Feedforward control for nitrogen removal in a pilot-scale anaerobic-anoxic-oxic plant for municipal wastewater treatment. *Front. Environ. Sci. Engin. China*, 2011, 5(1): 130–139. DOI: 10.1007/s11783-010-0266-2

It is of significant to improve the efficiency of nitrogen removal with lower energy consumption. In this paper, the feedforward control has been carried out on a pilot-scale anaerobic-anoxic-oxic plant for the treatment of municipal wastewater. Simple feedforward control for aeration and internal recycle could improve the nitrogen removal efficiency and reduce the operation cost. Such an approach is very useful in providing practical directions for wastewater treatment plant.

Xiaoliang WANG, Curtis ROBBINS, S. Kent HOEKMAN, Judith C. CHOW, John G. WATSON, Dennis SCHUETZLE. Dilution sampling and analysis of particulate matter in biomass-derived syngas. *Front. Environ. Sci. Engin. China*, 2011, 5(3): 320–330. DOI: 10.1007/s11783-011-0347-x

Understanding the distribution of particulate in the atmospheric environment is crucial to the control of particulate matters in air and the assessment of health risk especially for the ultrafine particulates. This work developed a dilution sampling process to study the distribution of fine particulates in the syngas at two gasification plants. The dilute sampling method proves to be superior to conventional filter/impinge syngas sampling protocols, which is particularly useful for low concentration particulate measurements.

Zhanfeng DONG, Jinnan WANG. Quantitative standard of eco-compensation for the water source area in the middle route of the South-to-North Water Transfer Project in China. *Front. Environ. Sci. Engin. China*, 2011, 5(3): 459–473. DOI: 10.1007/s11783-010-0288-9

How to set the eco-compensation standard for the water source area is the key problem for the Middle Route Project of the South-to-North Water Transfer Scheme in China. This study established an analytic framework of eco-compensation standard for the protection of the water source area based on the opportunity cost method and the deviation square method. This original research has significant theoretical and practical values for the large scale projects.