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Education:

PhD: University of Illinois at Urbana-Champaign MS: Kansas State University BS: East China University of Science and Technology

General Areas of Expertise:

Biological treatment processes; Water and wastewater quality; Environmental microbiology; Resource recovery; Renewable energy

Short Bio:

Dr. Qiang He's research is at the interface of environmental engineering, microbiology, and chemistry, which is supported by his training in chemical engineering, environmental microbiology, and functional genomics. He aims to solve problems ranging from stormwater management, water quality, environmental remediation, to resource recovery with interdisciplinary tools and sustainability perspectives.

Five Representative Publications:

- 1. Wu, L., Y. Yang, S. Chen, Z.J. Shi, M. Zhao, Z. Zhu, S. Yang, Y. Qu, Q. Ma, Z. He, J. Zhou, and Q. He. 2017. Microbial functional trait of rRNA operon copy numbers increases with organic levels in anaerobic digesters. ISME J. 11(12): 2874-2876.
- 2. Chen, S., H. Cheng, J. Liu, T. C. Hazen, V. Huang, and Q. He. 2017. Unexpected competitiveness of Methanosaeta populations at elevated acetate concentrations in methanogenic treatment of animal wastewater. Appl. Microbiol. Biotechnol. 101(4): 1729-1738.
- 3. Wu, L., Y. Yang, S. Chen, M. Zhao, Z. Zhu, S. Yang, Y. Qu, Q. Ma, Z. He, J. Zhou, and Q. He. 2016. Long-term successional dynamics of microbial association networks in anaerobic digestion processes. Water Res. 104: 1-10.
- 4. Nie, Q., W. Hu, T. Ai, B. Huang, X. Shu, and Q. He. 2016. Strength properties of geopolymers derived from original and desulfurized red mud cured at ambient temperature. Constr. Build. Mater. 125: 905-911.
- 5. Wyckoff, K. N., S. Chen, A. J. Steinman, and Q. He. 2017. Impact of roadway stormwater runoff on microbial contamination in the receiving stream. J. Environ. Qual. 46(5): 1065-1071.

FEWSTERN Symposium 2017 Presentation Title and Abstract:

Integrated Application of Bauxite Residue in the Control of Air and Water Pollution

Abstract:

Bauxite residue as a toxic waste stream generated from aluminum production has become a major environmental challenge, particularly in China as the largest producer of aluminum worldwide. Reuse of bauxite residue is highly desirable for the sustainable management of this waste stream. In this study, the integrated reuse of bauxite residue was explored with the potential for flue gas desulfurization followed by the application for nutrient removal in contaminated aquatic environments, which could be attributed to the iron oxide-rich mineralogy of bauxite residue. Findings in this study suggest that bauxite residue could be effectively reused for the control of air and water pollution.