



Contaminants of Emerging Concern in the Aquatic Environment: “Unexpected” Sources and Generation of Biologically-active Transformation Products During Wastewater Treatment

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ABSTRACT

Contaminants of emerging concern (CECs), such as pharmaceuticals and personal care products, are present in the aquatic environment and represent potential threats to both human and ecological health. The first part of this talk will focus on the occurrence of CECs in an urban watershed that is not impacted by expected sources, such as wastewater treatment plants or animal feeding operations. We hypothesize that CECs are introduced to this watershed through leaking sewers. Given the detection of CECs in the aquatic environment, a need exists to improve CEC removal during wastewater treatment. The second part this talk will focus on the transformation of antibiotics during UV-based treatment. Most antibiotics derive from a baseline pharmacophore substituted with different functional groups. We hypothesized that direct photolysis of antibiotics results in changes at the functional groups, and not the pharmacophore, effectively resulting in antibiotic-to-antibiotic transformation. These findings highlight the need for continued investigation both upstream and downstream of wastewater treatment plants to fully understand the occurrence, fate, transport, and toxicity of CECs in the aquatic environment.

Date: 7 January 2019 (Monday)

Time: 2:30-3:30pm

Venue: Z407, Block Z,
The Hong Kong Polytechnic University,
181 Chatham Road South,
Hung Hom, Kowloon, Hong Kong

SPEAKER'S BIOGRAPHY

Dr. Lee Blaney received his BS and MS degrees in Environmental Engineering from Lehigh University. In 2011, he finished his PhD at the University of Texas at Austin and started as an Assistant Professor in the Department of Chemical, Biochemical, and Environmental Engineering at the University of Maryland Baltimore County (UMBC). He was promoted to Associate Professor in 2017. At UMBC, Lee has established a research program focused on (1) the occurrence, fate, transport, and toxicity of contaminants of emerging concern in natural and engineered systems and (2) development of innovative technologies for recovery of critical resources from agricultural and municipal waste. He is the recipient of the Maryland Outstanding Young Engineer Award, the National Science Foundation Career Award, and the Association of Environmental Engineering and Science Professors Award for Outstanding Teaching in Environmental Engineering and Science. Lee is currently on sabbatical as a Visiting Professor at Tsinghua University.

*** All Interested Are Welcome ***

For further information, please contact Prof. X.D. Li at Tel. 2766-6041 or xiang-dong.li@polyu.edu.hk.
Certificates of attendance will be provided to participants if they attend the whole lecture.