



Department of Civil and Environmental Engineering Seminar

Environmental Sustainability of Lithium Ion Battery for Electric Vehicles

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Friday January 17, 2020, 12:45-1:45PM @ Bingham 240

Lunch and discussion at 12:00PM at Bingham 102 (Vose Room)

Abstract

Electric vehicles (EVs) are widely recognized as clean alternative to conventional vehicles for reducing greenhouse gas emissions from ground transportation. However, the lithium ion batteries (LIBs) used in current EVs are concerned on their environmental impacts. This seminar will report our recent research results on environmental sustainability studies of lithium ion batteries for electric vehicles. A comprehensive method for modeling battery life will be presented based on the average driving conditions of a mid-size EV in each state of U.S. We also developed life cycle assessment (LCA) methods to study the environmental impacts of next generation lithium ion batteries, to support their sustainable development in future.

About the speaker:



Dr Yuan is currently a Professor in Department of Mechanical and Aerospace Engineering at Case Western Reserve University. He is the Director of the Laboratory for Sustainable Energy Manufacturing and Director of the DOE Industrial Assessment Center at CWRU. His research activities are focused on the lithium battery for electric vehicles. So far he has published over 160 research papers. His research work has been recognized by many national and international awards. In 2017 his research won First Place in the U.S. RAMP National Research Competition on Sustainable Manufacturing. In 2018, he is the recipient of the American Society of Mechanical Engineers' Chao and Trigger Young Manufacturing Engineer Award. He received the National Science Foundation Career Award in 2014, The Gustav Olling Outstanding Young Manufacturing Engineer Award from the Society of Manufacturing Engineers (SME) in 2013, and the LEO Best Paper Award from the 2013 CIRP International Conference on Life Cycle Engineering. He obtained his Ph.D. in Mechanical Engineering from University of California, Berkeley in 2009. He is a Fellow of American Society of Mechanical Engineers..