PURDUE UNIVERSITY | Environmental and Ecological Engineering

EEE Research Seminar

Date: February 8, 2022 at 10:30 AM
Location: via Zoom

https://purdue-edu.zoom.us/j/93037750914

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Advancing Sustainability Through Powered Infrastructure for Roadway Electrification

Abstract

This seminar will provide an overview of research projects housed within the ASPIRE Engineering Research Center (Regan Zane, Utah State, PI and Nadia Gkritza, Purdue Campus PI). Electric vehicles (EVs) offer tremendous opportunity to both reduce emissions and stabilize and reduce cost. However, many questions persist on the viability of electric vehicles and the charging demands at scale. The NSF Engineering Research Center for Advancing Sustainability through Powered Infrastructure for Roadway Electrification (ASPIRE) takes a holistic approach to eliminating range and charging as barriers for electrifying all vehicle classes, from passenger cars to heavy duty trucks. ASPIRE's approach is to pursue innovative wireless and plug-in charging and infrastructure technology solutions that bring the power to the vehicles—where they drive and park. The result will be smaller and longer lasting batteries on vehicles, effectively unlimited EV range, and a ubiquitous charging experience. EV users will no longer be concerned with when, where, or how they will charge, and EVs will be less expensive to purchase and operate than their gasoline and diesel counterparts. I will focus my remarks on our integrated systems-of-systems approach to co-optimize transportation networks, electric utility systems, end-user experience, data integration/optimization, workforce development infrastructure, and social equity.

Bio

Donna Riley is Kamyar Haghighi Head and Professor in the School of Engineering Education at Purdue University. Her research focuses on integrating critical liberal education capacities in the formation of engineering professionals. She is the author of Engineering and Social Justice (Morgan & Claypool, 2008). Riley earned a B.S.E. in chemical engineering from Princeton and a Ph.D. from Carnegie Mellon in Engineering and Public Policy. She is a fellow of the American Society for Engineering Education.