Title: Next Generation Mobility Systems: Implications on Energy and Social Aspects
Format: Half day
Organizers:

1. Andreas Malikopoulos, Professor, University of Delaware
2. Dimitris Assanis, Researcher, University of Delaware
3. Liuhui Zhao, Researcher, University of Delaware

Abstract: Addressing our pressing challenges related to the increasing demand for energy we need to make fundamental transformations in how we use and access transportation. The purpose of a transportation system is not mobility but rather accessibility to goods, services, and activities. Mobility is only an unintended outcome of our accessibility needs and may be viewed as an intermediate service (the means) on the way to what we really need: access. A mobility system involves the interactions of three heterogeneous features: 1) transportation systems and modes, e.g., connected and automated vehicles (CAVs), electric vehicles, public transit, and shared mobility, 2) social behavior of drivers and travelers interacting with these systems, and 3) institutional behavior of organized units such as regulators that govern the transportation systems through policies. Current methods design and analyze mobility, which can be referred to as a sociotechnical system, with each of these features in isolation resulting in lack of the understanding of their interdependence, and thus, unbalancing of travel demand and given capacity of the transportation network. The latter has significant implications on traffic congestion, energy consumption, travel delays, safety and eventually, frustration that directly impacts the quality of life. Although several research efforts have aimed at enhancing our understanding of improving next generation mobility systems, it appears that these systems are considered in isolation without deliberating on human perception and policies. This can lead to solutions that demonstrate a selfish rather than system-centric or "socially" optimal behavior. The workshop intends to stimulate a discussion on how we can develop an energy-efficient mobility system from a sociotechnical systems perspective.

List of topics: The workshop will cover the following topics:

(1) Implications on energy of next generation mobility systems;
(2) Negative effects of improving the efficiency of transportation systems by exploring whether household activities and travel behavior might increase, if the efficiency of the transportation systems improves; and
(3) Social attitudes, e.g., human emotional responses, with respect to CAVs, electric vehicles, shared mobility, public transit, and the policies that can help us increase the public's level of acceptance of these transportation systems.

Tentative list of presenters:

1:00pm -2:00pm Keynote Speaker – **Luc Vincent**, VP, Lyft
2:00pm -2:30pm **Ken Laverteaux**, Toyota
2:30pm -3:00pm **Phil Barnes**, Institute of Public Policy, University of Delaware

3:00pm -3:15pm Break

3:15pm -3:45pm **Chris Atkinson**, Program Director, ARPAE NEXTCAR
3:45pm -4:15pm **Rachael Nealer**, Program Manager, DOE, Vehicle Technologies Office
4:15pm -4:45pm **Cynthia Chen**, Program Director, NSF, Civil Infrastructure Systems
4:45pm -5:15pm **Susan Shaheen**, Faculty, UC Berkeley