

Eco-drive at Intersections with Connected, Cooperative and Automated Vehicle Technology

Organizers:

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Scope and goal:

Today's road traffic systems are facing challenges in cutting down congestion and contributing to environmental sustainability. Especially the urban environment is suffering from congested traffic and an inherent high level of emissions. Eco-driving systems aim at assisting drivers for vehicle operations can help improve fuel economy and consequently reduce emissions. The potential of eco-drive strategies for coping with these issues can be enlarged if combined with cooperative and connected systems based on communication technologies.

Along these opportunities come a few challenges for authorities, industry, as well as scientific community. In terms of system design and control, current eco-drive systems need to be refined or even redesigned to better function under uncertainties in demand and mixed traffic conditions and to better cooperate with traffic signal control systems. From the performance assessment perspective, traffic flow models and simulation tools have been widely used to verify the performance of eco-drive systems, in particular taking into account the increasing trends in vehicle connectivity and automation. However, the validity of these models needs to be re-examined against field tests.

This workshop focuses on eco-drive systems using connected, cooperative and automated vehicle technology, applied in a road network with intersections. The main goal is to share the state of the art in design, models, algorithms, simulation and field test of eco-drive systems, identify challenges and research needs, and encourage cross-disciplinary cooperation.

Topics of interest:

- Eco-speed advisory systems
- Eco-cruise control systems
- Eco-Adaptive Cruise Control (eco-ACC) systems
- Eco-drive for alternative fuel vehicles (AFVs) including HEV/EV/FCEV
- Eco-drive for platoons and Cooperative ACC
- Integrated design of eco-drive and signal control
- Modelling and simulation tools for eco-drive
- Synergies/trade-offs among safety, mobility/efficiency and environment impacts of eco-drive at intersections
- New insights from field tests

Duration: half day