Special Session title
2nd session on Modeling, Simulation and Control for mass transit

Special Session proposer(s)
Florian Sven Schanzenbacher*, Jing Xun, Nadir Farhi, Tao Tang

Abstract
Ongoing urbanization leads to the creation of metropoles, whose public transportation systems have to cope with a high passenger travel demand. Recently, many innovative transportation solutions have been proposed, which, however, often focus on individual mobility. Mass transit systems have a high capacity and it is therefore important to develop them further in the future. Mass transit systems are highly depended on the passenger travel demand and small perturbations propagate quickly through line. There is a need for modeling, simulating and controlling mass transit systems.

We encourage researchers working in the field of Modeling, Simulation and Control for mass transit to join us! This 2nd Special Session is dedicated to create an international community developing cities' mass transportation of the future. We want this community to be a platform to exchange about our latest research and results. This session has first been held at ITSC 2019 in Auckland and was a great success: More than 30 submissions have been received of which 45% have been accepted – enough for two Special Sessions. This 2nd special session is supposed to go on over the next years and strengthen the international exchange on the topic.

Keywords
- Theory and Models for Optimization and Control
- Simulation and Modeling
- Public Transportation Management

Topics of interest
- Traffic modeling, simulation and control including train and passenger flow dynamics.
- Analysis of the traffic phases of mass transit systems and their fundamental diagrams.
- Traffic management for planning, optimization and real-time control.
- Data-based traffic modeling approaches for metro and mass transit systems.
- Models for passenger travel demand prediction, for example big data approaches based on the analysis of smart card validations.
- Human factor modeling in the context of mass transit systems.
- Learning based approaches, for the prediction of the passenger travel demand, the traffic state and for traffic control.