Applications and development of the Modeling-Simulation-Optimization technology to green vehicles and transportation

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Beyond doubt mathematical modeling, simulation and optimization (MSO) methods for problems of industry and society has been forming recently one of the key technologies in research, innovation and daily routine design as well. In this lecture we provide some notes of applications of the MSO technology to electric motors and dispersion simulation and optimization of urban traffic emitted pollutions under real geometry constraints. Of course, we shall deal with validation issues of the models and simulations and discuss possibilities of optimization as well.

Development of the mathematical methods behind the MSO tools is a must to have modern technology; in this lecture we show illustrative examples for how the theory and methods of numerical analysis and optimization contribute in control and its application to vehicle dynamics as well.