Abstract:

Shockwaves are a boundary that shows discontinuity in flow-density domain. The physical realization of a shockwave is point in time and space at which vehicles change their speed abruptly. The formation and dissolving of congestion are the phenomena that are important for the traveler information and congestion management perspectives. Shockwave analysis is the method to identify congested areas and estimate the rate of formation and dissipation of the congestion. The microscopic traffic simulation tool Vissim was used to address the main objective of this study, namely to determine if and to what extent the driving behavior parameters of the model used influence the shockwaves on motorways. After precise calibration of the car following behavior based on the detected shockwaves from data of the German research project simTD, the possible influences on driver behavior through highly automated vehicles was sketched in order to figure out whether these applications can change the shockwave propagation speed on
motorways, lead to suppression of shockwaves and improve the net-work performance as well as increase the traffic safety.

Stichworte: Shockwaves, Damping, Automated Vehicles

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