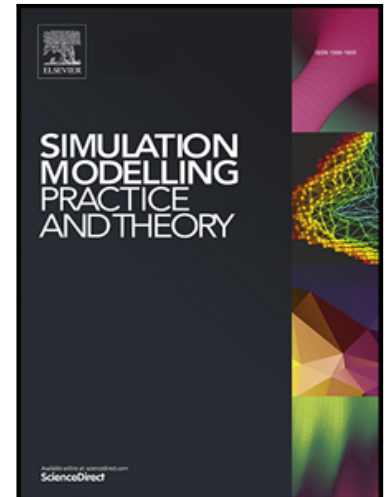


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A macroscopic model with the advantages of microscopic model: A review of Cell Transmission Model's extensions for urban traffic networks

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Abstract

This paper reports a review of the extensions and application of the Cell Transmission Model (CTM). Those extensions are models able to simulate complex urban traffic dynamics with all the advantages of macroscopic and microscopic urban traffic model. Over the past few years researchers have been trying to increase the level of detail by extending CTM and introducing new formulations to improve the application of the model in urban traffic. The authors classified the papers while taking into consideration all those factors characterizing the urban traffic, arterial and intersection traffic flow in particular. One of the primary goals of transport research is to develop a general framework of urban traffic networks that might be applied from a realistic point of view. Recent studies about traffic simulations have shown that, among various macroscopic simulation models, the CTM has the potential to achieve this objective. We have also reported our model the CTM.UT that improves the CTM for Urban Traffic. We believe that it is possible to apply this model to ITS application, hence increase the accuracy of the macroscopic model while maintaining the computational advantages and provide an accurate prediction of travel time approach.

Keywords: Macroscopic simulation traffic flow, cell transmission model, queue interactions, multi-lane arterial, urban road network.

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