

A Kinetic Traffic Network Model and its Macroscopic Limit

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In this talk we propose coupling conditions for a kinetic two velocity model for vehicular traffic on networks based on the consideration of the free space on the road. The macroscopic limits of the kinetic relaxation systems are classical scalar conservation laws for traffic flow. Similar to the asymptotic limit of boundary value problems for kinetic models, we consider the limit of the full network problem including the coupling conditions at the nodes. An asymptotic analysis of the interface layers at the nodes and a matching procedure using half-Riemann problems for the limit conservation law are used to derive coupling conditions for classical macroscopic traffic models on the network from the kinetic ones. Numerical simulations illustrate the theoretical results.

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