

# Well-Posedness and Singular Limit of the Nonlocal GARZ Model for Traffic Flow

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In this talk, we explore a nonlocal formulation of the generalized Aw-Rascle-Zhang (GARZ) model, which describes vehicular traffic flow at the macroscopic level through a system of nonlocal hyperbolic conservation laws. By applying the contraction mapping theorem, we establish the existence and uniqueness of weak solutions to the initial value problem on any finite time interval. We further analyze the stability of these solutions with respect to perturbations in the initial data and prove a maximum principle for the system. Finally, we discuss the singular limit of the nonlocal GARZ model, offering insight into its asymptotic behavior and connections to local traffic flow models.

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