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Controlling Disorder in Traffic Flow by Perturbation

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Abstract: We propose a new technique for controlling disorder in traffic system. A kind of control signal which can be considered as a perturbation has been designated at a given site (perturbation point) of the single-lane highway. When a vehicle passes the perturbation point at a time, the velocity of the vehicle will be changed at the next time by the perturbation. This technique is tested for the deterministic NaSch traffic model. The simulation results indicate that the traffic system can be transited from the disorder states to the order states, such as fixed-point, periodic motion, etc.

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Key words: NaSch traffic model, order and disorder, time-headway

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