Investigation on Vehicle Emission by a Cellular Automata Model for Mixed Traffic Flow

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The mixed traffic in the highway was investigated and two different driving modes are considered in this paper. We proposed a cellular automaton model for mixed traffic, in which the cautious and dull divers were differentiated with the BL model and FNS model, respectively. We studied the macro- and microscopic features of vehicle movement for different fractions and calculate the rate and/or amount of vehicle emission. Numerical results show that driving with a cautious mode can reduce the amount of certain pollutant emissions significantly. For congested traffic, it is an efficient way to reduce emitted exhaust pollution from vehicle fleet by decreasing the size of jam and keeping the synchronized flow as long as possible.

Keywords: cellular automaton model, vehicle emission, mixed traffic, synchronized flow