Multijam Solutions in Traffic Models with Velocity-Dependent Driver Strategies

The optimal-velocity follow-the-leader model is augmented with an equation that allows each driver to adjust their target headway according to the velocity difference between the driver and the car in front. In this more detailed model, which is investigated on a ring, stable and unstable multipulse or multijam solutions emerge. Analytical investigations using truncated Fourier analysis are confirmed and complemented by a detailed numerical bifurcation analysis. In addition to standard rotating waves, time-modulated waves are found.