

# Homogenization of a second order microscopic model with local perturbation and application to traffic flow

N. Forcadel, W. Salazar, M. Zaydan

September 24, 2016

## **Abstract**

The goal of this presentation is to derive a traffic flow macroscopic model from a microscopic model with a local perturbation. At the microscopic scale, we consider a Bando model of the type following the leader, i.e the acceleration of each vehicle depends on the distance of the vehicle in front of it. We consider also a local perturbation like an accident at the roadside that slows down the vehicles. After rescaling, we prove that the "cumulative distribution functions" of the vehicles converges towards the solution of a macroscopic homogenized Hamilton-Jacobi equation with a flux limiting condition at junction which can be seen as a LWR (Lighthill-Whitham-Richards) model.