

Accepted Manuscript

An extended macro traffic flow model accounting for multiple optimal velocity functions with different probabilities

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PII: S0375-9601(17)30564-9
DOI: <http://dx.doi.org/10.1016/j.physleta.2017.06.008>
Reference: PLA 24555

To appear in: *Physics Letters A*

Received date: 31 March 2017
Revised date: 3 June 2017
Accepted date: 3 June 2017

Please cite this article in press as: C. Rongjun et al., An extended macro traffic flow model accounting for multiple optimal velocity functions with different probabilities, *Phys. Lett. A* (2017), <http://dx.doi.org/10.1016/j.physleta.2017.06.008>

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Highlights

- An extended macro model of traffic flow with the consideration of multiple optimal velocity functions with probabilities is proposed in this paper.
- Applying the linear stability theory, the new model's linear stability is obtained.
- Through nonlinear analysis, the KdV-Burgers equation is derived.
- The numerical simulation of the influence of different parameters on model stability and traffic capacity is carried out.

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