

The Oliver Club

www.math.cornell.edu/~oliver/

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Traffic Models, Phantom Jams, and Autonomous Vehicles

Initially homogeneous vehicular traffic flow can become inhomogeneous even in the absence of obstacles.

We demonstrate how this “phantom jam” phenomenon can be described via traffic models: small perturbations grow into nonlinear traveling waves.

These turn out to be analogs of detonation waves in reacting gas dynamics, thus creating a link

between traffic flow, combustion, and water roll waves. An outlook is given on the fidelity of data-fitted traffic models, and how these models can provide strategies to control autonomous vehicles so that the fuel consumption of the overall traffic flow is reduced.



Thursday, November 20, 2014
at 4:00 PM in 532 Malott Hall

Refreshments will be served at 3:30 PM in the Mathematics Department lounge (532 Malott Hall).