

1032-34-11

Mostafa Ghandehari* (ghandeha@uta.edu), Department of civil engineering, University of Texas at Arlington, Box 19308, Arlington, TX 76019, and **Siamak Ardekani**. *The Laplace transform of the linear car-following model.*

Laplace transform is used to analyze the differential-difference equation for the linear car-following model. The car following model has been developed to describe the dynamics of a platoon of vehicles initially traveling at uniform speeds and spacings when the lead vehicle in the platoon introduces a perturbation by braking. Shifting theorems and the convolution theorem from Laplace transform are used to model fluctuations in velocities and spacings of following vehicles as long as decelerations of the leading car and initial velocities and spacings are given. (Received June 07, 2007)