

Fractional Analysis of Traffic Dynamics

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Abstract

This article presents a dynamical analysis of several traffic phenomena, applying a new modelling formalism based on the embedding of statistics and Laplace transform. The new dynamic description integrated the concepts of fractional calculus lead to a more natural treatment of the continuum of the TF parameters intrinsic in this system. The results of using classical system theory tools point out that it is possible to study traffic systems, taking advantage of the knowledge gathered with automatic control algorithms.

Keywords: Fractional Calculus; Modelling; Dynamical Traffic Analysis; Traffic Control;

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