

# On a Functional-Differential Equation arising from a Traffic Flow Model

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## Abstract

We provide a derivation in the context of a traffic flow model, and both analytical and numerical studies of the functional-differential equation

$$(z(s) + \alpha)^2 z'(s) = \beta(z(s + z(s)) - z(s)).$$

Here,  $\alpha$  and  $\beta$  are positive parameters, and we are in particular investigating the existence and properties of non-constant “traveling-wave” type solutions.