A SIMPLE TROLLEY-LIKE MODEL
IN THE PRESENCE OF A NONLINEAR FRICTION
AND A BOUNDED FUEL EXPENDITURE

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Abstract

We consider a problem of maximization of the distance traveled by a material point in the presence of a nonlinear friction under a bounded thrust and fuel expenditure. Using the maximum principle we obtain the form of optimal control and establish conditions under which it contains a singular subarc. This problem seems to be the simplest one having a mechanical sense in which singular subarcs appear in a nontrivial way.

Keywords: optimal control problem, Pontryagin Maximum Principle, extremals, singular arcs.

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References


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