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Section:

17. Control Theory and Optimization

1991 MS Classification: 49, 76

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Dynamic impulse systems. Optimization problems in fluid mechanics.

The aim of this report is to bring together some our results in the area of differential equations with nonlinear operations over Schwartz distributions and optimization problems of the following type: Given a controlled system of solid bodies in a viscous medium, how shoud the controlling forces be programmed to minimize the energy necessary to go to prescribed position for a given time? The stated problem has a singular solution which involves impulses. These impulses induce the controlling forces to calculate the work done on the system.

Reference: *Zavalishchin S. T. and Sesekin A. N.* Dynamic Impulse Systems. Theory and Applications. The Netherlands. Kluwer Academic Publishers, 1997.