

Kopejkina, T. B.

Controllability of linear, singularly perturbed systems with lag. (Russian) [Zbl 0768.93010](#)
Current problems in the theory of dynamical control systems, Collect. Sci. Artic., Minsk, 139-147 (1989).

[For the entire collection see [Zbl 0726.00022](#).]

Linear stationary singularly perturbed dynamical systems with lumped delay in the state variables are discussed. Using algebraic methods computable criteria for relative controllability are formulated and proved. The existence and the properties of the solution of singular dynamical systems with delays are also considered. Moreover, several remarks and comments on controllability of such dynamical systems are presented. These conditions for controllability have the form of rank type conditions and are similar to controllability criteria given in the monograph of *J. Klamka* [Controllability of dynamical systems (1991; [Zbl 0732.93008](#)), Chapter 4]. Controllability of singularly perturbed dynamical systems but without delays has been investigated by *P. V. Kokotovic* and *A. H. Haddad* [IEEE Trans. Automatic Control AC-20, 111-113 (1975; [Zbl 0298.93001](#))].

Reviewer: [J.Klamka \(Katowice\)](#)

MSC:

[93B05](#) Controllability
[93C05](#) Linear systems in control theory

Keywords:

[linear stationary singularly perturbed dynamical systems](#); [algebraic methods](#); [continuous-time](#)