

Cannarsa, Piermarco; Cardaliaguet, Pierre

Perimeter estimates for reachable sets of control systems. (English) Zbl 1114.93018
J. Convex Anal. 13, No. 2, 253-267 (2006).

In the paper nonlinear, finite-dimensional, continuous-time control systems with constant coefficient are considered. The main purpose is to investigate regularity of the reachable set for constrained controls. Using theory of nonlinear ordinary differential equations and functional analysis under some additional assumptions on nonlinear function in the state equation, several properties of the reachable sets are formulated and proved. Moreover, many remarks and comments on reachable sets are also presented. Finally, it should be pointed out, that similar problems have been recently considered in the paper of *C. Sinestrari* [*Commun. Pure Appl. Anal.* 13, No. 4, 757–774 (2004; [Zbl 1064.49024](#))] and in the monograph of *J. P. Aubin* and *H. Frankowska* [*Set-valued analysis*, Boston etc.: Birkhäuser (1990; [Zbl 0713.49021](#))].

Reviewer: [Jerzy Klamka \(Gliwice\)](#)

MSC:

- [93B03](#) Attainable sets, reachability
- [93C15](#) Control/observation systems governed by ordinary differential equations
- [49J15](#) Existence theories for optimal control problems involving ordinary differential equations
- [93C10](#) Nonlinear systems in control theory
- [93B05](#) Controllability

Cited in **6** Documents

Keywords:

[nonlinear control systems](#); [reachable sets](#); [continuous-time systems](#)

Full Text: [Link](#)