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Null Controllability of Nonlinear Infinite Neutral System

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Abstract: Sufficient conditions are developed for the null controllability of the nonlinear infinite neutral system

$$\frac{d}{dt}\,D(t,x_t) = L(t,x_t) + B(t)\,u(t) + f(t,x_t,u(t)) + \int_{-\infty}^{0} A(\theta)\,x(t+\theta)\,d\theta$$

when the values of the control function lie in an n-dimensional unit cube C^m of R^m. Conditions are placed on f which guarantee that if the linear control base system is proper and if the uncontrolled linear system is is uniformly asymptotically stable, then the nonlinear perturbed system is null controllable with constraints.

Keywords:

AMS Subject Classification: