

On the Stability and Controlability of Fuzzy Set Control Differential Equation

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Abstract

Recently, the field of differential equations has been studying in a very abstract method. Instead of considering the behaviour of one solution of a differential equation, one studies its sheaf-solution and especially, studies fuzzy differential equation (a differential equation whose variables and derivative are fuzzy sets, see Lakshmikantham V. and Mohapatra R. (2003), Phu N. D. and Tung T.T. (2008)). In this paper, a fuzzy differential equation is generalized to be fuzzy set control differential equation (FSCDE) and we present the problem of stability and controlability of FSCDE. The paper is a continuation of our works in this direction; see Phu N. D., Quang L.T. and Tung T.T. (2008), Phu N. D., Quang L.T. and Tung T.T. (accepted), Phu N. D. (to appear), Phu N. D. and Dung L.Q. (to appear), for FSCDE.

References

- Lakshmikantham V., Mohapatra R. Theory of fuzzy differential equations and inclusions. *Taylor Francis*, London, 2003.
- Phu N. D., Tung T.T. Some new results on the fuzzy control differential equations. *J. Science and Technology Development*, 11 (1) (2008), pp 5-20.
- Phu N. D., Quang L.T, Tung T.T. Stability criteria for some set control differential equations. *J. Nonlinear Analysis*, 69(2008), pp 3715-3721.
- Phu N. D., Quang L.T, Tung T.T. Criteria for boundedness of solutions for set control differential equations. *J. Evolution Equations (accepted)*.
- Phu N. D. On the controlable for set control differential equations. *J. Evolution Equations (to appear)*.
- Phu N. D., Dung L.Q. On the partial differential operators in Hausdorff metric space and applications. *J Nonlinear Analysis (to appear)*.