

Existence Theory for First Order Functional Random Differential Equations

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Abstract : In this paper, the existence of a solution of nonlinear functional random differential equations of the first order is proved under caratheodory condition. The study of the functional random differential equation has got importance in the random analysis of the dynamical systems of universal phenomena. Objectives: Nonlinear functional random differential equation is useful to the scientists, engineers, and mathematicians, who are engaged in N.F.R.D.E. analyzing a universal random phenomenon, govern by nonlinear random initial value problems of D.E. Applications of this in the theory of diffusion or heat conduction. Methodology: Using the concepts of probability theory, functional analysis, generally the existence theorems for the nonlinear F.R.D.E. are prove by using some tools such as fixed point theorem. The significance of the study: Our contribution will be the generalization of some well-known results in the theory of Nonlinear F.R.D.E.s. Further, it seems that our study will be useful to scientist, engineers, economists and mathematicians in their endeavors to analyses the nonlinear random problems of the universe in a better way.

Keywords : Random Fixed Point Theorem, functional random differential equation, N.F.R.D.E., universal random phenomenon

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