STUDIES ON NONLINEAR RANDOM IMPULSIVE DIFFERENTIAL AND FRACTIONAL DIFFERENTIAL EQUATIONS

ABSTRACT

Submitted by

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ABSTRACT

The nonlinear random impulsive differential and fractional differential equations are the subject of the study detailed in this thesis. The Fixed point principle is used to investigate the existence of random impulsive semilinear integrodifferential evolution equations with non-local conditions, quasilinear random impulsive neutral differential evolution equation, second order random impulsive differential equations, fractional hybrid pantograph equation with random impulse, and approximate controllability of fractional semilinear delay differential control system with random impulse. In addition, using the Modified Riemann-Liouville derivative, we investigated an unsteady boundary layer flow of a Casson fluid across an oscillating vertical plate with constant wall temperature. Potential study has been conducted to analyse the behaviours of the solution, such as stability, observability, and controllability as an application to fractional differential equation. All of the findings generalize the findings of prior studies. To demonstrate the principle, examples are offered.