Weak Solutions Of Stochastic Fractional Differential Equations

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Abstract : Stochastic fractional differential equations have recently attracted considerable attention, as they have been used to model real-world processes, which are subject to natural memory effects and measurement uncertainties. Compared to conventional hereditary differential equations, one of the advantages of fractional differential equations is related to more realistic geometric properties of their trajectories that do not intersect in the phase space. In this report, a Peano-like existence theorem for nonlinear stochastic fractional differential equations is proven under very general hypotheses. Several specific classes of equations are checked to satisfy these hypotheses, including delay equations driven by the fractional Brownian motion, stochastic fractional neutral equations and many others.

Keywords : delay equations, operator methods, stochastic noise, weak solutions
Conference Title : ICMFOS 2022 : International Conference on Mathematics for Fractional-Order Systems
Conference Location : Paris, France
Conference Dates : August 30-31, 2022