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Preface: 1 Introduction
1.1 The traditional
diffusion model 1.2
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2.1 The Grunwald
formula 2.2 ...

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Fractional Skellam processes with applications to finance. Fractional Calculus and Applied Analysis, 2014, 17(2):532-551. 8. Kerass AJ, Leonenko NN, Sikorskii A. Risky asset models with tempered stable fractal activity time. Stochastic Analysis and Applications, 2014, 32:4 642-663. 9. Leonenko NN,

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2019 "A general class of fractional-calculus operators and their applications", invited talk, International Istanbul Summer School in Applied Mathematics 2019 ...

Fractional Calculus | Department of Mathematics - EMU

Fractional calculus is a branch of mathematical analysis that studies the several different possibilities of

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defining real number powers or complex number powers of the differentiation operator $D = ()$, and of the integration operator $J = \int ()$, and developing a calculus for such operators generalizing the classical one.. In this context, the term powers refers to iterative application of a ...

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However, Definition 2.1 for the fractional stochastic integral leads us to consider the “approximation” equation corresponding to (3.1)

$$(3.2) \int \int \int \int \int \int$$

which can be reduced to (3.3)

Note that the Hypothesis (H) ensures the convergence of approximation integrals to the fractional stochastic integrals.

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equations with ...

That includes a synopsis of Caputo's fractional calculus and fractional 55 stochastic SEIR processes.

Section 2 will also include the derivation of the fractional order differential 56 equation depicting the SEIR model from the fractional stochastic SEIR process. It will be followed by

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Integer versus Fractional Order SEIR Deterministic and ...

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As the fractional-order models can more accurately describe the complex systems than the integer-order models, the investigation on the fractional-order systems attracts more and more attention.

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Fractional calculus enables us to understand the inherent complexity of the real world [1, 2] by a new mathematical tool.

Stochastic Bifurcations of a Fractional-Order Vibro-Impact ...

The inverse stable subordinator is the first passage time of a standard stable subordinator with index

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$0 < \beta < 1$. The probability density of the inverse stable subordinator can be used to solve time-fractional Cauchy problems, where the usual first derivative in time is replaced by a Caputo fractional derivative of order β . If the Cauchy problem governs a Markov process, then the fractional ...

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Here, Dr. West weaves a monograph that connects the omnipresent allometric models of science and sociology with non-linear stochastic models of system dynamics. He has, of course, written in the past on both these topics, but now moves the debate to the level of derivations - using

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The Caputo fractional derivative operator of order $\alpha \in (0, 1]$ is employed to obtain the system of fractional differential equations of SEIR epidemic model. The stability analysis of fractional order model has been made and verify the non-negative unique

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solution of the scheme
with in the domain.

Analysis and numerical solution of SEIR epidemic model of ...

In the framework of neuronal dynamics, in, fractional stochastic models are introduced for preserving the memory of the neuronal membrane evolution; in such description, the parameter that affects

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the ring activity is the fractional order of the involved derivative.

On the Fractional Riemann-Liouville Integral of Gauss ...

This stochastic integrator is then used to evaluate the impact of the uncertainties in the fractional model for the photocatalytic degradation of phenol. Results indicate that time dependent uncertainties might

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have a significant effect on the dynamic behavior of fractional calculus based models.

(566h) Fractional Calculus Based Models for Photocatalytic ...

Stochastic calculus is a branch of mathematics that operates on stochastic processes. It allows a consistent theory of integration to be defined for integrals of stochastic processes

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with respect to stochastic processes. It is used to model systems that behave randomly. The best-known stochastic process to which stochastic calculus is applied is the Wiener process (named in honor of Norbert ...

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