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Numerical Solution and Applications of Fractional Differential Equations

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In the last few decades, the application of fractional calculus to real-world problems has grown rapidly, with dynamical systems described by fractional differential equations (FDEs) representing one of the ways by which to understand complex materials and processes. Due to the power required to model the non-locality, memory, spatial heterogeneity and anomalous diffusion inherent in many real-world problems, FDEs have attracted significant attention in many fields of science and are still under development. However, generally, fractional mathematical models from science and engineering are so complex that analytical solutions are not available. Therefore, the numerical solution is an effective tool in fractional mathematical models. This Special Issue presents the latest developments in fractional differential equations, reports the state-of-the-art numerical methods, and discusses the future trends and challenges.

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