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Numerical Solution of the Black-Scholes Partial Differential Equation for the Option Pricing Model Using the ADM-Kamal Method

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Abstract: Option contracts are financial derivatives developed as investment alternatives which are useful for minimizing the risk of loss. One of the most well-known models for calculating option prices is the Black-Scholes equation. This equation is a partial differential equation (PDE) of the order of natural and fractional numbers. In this paper, we have proposed a combined method of the Adomian Decomposition Method (ADM) and the Kamal Integral Transform (KIT) to solve the Black-Scholes Fractional Partial Differential Equation (FPDE) for the Option Pricing Model (OPM). The Black-Scholes FPDE approach solution can be used to build a buy and sell option pricing model. Numerical simulation results show that this method has an accurate performance in determining option pricing.

Keywords: *price of buy and sell options; fractional partial differential equation; Black-Scholes; Kamal integral transform; Adomian decomposition method.*

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