

1154-VN-1150      **Ramanjit K. Sahi\*** (sahir@apsu.edu), **Samuel N. Jator** (jators@apsu.edu) and **Mary I. Akinyemi** (makinyemi@unilag.edu.ng). *Solving Black-Scholes Equation using Exponentially-Fitted Backward Differentiation Formula*. Preliminary report.

A family of Exponentially-Fitted Block Backward Differentiation Formula (EFBBDF) is formulated based on linear combination of polynomial and exponential functions. The EFBBDF is applied to solve the Black-Scholes partial differential equation (PDE) after reducing the PDE into a system of ordinary differential equations resulting from the semi-discretization of the PDE via the method of lines. The stability and convergence of the EFBBDF are discussed. Numerical experiments are performed to validate the performance of the method. (Received September 13, 2019)