

Application of Wavelet Based Approximation for the Solution of Partial Integro-Differential Equation Arising from Viscoelasticity

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Abstract : This work contributes a numerical method based on Legendre wavelet approximation for the treatment of partial integro-differential equation (PIDE). Operational matrices of Legendre wavelets reduce the solution of PIDE into the system of algebraic equations. Some useful results concerning the computational order of convergence and error estimates associated to the suggested scheme are presented. Illustrative examples are provided to show the effectiveness and accuracy of proposed numerical method.

Keywords : legendre wavelets, operational matrices, partial integro-differential equation, viscoelasticity

Conference Title : ICAMAT 2016 : International Conference on Applied Mathematics and Approximation Theory

Conference Location : Venice, Italy

Conference Dates : November 07-08, 2016