

NUMERICAL SIMULATION OF NON-HOMOGENEOUS BUCKMASTER EQUATION USING A HYBRID NUMERICAL TECHNIQUE

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ABSTRACT. This paper employs a hybrid numerical technique based on uniform Haar wavelets and θ -weighted scheme for numerical solution of non-homogeneous Buckmaster equation. In the solution process, after applying θ -weighted scheme to Buckmaster equation, the time derivative is approximated by the forward difference and then non-linear terms in this equation are linearized by Taylor series expansion. Thereafter, Haar wavelet collocation method has been employed to solve the resulting ordinary differential equation. To verify the competence of the present technique to solve Buckmaster equation, some test problems have been solved and the present results have been compared with the exact results. It can be seen from the numerical simulation that the computed solutions are in excellent agreement with the exact solutions for very small number of collocation points.

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