

WAVELET GALERKIN SCHEME FOR NONLINEAR PARTIAL DIFFERENTIAL EQUATIONS

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ABSTRACT

Most of the physical problems including sound waves in a viscous medium, waves in fluid filled viscous elastic tubes and magneto hydrodynamic waves in a medium with finite electrical conductivity are modeled by nonlinear partial differential equations. Many numerical and analytical methods are used to solve non-linear partial differential equations. Wavelets have generated a huge interest in different areas of applied mathematics, physics and engineering. Wavelets have been applied to the numerical solution of partial differential equations. In this paper we have developed a wavelet Galerkin scheme for non-linear partial differential equations. The present scheme is efficient, accurate and has got several advantages over other numerical methods.

KEYWORDS: Wavelet Galerkin Method, Daubechies Wavelet, Haar Wavelet, Modified Burgers' equation