*Haar Wavelets based Algorithms for Simulation of Hyperbolic Type Wave Equations*

**Sapna Pandit** (Indian Institute of Technology Roorkee), R C Mittal

In this article, the authors developed two algorithms based on Haar wavelets operational matrix for simulation of nonlinear hyperbolic type wave equations. These types of equations describe a variety of physical model in the nonlinear optics, relativistic quantum mechanics, solitons and condensed matter physics, interaction of solitons in collisionless plasma and solid state physics etc. The algorithms reduced the equations into a system of algebraic equations and then the system is solved by Gauss-elimination procedure. Some well-known hyperbolic type wave problems are considered as numerical problems to check the accuracy and efficiency of the proposed algorithm. The numerical results are shown in figures and RMS, L2 errors form.