1086-65-811   **Weizhong Dai*** (`dai@coes.latech.edu`), Mathematics and Statistics, College of Engineering and Science, Louisiana Tech University, Ruston, LA 71272. *A Generalized Finite Difference Time Domain Scheme for Solving Nonlinear Schrodinger Equation.* Preliminary report.

A novel numerical scheme for solving nonlinear Schrodinger equations is obtained based on the generalized finite-difference time-domain method. The new scheme is shown to satisfy the discrete analogous form of conservation law and is tested by two examples of soliton propagation and collision. Compared with other popular existing methods, numerical results demonstrate that the present scheme provides a more accurate solution. (Received September 13, 2012)