MULTIGRID AND ADAPTIVE ALGORITHM FOR SOLVING THE NONLINEAR SCHRÖDINGER EQUATION. Qianshun Chang and Goubin Wang, *Academia Sinica, Beijing, PEOPLE'S REPUBLIC of CHINA.*

In this paper, a conservative difference scheme for generalized nonlinear Schrödinger equations is given. We apply multigrid method and adaptive algorithm to solve the equations. Numerical results are presented and compared. They demonstrate that the multigrid and adaptive algorithm are efficient and can considerably relax the restriction on step size of time which is caused by nonlinear iteration.

COMPARISON OF TWO DIFFERENT TREE ALGORITHMS. Junichiro Makino, *University of Tokyo, Tokyo, JAPAN.*

The efficiency of two different algorithms of hierarchical force calculation is discussed. Both algorithms utilize the tree structure to reduce the cost of the force calculation from $O(N^2)$ to $O(N \log N)$. The only difference lies in the method of the construction of the tree. One algorithm uses the octtree, which is the recursive division of a cube into eight subcubes. The other method constructs the tree by repeatedly replacing a mutually nearest pair in the system by a super-particle. Numerical experiments showed that the cost of the force calculation using these two schemes is quite similar for the same relative accuracy of the obtained force. The construction of the mutual-nearest-neighbor tree is more expensive than the construction of the octtree roughly by a factor of 10. On the conventional mainframes this difference is not important because the cost of the tree construction is only a small fraction of the total calculation cost. On vector processors, the octtree scheme is currently faster because the tree construction is relatively more expensive on the vector processors.

NOTES TO APPEAR

BAXTER SOLUTION TO THE 0-Z EQUATION NEAR THE CRITICAL POINT. Petra Pinero, Luis F. Rull, and Jose M. Velarde, *Universidad de Sevilla, Sevilla, SPAIN*; Juan J. Morales, *Universidad de Extremadura, Badajoz, SPAIN.*

ENHANCED BOUNDARY PRESSURE UPDATE FOR INCOMPRESSIBLE FLOW SIMULATION. R. H. Rothberg, W. F. Walker, and A. J. Chapman, *Rice University, Houston, Texas, USA.*

DAVIDSON'S METHOD AND PRECONDITIONING FOR GENERALIZED EIGENVALUE PROBLEMS. Ronald B. Morgan, *University of Missouri, Columbia, Missouri, USA.*

SYSTEMATIC GENERATION OF LINEAR GRAPHS—CHECK AND EXTENSION OF THE LIST OF UHLENBECK AND FORD. Ch. Foidl and P. Kasperkovitz, *Technische Universität, Vienna, AUSTRIA.*