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A conservative difference scheme for the Zakharov equations. (English) Zbl 0807.76050
J. Comput. Phys. 113, No. 2, 309-319 (1994).

Summary: A new conservative difference scheme is presented for the periodic initial-value problem of Zakharov equations. The scheme can be implicit or semi-explicit, depending on the choice of a parameter. The discretization of the initial condition is of second-order accuracy, which is consistent with the accuracy of the scheme. On the basis of a priori estimates and an inequality about norms, convergence of the difference solutions is proved in the energy norm.

MSC:

76M20 Finite difference methods applied to problems in fluid mechanics
76X05 Ionized gas flow in electromagnetic fields; plasmic flow

Cited in **38** Documents

Keywords:

Langmuir waves; semi-explicit scheme; periodic initial-value problem; second-order accuracy; a priori estimates; convergence; energy norm

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