Large Time Behavior of Solution and Convergence of Finite Difference Scheme for One System of Nonlinear Integro-Differential Equations

Initial-boundary value problem with Dirichlet boundary conditions for one nonlinear integro-differential equation is considered. The model is based on Maxwell system, describing the process of the penetration of a electromagnetic field into a substance. The questions of unique solvability and asymptotic behavior of solution are studied. Main attention is paid to the convergence of the finite difference scheme. Wider classes of nonlinearity than already were studied is investigated.