

Stability and convergence of the variable directions difference scheme for one nonlinear two-dimensional system of partial differential equations

e-mail: maia.nikolishvili558@ens.tsu.edu.ge

Department of Mathematics, Iv. Javakishvili Tbilisi State University, 13 University St., 0186 Tbilisi, Georgia

Abstract. The system of two-dimensional nonlinear partial differential equations is considered. This system describes the vein formation in meristematic tissues of young leaves. Variable directions difference scheme is constructed and investigated. Absolute stability regarding space and time steps of scheme is shown. The convergence is given. Various numerical experiment are carried out and results some of them are considered. Comparison of numerical experiments with the results of the theoretical investigation is given too.