

On Analysis and Realization Problems of One Nonlinear Model Describing Filtration Processes of Liquids

Prof. David G. Gordeziani

Tbilisi State University

In the current work various finite-difference algorithms are constructed and investigated for solution of nonlinear initial-boundary value problems describing filtration processes in liquids and other phenomena. There are developed: explicit algorithms with variable step in time; implicit schemes and corresponding iteration process; implicit, absolutely stable algorithms, based on classical asymmetric schemes, which allow to make calculation process explicit, but they are less accurate than classical ones; asymmetric averaged schemes are constructed, by means of which calculation can be conducted in explicit way, but time and space grid step have strong limitations; calculation algorithms are realized on computer.