

POPULATION MODELS WITH NONLINEAR DIFFUSION OF KOLMOGOROV-FISHER TYPE

D. K. MUHAMEDIYEVA

Junior Researcher, Development of Software Products, TUIT, Tashkent, Uzbekistan

ABSTRACT

Consider the model of two competing species with non-linear diffusion and three types of functional dependencies. The first type of dependence corresponds to Malthusian demographic processes, the second - ferhulst (logistic population), and the third - the population of "Allee". The common element to this kind of description is the presence of a linear source, and in the descriptions of the populations of Ferhulst and Allee type are also nonlinear sinks.

Offered suitable initial approximations for quickly convergence iterative process. Numerical experiments are carried out with visualization for different values of parameters of the system of biological population of Kolmogorov-Fisher type.

KEYWORDS: Biological Population, Nonlinear System of Partial Differential Equations, Initial Approximation, Numerical, Iterative Process, Self-Similar Solutions