

1116-92-1629

**Georgiy P Karev\***, karev@ncbi.nlm.nih.gov, and **Irina P Kareva**. *Modeling of Extinction of Inhomogeneous Population*. Preliminary report.

We consider two types of inhomogeneous subexponential models of population extinction. In the first type of models we assume that the population is composed from independent clones, each of which decreases according to the power equation. We show that the current distribution of clones provides the minimum of the relative Tsallis entropy given the q-mean value of the death rate at each time moment before the population extinction. In the second type of models we assume that the total size of population decreases according the power model. We show that these models have a canonical representation in the form of frequency-dependent inhomogeneous models (F-model). The notion of “internal time” can be naturally defined. According to this time scale each clone develops as if it does not depend either on other clones, or on the population at whole. The internal time tends to infinity as the “common time” tends to a finite moment of population extinction. The system dynamics is such that the minimum of the KL-divergence between the initial and current distributions is achieved at each moment of internal time given the mean value of the death rate. Some interpretations of these results are given. (Received September 20, 2015)