1052-60-261 **Stanislav A Molchanov*** (smolchan@uncc.edu), Department of Mathematics and Statistics, UNCC, Charlotte, NC 28270. *Limit theorems for the reaction-diffusuion equations woth the applications to the ecology.*

We consider two classes of the branching processes with the diffusion (or similar contact processes). The first one represents the mathematical model of the plankton(supercritical population of the one-cell species with mitosis). Mathematically, we have to study in this case the FKPP(Fisher-Kolmogorov-Petrovskii-Piskunov)type differential-fuctional equations for the Laplace transform of space-time-masses particles distribution independent of the local density. We have analyzed the analytic properties of these equations. The second class of the models contains the critical reaction-diffusion processes with the non-trivial limiting distribution, stationary in space and time. We will formulate several qualitative results about the statistics of the limiting particles field. (Received August 30, 2009) (Received August 30, 2009)