

N. P. PROTSAKH

On Behaviour of Solutions of Mixed Problem for Ultraparabolic Equation

*Pidstryhach Institute for Applied Problems of Mechanics and Mathematics of
NAS of Ukraine, Lviv, Ukraine
E-mail: protsakh@ukr.net*

The mixed problem for nonlinear ultraparabolic equation that generalizes the linear Kolmogorov equation of the diffusion with inertia $u_t - xu_y - a^2u_{xx} = f(x, y, t)$ is considered. Notice, that the equations of ultraparabolic type appear in the description of many applied problems of physics, biology, economics etc. Such results are obtained: the unique solvability of the mixed problem; the behaviour of solution, as $t \rightarrow \infty$. This behaviour depends on the power of nonlinearities, when the equation contains the power nonlinearities, and on the behaviour of the kernel of the integral operator if the last one is in the equation.