

Asymptotic behavior for a class of the renewal nonlinear equation with diffusion

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Abstract :

In this paper, we consider nonlinear age-structured equation with diffusion under nonlocal boundary condition and non-negative initial data. More precisely, we prove that under some assumptions on the nonlinear term in a model of McKendrick-Von Foerster with diffusion in age, solutions exist and converge (long-time convergence) towards a stationary solution. In the first part, we use classical analysis tools to prove the existence, uniqueness, and the positivity of the solution. In the second part, using comparison principle, we prove the convergence of this solution towards the stationary solution.

Keywords : McKendrick–Von Foerster model; iterative method; asymptotic analysis.

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