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Existence and Optimal Control of an Age-Structured Population Dynamics Model with Time Fractional

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Abstract

The purpose of this paper is to investigate the optimal control of population dynamics of an age-structured control with time-fractional using semigroup theory. We first establish some sufficient conditions to discuss the existence and uniqueness of a mild solution in the Banach space of the considered system. The results of optimal control with integral cost function are proven using the minimizing sequence technique. Then, the time-optimal control problem is also presented.

Keywords: Population dynamics, mild solutions, optimal control.

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