MATHEMATICAL ANALYSIS OF CYCLE LENGTH-AGE STRUCTURED CELL POPULATION WITH AGGREGATE TRANSITION RULE: ASYNCHRONOUS GROWTH PROPERTY

MOHAMED BOULANOUAR
LMCM-RSA
22 Rue des Canadiens, Poitiers, 86000, France
(E-mail: boulanouar@gmail.com)

Abstract. This work is a continuation of [1] in which we have analyzed a mathematical model of a structured cell population. Each cell is distinguished by its cycle length and by its age. The daughter cells are correlated to the whole cell population thanks to the Aggregate Transition Rule. We investigate then the asymptotic behavior of the generated semigroup which allows us to get the Asynchronous Growth Property of the whole cell population.

Communicated by Nobuyuki Kenmochi; Received 5 February, 2021
This work is supported by LMCM-RSA.
Key words: Partial Differential Equations, Semigroup of Linear Operators, Asymptotic Behavior, Structured Cell Populations.
AMS Subject Classification: 45K05, 47D06, 92C17