



μ - S^p -Pseudo Almost Automorphic Solutions for Multidimensional Systems of Nonlinear Delay Integral Equations

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Abstract: In the present work, we use a topological method to establish the existence of positive μ - S^p -pseudo almost automorphic solutions for some systems of nonlinear delay integral equations which, from a biological point of view, model the evolution in time of interacting species. Specifically, we use the contraction mapping principle, Leray–Schauder alternative and Krasnoselskii’s theorem to obtain our results.

Keywords: *dynamical systems; delay integral equations; μ - S^p -pseudo almost automorphy; compact operators; fixed point.*

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1 Introduction

The notion of almost automorphy is a natural generalization of the classical almost periodicity [2, 3]. It was first introduced by Bochner in the mid-1960s; one can find more details about this topic in [7, 11, 13] and the references therein. Since then, this notion has been generalized in different directions. In [12], N’Guérékata and Pankov introduced the concept of Stepanov-like almost automorphy and applied this concept to investigate the existence and uniqueness of an almost automorphic solution to the autonomous semilinear equation. Then, new generalizations of the Stepanov-like automorphy have been discovered. Among the most important of these generalizations, we have the notion of Stepanov-like weighted pseudo almost automorphic function presented by Xia and Fan

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