

A boundary value problem for a system of iterative functional-differential equations

EDITH EGRI

ABSTRACT. In this paper is considered the system of second order iterative functional–differential equations

$$\begin{cases} -x''(t) = f(t, x(t), x(x(t)), y(t), y(y(t))), \\ -y''(t) = g(t, x(t), x(x(t)), y(t), y(y(t))), \end{cases} \quad t \in [a, b];$$

with the boundary conditions

$$\begin{cases} x(t) = \alpha(t), & t \in [a_1, a], \\ x(t) = \beta(t), & t \in [b, b_1], \\ y(t) = \gamma(t), & t \in [a_1, a], \\ y(t) = \delta(t), & t \in [b, b_1]. \end{cases}$$

First, using Perov's fixed point theorem, an existence and uniqueness result is formulated regarding the solution of the mentioned problem. An example is also added to illustrate our statement. Finally, by weakly Picard operators technique, some data dependence results and comparison theorems are established.

"BABEȘ-BOLYAI" UNIVERSITY
DEPARTMENT OF APPLIED MATHEMATICS
M. KOGĂLNICEANU 1, 400084, CLUJ-NAPOCA, ROMANIA
E-mail address: egriedit@yahoo.com