FUNCTIONAL DIFFERENTIAL EQUATIONS WITH FRACTIONAL ORDER AND INFINITE DELAY

MOHAMMED BELMEKKI* AND MOUFFAK BENCHOHRA**

AND LECH GÓRNIEWICZ***

*Laboratoire de Mathématiques, Université de Sidi Bel Abbès
BP 89, 22000 Sidi Bel Abbès, Algérie
E-mail: m.belmekki@yahoo.fr

**Laboratoire de Mathématiques, Université de Sidi Bel Abbès
BP 89, 22000 Sidi Bel Abbès, Algérie
E-mail: benchohra@univ-sba.dz

*** Schauder Center for Nonlinear Studies
University of Nicholaus Copernicus
Chopina 12/18, 87-100 Toruń, Poland
E-mail: gorn@mat.uni.torun.pl

Abstract. In this paper, we shall establish sufficient conditions for the existence of mild solutions for some densely defined semilinear functional and neutral functional differential equations with fractional order and infinite delay. Our approach is based on a nonlinear alternative of Leray-Schauder type.

Key Words and Phrases: semilinear functional differential equation, fractional derivative, fractional integral, fixed point, semigroups, mild solutions.

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References


**Corresponding author.


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