



**EXISTENCE OF SOLUTIONS FOR VOLTERRA  
INTEGRO-DIFFERENTIAL EQUATIONS  
IN UNBOUNDED DOMAINS**

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**Abstract**

In this paper, we study the existence of continuous solutions of an integro-differential equation on unbounded intervals. The theory of integral equations has many useful applications in mathematical physics, economics, biology, as well as in describing real world problems. The main tool used in our investigations is a fixed point theorem for upper semicontinuous mappings with acyclic values in a Fréchet space.

**Keywords and phrases:** metric spaces, multivalued mappings, AR (absolute retract), cohomology, acyclic sets, integro-differential equations, Ascoli-Arzelà theorem, seminorms.

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