

# COMPACTNESS METHODS FOR AN INTEGRO-DIFFERENTIAL EQUATION WITH MEASURES<sup>\*†</sup>

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## Abstract

In this paper, using some compactness arguments, we prove some local or even global existence results for the  $\mathcal{L}^\infty$ -solution to an integro-differential Cauchy problem with distributed measures in a real Banach space. An example involving the Dirac measure concentrated at point is included.

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**keywords:** Integro-differential equation,  $C_0$ -semigroup, function of bounded variation

## 1 Introduction

The main goal of the present paper is to prove some sufficient conditions for the local, or global existence of the  $\mathcal{L}^\infty$ -solution for the Cauchy problem

$$\begin{cases} du = \left( Au + \int_a^t k(t, \tau, u(\tau)) d\tau \right) dt + dg \\ u(a) = \xi, \end{cases} \quad (1)$$

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