

## EXTRAPOLATION METHOD AND SOME NONDENSELY DEFINED IMPULSIVE SEMILINEAR NEUTRAL PARTIAL FUNCTIONAL DIFFERENTIAL INCLUSIONS

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**Abstract.** In this paper, we use the extrapolation method combined with a fixed-point theorem for the sum of completely continuous and contraction operators, to establish sufficient conditions for the existence of mild solutions and extremal mild solutions for some classes of nondensely defined impulsive semilinear neutral functional differential inclusions in separable Banach spaces with infinite delay.

### 1. INTRODUCTION

In this paper, we shall be concerned with the existence of mild and extremal mild solutions defined on a compact real interval for first-order nondensely defined impulsive semilinear neutral functional inclusions in a separable Banach space. More precisely, we will consider the following first-order impulsive semilinear neutral functional differential inclusions of the form

$$\frac{d}{dt}[y(t) - g(t, y_t)] - A[y(t) - g(t, y_t)] \in F(t, y_t), \quad (1.1)$$

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