

## ROBUST STABILITY FOR UNCERTAIN IMPULSIVE AUTOASSOCIATIVE NEURAL NETWORKS <sup>1</sup>

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**Abstract.** Many complex dynamical behaviors in the real world can be modelled by interval impulsive differential systems or interval impulsive neural networks. This paper formulates and studies a model for the uncertain interval impulsive autoassociative neural networks. The fundamental issue of global exponential robust stability of this new model is investigated and some sufficient stability conditions are obtained.

**Keywords.** Impulsive autoassociative neural network, uncertainty, equilibrium, robust stability.

**AMS (MOS) subject classification:**

## 1 INTRODUCTION

In the last decade, tremendous efforts have been devoted to the investigation of basic theory and potential applications of neural networks ([3-7, 10-13, 16, 18, 20]). Various neural network structures are built on the basis of fundamental principles that govern biological neural systems as well as well-established mathematical and engineering theories.

The most widely studied neural networks in the current literature may be classified into two groups: continuous and discrete networks. However, there are still many neural networks existing in the real world, which display some kind of dynamics in between these two groups, that is, in the form of impulses ([2, 4, 17, 19]). These impulsive phenomena can be found in many fields of information science, electronics, automatic control systems, computer networking, artificial intelligence, robotics, and telecommunications. Therefore,

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