

**ASYMPTOTIC STABILITY OF TIME VARYING
DELAY-DIFFERENCE SYSTEM WITH TIME-VARYING DELAY
OF CELLULAR NEURAL NETWORKS VIA MATRIX
INEQUALITIES**

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Abstract

In this paper, we obtain some criteria for determining the asymptotic stability of the zero solution of time varying delay-difference system with time-varying delay of cellular neural networks in terms of certain matrix inequalities by using a discrete version of the Lyapunov second method.

Keywords: Asymptotic stability; Cellular neural networks; Lyapunov function; Time varying delay-difference system with time-varying delay; Matrix inequalities.