Global exponential stability of a nonautonomous Hopfield neural network model with distributed delays

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Abstract

In this seminar, we consider the following general nonautonomous Hopfield neural network model with distributed delays,

$$x_i'(t) = -b_i(t, x_i(t)) + f_i(t, x_t), \quad t \geq 0,\ i = 1, \ldots, n. \tag{1}$$

with b_i positive and f_i Lipschitz on the second variable, we give sufficient conditions for the global exponential stability of an equilibrium point. This system includes most of the delayed models of neural networks of Hopfield type with time-varying coefficients and distributed delays. For these models, we establish sufficient conditions for their global exponential stability. The existence and global exponential stability of a periodic solution is also addressed.

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