Global stability of a general neural network model with unbounded delays

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Abstract

In this seminar, we consider the following neural network model with infinity distributed delays

$$\dot{x}_i(t) = -a_i(x_i(t))[b_i(x_i(t)) + f_i(x_t)], \quad t \geq 0,\ i = 1, \ldots, n. \tag{1}$$

and we establish sufficient conditions for the global asymptotic, and global exponential stability of an equilibrium point. The family (1) is general enough to include, as particular situation, most of neural network models in the literature. As illustrations, we apply the results to some models and a comparison of results is given.

We emphasize that, contrary to the usual, we do not use Lyapunov functionals to obtain our results.

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