Spatiotemporal technique to the study of some biological systems via their CNN models

Angela Slavova
Institute of Mathematics
Bulgarian Academy of Sciences
Sofia 1113, Bulgaria

The pattern formation occuring in cellular neural networks (CNNs) describing some biological systems is investigated using a spatial technique. The CNN is represented as a scalar Lur'e system to which a suitable extension of the describing function technique is applied for predicting the existence and characteristics of spatiotemporal periodic oscillations. It is shown that such a method yields results that are in good agreement with those observed by the time simulation of the system.

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