

Application of Local Activity Theory of Cellular Neural Network with Two Ports to the Coupled Lorenz-Cell Model

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Abstract: Some criteria for the local activity theory in two-port cellular neural network cells with three local state variables are applied to a coupled Lorenz-cell model. The numerical simulation exhibited that emergence may exist if the selected cell parameters are nearby or on the edge of chaos domain. The local activity theory has provided a new tool of studying the complexity of high dimensional coupled nonlinear physical systems.

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Key words: cellular neural network, local activity, coupled Lorenz-cell, chaos, numerical simulation

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