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Analysis of the Time Structure of Synchronization in Multidimensional Chaotic Systems

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Abstract. A new approach is proposed to the integrated analysis of the time structure of synchronization of multidimensional chaotic systems. The method allows one to diagnose and quantitatively evaluate the intermittency characteristics during synchronization of chaotic oscillations in the T-synchronization mode. A system of two identical logistic mappings with unidirectional coupling that operate in the developed chaos regime is analyzed. It is shown that the widely used approach, in which only synchronization patterns are subjected to analysis while desynchronization areas are considered as a background signal and removed from analysis, should be considered as methodologically incomplete.

Keywords: chaos, T-synchronization, intermittency, time structure, synchronization patterns, desynchronization areas.

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