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# - Double compound combination synchronization among eight n dimensional chaotic systems

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## Abstract:

Depending on double compound synchronization and compound combination synchronization, a new kind of synchronization is introduced which is the double compound combination synchronization (DCCS) of eight n-dimensional chaotic systems. This kind may be considered as a generalization of many types of synchronization. In the communication, based on many of drive and response systems, the transmitted and received signals will be more secure. Using the Lyapunov stability theory and nonlinear feedback control, analytical formulas of control functions are obtained to insure our results. The corresponding analytical expression and numerical treatment are used to show the validity and feasibility of our proposed synchronization scheme. The eight memristor-based Chua oscillators are considered as an example. Other examples can be similarly investigated. The proposed synchronization technique is supported using the MATLAB simulation outcomes. We obtain the same results of numerical treatment of our synchronization using simulation observations of our example.

## Keywords:

double compound synchronization, compound combination synchronization, chaotic system, Lyapunov stability

## Published In:

Chin. Phys. B , Vol. 27 - No. 8 , --