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Experimental Networks Synchronization of Chua's Circuit in Different Topologies

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Abstract : In this work, we deal with experimental network synchronization of chaotic nodes with different topologies. Our approach is based on complex system theory, and we use a master-slave configuration to couple the nodes in the networks. In particular, we design and implement electronically complex dynamical networks composed by nine coupled chaotic Chua's circuits with topologies: in nearest-neighbor, small-world, open ring, star, and global. Also, network synchronization is evaluated according to a particular coupling strength for each topology. This study is important by the possible applications to private transmission of information in a chaotic communication network of multiple users.

Keywords : complex networks, Chua's circuit, experimental synchronization, multiple users
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