

Abstract Submitted
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Optimal Phase Oscillatory Network¹ ROSANGELA FOLLMANN,
Polytechnic school of University of Sao Paulo — Important topics as preventive detection of epidemics, collective self-organization, information flow and systemic robustness in clusters are typical examples of processes that can be studied in the context of the theory of complex networks. It is an emerging theory in a field, which has recently attracted much interest, involving the synchronization of dynamical systems associated to nodes, or vertices, of the network. Studies have shown that synchronization in oscillatory networks depends not only on the individual dynamics of each element, but also on the combination of the topology of the connections as well as on the properties of the interactions of these elements. Moreover, the response of the network to small damages, caused at strategic points, can enhance the global performance of the whole network. In this presentation we explore an optimal phase oscillatory network altered by an additional term in the coupling function. The application to associative-memory network shows improvement on the correct information retrieval as well as increase of the storage capacity. The inclusion of some small deviations on the nodes, when solutions are attracted to a false state, results in additional enhancement of the performance of the associative-memory network.

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