

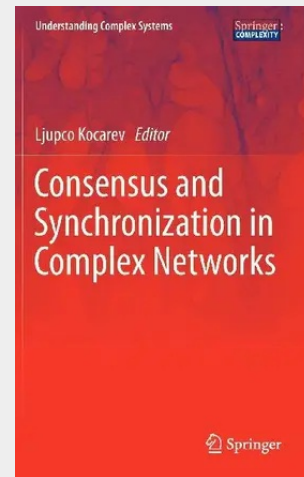
Consensus and Synchronization in Complex Networks

In this book for the first time two scientific fields - consensus formation and synchronization of communications - are presented together and examined through their interrelational aspects, of rapidly growing importance. Both fields have indeed attracted enormous research interest especially in relation to complex networks.

In networks of dynamic systems (or agents), consensus means to reach an agreement regarding a certain quantity of interest that depends on the state of all dynamical systems (agents). Consensus problems have a long history in control theory and computer sciences, and form the foundation of the field of distributed computing. Synchronization, which defines correlated-in-time behavior between different processes and roots going back to Huygens to the least, is now a highly popular, exciting and rapidly developing topic, with applications ranging from biological networks to mathematical epidemiology, and from processing information in the brain to engineering of communications devices.

The book reviews recent finding in both fields and describes novel approaches to consensus formation, where consensus is realized as an instance of the nonlinear dynamics paradigm of chaos synchronization. The chapters are written by world-known experts in both fields and cover topics ranging from fundamentals to various applications of consensus and synchronization.

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