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## A survey on minimum spanning tree based topology control schemes in Wireless sensor networks

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Being a system of spatially distributed sensor nodes to collect important information in the target environment, wireless sensor network is a well-known technology with applications in diverse fields in both military and civil domain such as battlefield intelligence, environmental tracking and emergency response. Since each sensor node has limited computational capacity, battery supply and communication capability, the significant challenges for the realization of wireless sensor networks are its resource restraints. As a way to determine the transmission power of each node so as to maintain network connectivity while consuming the minimum power, topology control is one of the most importantly addressed issues in wireless sensor networks. To enlarge network utilization, shorten end-to-end delays and prolong network lifetime, however, topology control in WSNs is NP-hard. Therefore, approximate methods can be used to tackle it efficiently. The minimum spanning tree problem is one of the most studied problems to find a least-cost spanning tree in a connected edge-weighted graph and many algorithms have been proposed for it. To maintain an energy-efficient communication network among the sensor nodes such that there is a path between any two nodes and the total sum of the energy required for transmission for all edges involved is less, traditional minimum spanning trees have been used to solve these kinds of problems. In this talk, I will present a comprehensive survey of recent advancements in MST-based topology control schemes to provide a research status to potential researchers and highlight the energy conservation techniques adopted by each scheme on the basis of trade-offs offered to extend the lifetime of wireless sensor networks.

### Biography

Xiaochun Wang completed his PhD in Adaptive Antennas at Xi'an Jiaotong University, China in 2005. He is the Director of antenna and smart city laboratory. He has over 100 technical publications and five patents/design rights in area of Adaptive Antennas. He enjoys bringing out innovation solutions to solve challenging aspects of both defense and civil applications.

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