

# **Decentralized Wireless Coordination for Distributed Antenna Arrays**

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## **Abstract**

We present new approaches to wireless coordination of distributed antenna arrays using decentralized algorithms. Synchronization of the electrical states of elements in distributed arrays is necessary for distributed coherent operations such as beamforming. In large arrays, traditional centralized synchronization topologies yield susceptibilities to element failures and interference. Based on consensus averaging, we discuss new methods of synchronizing the relative phases and frequencies of distributed antenna array elements, and analyze the impact of residual errors on beamforming performance.