

# Wireless networks: The world of protocols

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## **Abstract**

We address the problem of protocol design for wireless networks. We focus on three protocols: For power control, medium access control, and routing. The power control problem is how to choose the transmission power levels of packets. The medium access control problem is how to choose the times of packet transmissions, and the routing problem is how to choose the paths of packets from their sources to their destinations. All three protocols need to be implementable in a distributed fashion, in real time, and utilize only the appropriate information made available at nodes. There may also be multiple objective functions to satisfy. We present the COMPOW, CLUSTERPOW and LOADPOW protocols for power control, the SEEDX protocol for medium access control, and the STARA protocol for routing, all implemented in Linux. We outline the theoretical foundations of the protocols as well the architecture and software design issues.

*Joint work with V. Borkar, P. Gupta, V. Kawadia, S. Narayanaswamy, V. Raghunathan, R. Rozovsky, and R. S. Sreenivas.*