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Altri autori (Persone)	KranakisEvangelos
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Nota di contenuto	Preface -- Glossary -- 1. Wireless Data Communications -- 1.1 Signal Representation -- 1.2 Analog to Digital Conversion -- 1.3 Digital to Analog Conversion -- 1.4 Architecture of an SDR Application -- 1.5 Quadrature Modulation and Demodulation -- 1.6 Spread Spectrum -- 1.7 Antenna -- 1.8 Propagation -- 1.9 Ultrawideband -- 1.10 Energy Management -- 1.11 Exercise -- 2. Medium Access Control -- 2.1 Fundamentals of Probability and Statistics -- 2.2 Modeling Traffic -- 2.3 Multiple Access -- 2.4 Demand Assigned Multiple Access -- 2.5 Carrier Sense Multiple Access in IEEE 802.11 -- 2.6 Medium Access Control in ad hoc Networks -- 2.7 Bibliographic Comments -- 2.8 Exercises -- 3. Ad Hoc Wireless Access -- 3.1 Management of Bluetooth Networks -- 3.2 Model for Node Discovery in Bluetooth -- 3.3 Bluetooth Formation Algorithms -- 3.4 Mesh Mode of WiMAX/802.16 -- 3.5 Bibliographic Comments -- Exercises -- 4. Wireless Network Programming -- 4.1 Structure of Information -- 4.2 Socket -- 4.3 Parameters and Control -- 4.4 Receiving Frames -- 4.5 Sending Frames -- 4.6 Exercises -- 5. Ad Hoc Networks Protocols -- 5.1 Normal IP

Routing -- 5.2 The Reactive Approach -- 5.3 The Proactive Approach -- 5.4 The Hybrid Approach -- 5.5 Clustering -- 5.6 Quality of Service -- 5.7 Sensor Network Protocols -- 5.8 Exercises -- 6. Location Awareness -- 6.1 Geographic Proximity -- 6.2 Constructing Spanners of ad hoc Networks -- 6.3 Information Dissemination -- 6.4 Geographic Location Determination -- 6.5 Random Unit Disc Graphs -- 6.6 Coverage and Connectivity with Directional Sensors -- 6.7 Bibliographic Comments -- 6.8 Exercises -- 7. Ad Hoc Networks Security -- 7.1 Authentication Techniques -- 7.2 Physical Layer Attacks -- 7.3 Security of Application Protocols -- 7.4 Biometrics-based Key Establishment -- 7.5 Routing Security -- 7.6 Broadcast Security -- 7.7 Secure Location Verification -- 7.8 Security in Directional Antenna Systems -- 7.9 Bibliographic Comments -- 7.10 Exercises -- Bibliography. Index.

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## Sommario/riassunto

Principles of Ad Hoc Networking presents a systematic introduction to the fundamentals of ad hoc networks. An ad-hoc network is a small network, especially one with wireless or temporary plug-in connections. Typically, some of the network devices are part of the network only for the duration of a communications session or, in the case of mobile or portable devices, while in some close proximity to the rest of the network. These networks can range from small and static systems with constrained power resources to larger-scale dynamic and mobile environments. Wireless ad hoc networks facilitate numerous and diverse applications for establishing survivable dynamic systems in emergency and rescue operations, disaster relief and intelligent home settings. Principles of Ad Hoc Networking - Introduces the essential characteristics of ad hoc networks such as: physical layer, medium access control, Bluetooth discovery and network formation, wireless network programming and protocols. - Explains the crucial components involved in ad-hoc networks in detail with numerous exercises to aid understanding. - Offers key results and merges practical methodologies with mathematical considerations. Principles of Ad Hoc Networking will prove essential reading for graduate students in Computer Science, Electrical Engineering, Applied Mathematics and Physics as well as researchers in the field of ad hoc networking, professionals in wireless telecoms, and networking system developers. Check out [www.scs.carleton.ca/~barbeau/pahn/index.htm](http://www.scs.carleton.ca/~barbeau/pahn/index.htm) for further reading, sample chapters, a bibliography and lecture slides!

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