

1. Record Nr.	UNINA9910818406103321
Autore	Jumira Oswald
Titolo	Energy efficiency in wireless networks / / Oswald Jumira, Sherali Zeadally
Pubbl/distr/stampa	London, : ISTE Hoboken, N.J., : Wiley, 2013
ISBN	9781118579954 111857995X 9781299139909 1299139906 9781118579374 1118579372 9781118580011 111858001X
Edizione	[1st ed.]
Descrizione fisica	1 online resource (118 p.)
Collana	FOCUS series in networks and telecommunications, , 2051-2481
Altri autori (Persone)	ZeadallySherali
Disciplina	621.384
Soggetti	Wireless communication systems - Energy consumption
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Title Page; Contents; PREFACE; CHAPTER 1. ENERGY EFFICIENCY IN CELLULAR NETWORKS; 1.1. Overview of cellular communication networks; 1.2. Metrics for measuring energy efficiency in cellular wireless communication systems; 1.3. Energy efficiency in base stations; 1.4. Energy-efficient cellular network design; 1.5. Interference management and mitigation; 1.6. Enabling technologies; 1.6.1. Energy-efficient communication via cognitive radio; 1.6.2. Using cooperative relays to support energy-efficient communication; 1.6.2.1. Enabling energy-efficient communication via fixed relays 1.6.2.2. Communications in cellular networks via user cooperationCHAPTER 2. ENERGY EFFICIENCY IN WIRELESS AD HOC NETWORKS; 2.1. Overview of wireless ad hoc networks; 2.2. Metrics for measuring energy efficiency in wireless ad hoc networks; 2.3. Energy losses in wireless ad hoc networks; 2.4. Energy efficiency in wireless sensor networks; 2.4.1. Energy efficiency in wireless sensor networks;

2.5. Mobile ad hoc networks (MANETs); 2.5.1. Energy efficiency in mobile ad hoc networks; CHAPTER 3. ENERGY EFFICIENCY IN WIRELESS LOCAL AREA NETWORKS; 3.1. Overview of wireless local area networks 3.2. Energy consumption metrics for WLANs 3.3. Energy efficiency in WLANs; 3.3.1. Physical layer-based energy-efficient schemes; 3.3.2. Medium access control (MAC) layer-based energy-efficient schemes; 3.3.3. Cross-layer-based energy-efficient schemes; 3.4. Energy efficiency strategies in IEEE 802.11n; CHAPTER 4. ENERGY HARVESTING IN WIRELESS SENSOR NETWORKS; 4.1. Energy harvesting; 4.1.1. The harvesting concept; 4.1.1.1. Universal energy-harvesting model A universal energy model is the link between the energy harvester and the WSN node [J]; 4.2. Harvesting techniques 4.2.1. Mechanical energy sources 4.2.2. Thermal energy sources; 4.2.3. Radiation energy sources; 4.2.4. Comparison of harvesting sources; 4.3. Energy harvesting storage devices; 4.4. Power management for EH-WSN; 4.4.1. Discussion on power management for energy harvesting systems; 4.5. Conclusion; CHAPTER 5. FUTURE CHALLENGES AND OPPORTUNITIES; 5.1. Energy efficiency in cellular networks; 5.1.1. Low-energy spectrum sensing; 5.1.2. Energy-aware medium access control and energy-efficient routing; 5.1.3. Energy-efficient resource management in heterogeneous cellular networks 5.1.4. Cross-layer design and optimization 5.1.5. Energy considerations in practical deployments of cooperative and cognitive radio systems; 5.2. Energy efficiency in ad hoc networks; 5.2.1. Sampling techniques; 5.2.2. MAC protocols; 5.2.3. Routing; 5.2.4. Mobility challenges; 5.2.5. Cognitive radio technology applied in wireless ad hoc networks; 5.3. Energy efficiency in WLAN; 5.3.1. IEEE 802.11ac (gigabit Wi-Fi); 5.3.2. MIMO-based WLAN; 5.3.3. Super Wi-Fi (IEEE 802.22); 5.4. Energy harvesting in wireless sensor networks; 5.4.1. Challenges for energy harvesting in harsh conditions 5.4.2. Radiation-based energy harvesters

Sommario/riassunto

The last decade has witnessed an unprecedented development and growth in global wireless communications systems, technologies and network "traffic" generated over network infrastructures. This book presents state-of-the-art energy-efficient techniques, designs and implementations that pertain to wireless communication networks such as cellular networks, wireless local area networks (WLANs) and wireless ad hoc networks (WAHNS) including mobile ad hoc networks (MANETs), and wireless sensor networks (WSNs) as they are deployed across the world to facilitate "always on" reliable high-speed