Record Nr. UNINA9910144585403321 Wireless sensor networks [[electronic resource]]: signal processing and **Titolo** communications perspectives / / edited by Ananthram Swami ... [et al.] Chichester, England;; Hoboken, NJ,: J. Wiley, c2007 Pubbl/distr/stampa **ISBN** 1-281-13524-0 9786611135249 1-61344-497-4 0-470-06179-0 0-470-06181-2 Descrizione fisica 1 online resource (412 p.) Altri autori (Persone) SwamiAnanthram 681.2 Disciplina 681/.2 Soggetti Sensor networks Wireless LANs Signal processing - Digital techniques Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Description based upon print version of record. Note generali Nota di bibliografia Includes bibliographical references and index. Nota di contenuto Wireless Sensor Networks; Contents; List of Contributors; 1 Introduction: Part I Fundamental Properties and Limits; 2 Informationtheoretic Bounds on Sensor Network Performance; 2.1 Introduction; 2.2 Sensor Network Models; 2.2.1 The Linear Gaussian Sensor Network; 2.3 Digital Architectures; 2.3.1 Distributed Source Coding; 2.3.2 Distributed Channel Coding; 2.3.3 End-to-end Performance of Digital Architectures; 2.4 The Price of Digital Architectures; 2.5 Bounds on General Architectures: 2.6 Concluding Remarks: Bibliography: 3 In-Network Information Processing in Wireless Sensor Networks 3.1 Introduction 3.2 Communication Complexity Model; 3.3 Computing Functions over Wireless Networks: Spatial Reuse and Block Computation; 3.3.1 Geographical Models of Wireless Communication Networks; 3.3.2 Block Computation and Computational Throughput; 3.3.3 Symmetric Functions and Types; 3.3.4 The Collocated Network; 3.3.5 Subclasses of Symmetric Functions: Type-sensitive and Typethreshold; 3.3.6 Results on Maximum Throughput in Collocated

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## Sommario/riassunto

A wireless sensor network (WSN) uses a number of autonomous devices to cooperatively monitor physical or environmental conditions via a wireless network. Since its military beginnings as a means of battlefield surveillance, practical use of this technology has extended to a range of civilian applications including environmental monitoring, natural disaster prediction and relief, health monitoring and fire detection. Technological advancements, coupled with lowering costs, suggest that wireless sensor networks will have a significant impact on 21st century life. The design of wireless sens