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Sommario/riassunto

Against the backdrop of the emerging 3G wireless personal communications standards and broadband access network standard proposals, this volume covers a range of coding and transmission aspects for transmission over fading wireless channels. It presents the most important classic channel coding issues and also the exciting advances of the last decade, such as turbo coding, turbo equalisation and space-time coding. It endeavours to be the first book with explicit emphasis on channel coding for transmission over wireless channels. Divided into 4 parts: Part 1 - explains the necessary background for novices. It aims to be both an easy reading text book and a deep research monograph. Part 2 - provides detailed coverage of turbo conventional and turbo block coding considering the known decoding algorithms and their performance over Gaussian as well as narrowband and wideband fading channels. Part 3 - comprehensively discusses both space-time block and space-time trellis coding for the first time in literature. Part 4 - provides an overview of turbo equalisations, also referred to as turbo demodulation. The book systematically converts the lessons of Shannon's information theory into design principles applicable to practical wireless systems. It provides overall design performance studies, giving cognizance to the contradictory design requirements of bit error rate, implementational complexity, coding and interleaving delay, effective throughput, coding rate and other related systems design aspects in a comprehensive manner.