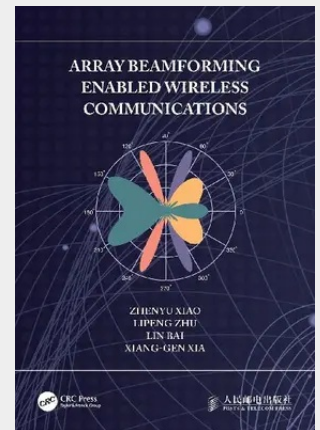


Array Beamforming Enabled Wireless Communications

This book investigates the most advanced theories and methodologies of array beamforming, with a focus on antenna array enabled wireless communication technology. Combining with the current development needs and trends of wireless communication technology around the world, the authors explore the potentials and challenges of large-scale antenna array beamforming technology in next-generation mobile communication and some important emerging application scenarios. The book first introduces the basic structure of antenna array hierarchical codebook and channel estimation with high dimensionality, with which the time cost of searching the channel information can be effectively reduced. It then explicates high-efficiency beamforming transmission methods for point-to-point transmission, full-duplex point-to-point transmission, and point-to-multipoint transmission where array beamforming enabled non-orthogonal multiple access (NOMA) technologies for typical two-user systems and general multi-user systems are emphasized. The book also discusses array beamforming enabled unmanned aerial vehicle (UAV) communications and array beamforming enabled space/air/ground communications, with the uniqueness and relative solutions for single UAV systems and multi-UAV networks being analyzed. This will be a vital reference for researchers, students, and professionals interested in wireless communications, array beamforming, and millimeter-wave communications.



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