Coupled-Oscillator Based Active-Array Antennas (Hardback)

By Ronald J. Pogorzelski, Apostolos Georgiadis

John Wiley Sons Inc, United States, 2012. Hardback. Book Condition: New. 241 x 165 mm. Language: English . Brand New Book. Describing an innovative approach to phased-array control in antenna design This book explores in detail phased-array antennas that use coupled-oscillator arrays, an arrangement featuring a remarkably simple beam steering control system and a major reduction in complexity compared with traditional methods of phased-array control. It brings together in one convenient, self-contained volume the many salient research results obtained over the past ten to fifteen years in laboratories around the world, including the California Institute of Technology s Jet Propulsion Laboratory. The authors examine the underlying theoretical framework of coupled-oscillator systems, clearly explaining the linear and nonlinear formalisms used in the development of coupled-oscillator arrays, while introducing a variety of state-of-the-art methodologies, design solutions, and tools for applying this control scheme. Readers will find: * Numerous implementation examples of coupled-oscillator array prototypes * A continuum model that permits application of diffusion theory to the analysis of phase dynamics * A demonstration of the array behavior through experimental results that validate the linearized theory * Examples of how incorporating coupling delay restores causality, including the latest published results * Guidance on...

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