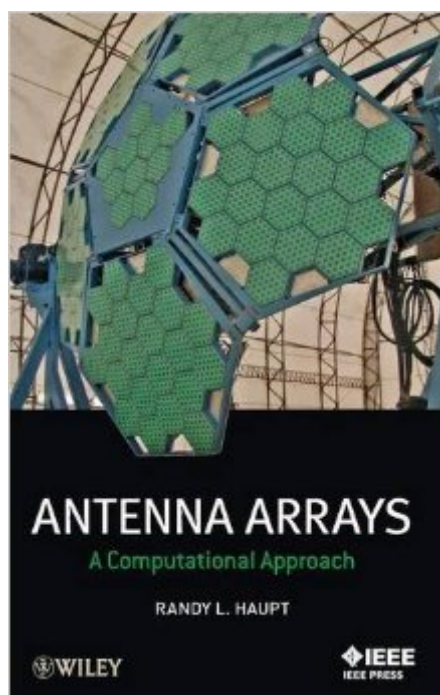


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Antenna Arrays: A Computational Approach



Synopsis

A comprehensive tutorial on the design and practical applications of antenna arrays. An antenna array is an assembly of antenna elements that maximizes a received or transmitted signal in a desired direction. This practical book covers a wide range of antenna array topics that are becoming increasingly important in wireless applications, with emphasis on array design, applications, and computer modeling. Each chapter in *Antenna Arrays* builds upon the previous chapter, progressively addressing more difficult material. Beginning with basic electromagnetics/antennas/antenna systems information, the book then deals with the analysis and synthesis of arrays of point sources and their associated array factors. It presents a sampling of different antenna elements that replace these point sources, then presents element configurations that do not have to lie along a line or in a plane. The complex and difficult-to-predict interactions of elements and electromagnetic waves are introduced, along with computer modeling and experiments that are necessary for predicting the performance of arrays where mutual coupling is important. Then, various approaches to getting signals to and from the array elements to a computer where the signal detection takes place are explored, as are the numerical techniques behind smart antennas. The book emphasizes the computational methods used in the design and analysis of array antennas. Also featured are signal processing and numerical modeling algorithms, as well as pictures of antenna arrays and components provided by industry and government sources, with explanations of how they operate. Fully course-tested, *Antenna Arrays* serves as a complete text in phased array design and theory for advanced undergraduate- and graduate-level courses in electronics and communications, as well as a reference for practicing engineers and scientists in wireless communications, radar, and remote sensing.

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This book provides a straightforward introduction to the subject, with lots of examples to illustrate the concepts. One can go straight from this book into the literature and to write software. Best practical introduction to the subject.

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