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Space Antenna Handbook William A. Imbriale, Steven Shichang Gao, Luigi Boccia, 2012-05-02 This book addresses a broad range of topics on antennas for space applications First it introduces the fundamental methodologies of space antenna design modelling and analysis as well as the state of the art and anticipated future technological developments Each of the topics discussed are specialized and contextualized to the space sector Furthermore case studies are also provided to demonstrate the design and implementation of antennas in actual applications Second the authors present a detailed review of antenna designs for some popular applications such as satellite communications space borne synthetic aperture radar SAR Global Navigation Satellite Systems GNSS receivers science instruments radio astronomy small satellites and deep space applications Finally it presents the reader with a comprehensive path from space antenna development basics to specific individual applications Key Features Presents a detailed review of antenna designs for applications such as satellite communications space borne SAR GNSS receivers science instruments small satellites radio astronomy deep space applications Addresses the space antenna development from different angles including electromagnetic thermal and mechanical design strategies required for space qualification Includes numerous case studies to demonstrate how to design and implement antennas in practical scenarios Offers both an introduction for students in the field and an in depth reference for antenna engineers who develop space antennas This book serves as an excellent reference for researchers professionals and graduate students in the fields of antennas and propagation electromagnetics RF microwave millimetrewave systems satellite communications radars satellite remote sensing satellite navigation and spacecraft system engineering It also aids engineers technical managers and professionals working on antenna and RF designs Marketing and business people in satellites wireless and electronics area who want to acquire a basic understanding of the technology will also find this book of interest Introduction to Microwave Imaging Natalia K. Nikolova, 2017-07-13 With this self contained introductory text readers will easily understand the fundamentals of microwave and radar image generation Written with the complete novice in mind and including an easy to follow introduction to electromagnetic scattering theory it covers key topics such as forward models of scattering for interpreting S parameter and time dependent voltage data S parameters and their analytical sensitivity formulae basic methods for real time image reconstruction using frequency sweep and pulsed radar signals and metrics for evaluating system performance Numerous application examples and practical tutorial exercises provided throughout allow quick understanding of key concepts and sample MATLAB codes implementing key reconstruction algorithms accompany the book online This one stop resource is ideal for graduate students taking introductory courses in microwave imaging as well as researchers and industry professionals wanting to learn the fundamentals of the field

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between the water molecules increase the space between the water molecules decreases b the space between the water molecules decreases the kinetic energy of molecules increases c

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