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Nota di contenuto	SYNTHETIC APERTURERADAR POLARIMETRY; CONTENTS; NOTE FROM THE SERIES EDITOR; FOREWORD; PREFACE; ACKNOWLEDGMENTS; AUTHORS; 1 SYNTHETIC APERTURE RADAR (SAR) IMAGING BASICS; 1.1 Basic Principles of Radar Imaging; 1.2 Radar Resolution; 1.3 Radar Equation; 1.4 Real Aperture Radar; 1.5 Synthetic Aperture Radar; 1.6 Radar Image Artifacts and Noise; 1.6.1 Range and Azimuth Ambiguities; 1.6.2 Geometric Effects and Projections; 1.6.3 Signal Fading and Speckle; 1.7 Summary; References; 2 BASIC PRINCIPLES OF SAR POLARIMETRY; 2.1 Polarization of Electromagnetic Waves 2.2 Mathematical Representations of Scatterers2.3 Implementation of a Radar Polarimeter; 2.4 Polarization Response; 2.5 Optimum Polarizations; 2.5.1 General (Bistatic) Case; 2.5.2 Backscatter (Monostatic) Case; 2.5.3 Special Case: Single Scatterer in Backscatter (Monostatic) Case; 2.5.4 Special Case: Multiple Scatterers with Reflection Symmetry; 2.5.5 A Numerical Example; 2.6 Contrast Enhancement; 2.6.1 Numerical Example; 2.6.2 Image Example; 2.7 Summary; References; 3 ADVANCED POLARIMETRIC CONCEPTS; 3.1 Vector-Matrix Duality of Scatterer Representation

3.2 Eigenvalue- and Eigenvector-Based Polarimetric Parameters 3.2.1
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Model-Based Scattering Decomposition in the Incoherent Case; 3.4
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4.4.2 Effect of Topography on Antenna Pattern Corrections; 4.4.3
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5.7.2 Backscatter from the Underlying Ground Surface (Scattering Path
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Sommario/riassunto

"This book describes the application of polarimetric synthetic aperture radar to Earth remote sensing based on research at the NASA Jet Propulsion Laboratory (JPL). This book synthesizes all current research to provide practical information for both the newcomer and the expert in radar polarimetry. The text offers a concise description of the mathematical fundamentals illustrated with many examples using SAR data, with a main focus on remote sensing of the Earth. The book begins with basics of synthetic aperture radar to provide the basis for understanding how polarimetric SAR images are formed and gives an introduction to the fundamentals of radar polarimetry. It goes on to discuss more advanced polarimetric concepts that allow one to infer more information about the terrain being imaged. In order to analyze data quantitatively, the signals must be calibrated carefully, which the book addresses in a chapter summarizing the basic calibration algorithms. The book concludes with examples of applying polarimetric analysis to scattering from rough surfaces, to infer soil moisture from radar signals"--
