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Titolo	Polarimetric scattering and SAR information retrieval / / Ya-Qiu Jin, Feng Xu
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ISBN	1-118-18816-0 1-299-31591-7 1-118-18815-2
Descrizione fisica	1 online resource (413 p.)
Altri autori (Persone)	XuFeng
Disciplina	621.3848/5
Soggetti	Synthetic aperture radar Electromagnetic waves - Scattering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Basics of polarimetric scattering -- Vector radiative transfer -- Imaging simulation of polarimetric SAR: mapping and projection algorithm -- Bistatic SAR: simulation, processing, and interpretation -- Radar polarimetry and deorientation theory -- Inversions from polarimetric SAR images -- Automatic reconstruction of building objects from multi-aspect SAR images -- Faraday rotation on polarimetric SAR image at UHF/VHF bands -- Change detection from multi-temporal SAR images -- Temporal Mueller matrix for polarimetric scattering -- Fast computation of composite scattering from an electrically large target over a randomly rough surface -- Reconstruction of a 3D complex target using downward-looking step-frequency radar -- Index.
Sommario/riassunto	An essential reference on polarimetric Synthetic Aperture Radar (SAR), this book uses scattering theory and radiative transfer theory as a basis for its treatment of topics. It is organized to include theoretical scattering models and SAR data analysis techniques, and presents cutting-edge research on theoretical modeling of terrain surface. The authors include quantitative approaches for remote sensing, such as

the analysis of the Mueller matrix solution of random media, and mono-static and bistatic SAR image simulation. Jin and Xu also cover new parameters for unsupervised surface classification, DEM inversion, change detection from multi-temporal SAR images, reconstruction of building objects from multi-aspect SAR images, and polarimetric pulse echoes from multi-layering scatter media. Structured to encourage methodical learning, earlier chapters cover core material, while later sections involve more advanced new topics which are important for researchers. The final chapter completes the book as a reference by covering SAR interferometry, a core topic in the remote sensing community. The book is designed for researchers, engineers and scientists working on polarimetric SAR hardware and software, application developers of SAR and polarimetric SAR, and remote sensing specialists working with SAR data, using ESA, Radarsat and ALOS data. The book is also geared for a number of other related readers: Users of the technology in agriculture, earth science, environmental sciences, forestry, oceanography. Students and specialists working in geomatics and using remote sensing data in hazardous areas for earthquakes, landslides, and floods. Graduate students in electric engineering, physics, earth and space sciences. Features theoretical scattering models and SAR data analysis techniques. Explains the simulation of SAR images for mono- and bi-static radars, covering both qualitative and quantitative information retrieval. Chapter topics include: theoretical scattering models; SAR data analysis and processing techniques; and theoretical quantitative simulation reconstruction and inversion techniques. Structured to enable both academic learning and independent study, laying down the foundations first of all before advancing to more complex topics. Experienced author team presents mathematical derivations and figures so that they are easy for readers to understand. Pitched at graduate-level students in electrical engineering, physics, earth and space sciences, as well as researchers. MATLAB code available for readers to run their own routines.

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