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Nota di contenuto	; 1. Electromagnetic concepts useful for radar applications -- ; 2. Scattering matrix -- ; 3. Wave, antenna, and radar polarization -- ; 4. Dual-polarized wave propagation in precipitation media -- ; 5. Doppler radar signal theory and spectral estimation -- ; 6. Dual-polarized radar systems and signal processing algorithms -- ; 7. The polarimetric basis for characterizing precipitation -- ; 8. Radar rainfall estimation -- ; App. 1. Review of electrostatics -- ; App. 2. Review of vector spherical harmonics and multipole expansion of the electromagnetic field -- ; App. 3. T-matrix method -- ; App. 4. Solution for the transmission

matrix.

#### Sommario/riassunto

This 2001 book provides a detailed introduction to the principles of Doppler and polarimetric radar, focusing in particular on their use in the analysis of weather systems. The design features and operation of practical radar systems are highlighted throughout the book in order to illustrate important theoretical foundations. The authors begin by discussing background topics such as electromagnetic scattering, polarization, and wave propagation. They then deal in detail with the engineering aspects of pulsed Doppler polarimetric radar, including the relevant signal theory, spectral estimation techniques, and noise considerations. They close by examining a range of key applications in meteorology and remote sensing. The book will be of great use to graduate students of electrical engineering and atmospheric science as well as to practitioners involved in the applications of polarimetric radar systems.