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Nota di contenuto	Acknowledgments; Preface; Contents; 1 Introduction; 1.1 Overview; 1.2 EM Scattering by Spheroids; 1.3 Spheroidal Antenna; 1.4 EM Radiation in Dielectric Spheroids; 1.5 Oblate Spheroidal Models; 1.6 Spheroidal Cavity System; 1.7 Spheroidal Harmonics and Mathematica Software; 2 Spheroidal Coordinates and Wave Functions; 2.1 Spheroidal Coordinate Systems; 2.2 Spheroidal Scalar Wave Functions; 2.3 Spheroidal Angular Harmonics; 2.3.1 Series Representation in Terms of Associated Legendre Functions; 2.3.2 Power Series Representation 2.7.2 Geometrical Features of Spheroidal Functions 2.7.3 Tabulated Numerical Data: New Results and Comparison; 2.8 Spheroidal Vector Wave Functions; 3 Dyadic Green's Functions in Spheroidal Systems; 3.1 Dyadic Green's Functions; 3.2 Fundamental Formulation; 3.3 Unbounded Dyadic Green's Functions; 3.3.1 Method of Separation of Variables; 3.3.2 Unbounded Scalar Green's Function; 3.3.3 Appropriate Spheroidal Vector Wave Functions for Construction of DGFs; 3.3.4 Unbounded Green's Dyadics; 3.4 Scattering Green's Dyadics; 3.4.1 Scattering Green's Dyadics in the Inner Region ($f = l$)

4.3.4 Fields at Axial Incidence; 4.3.5 TE Fields with Incidence Angle 90° ;
4.4 Far-Field Expressions; 4.5 Numerical Computation and Mathematica Source Codes; 4.6 Results and Discussion; 5 EM Scattering by a Coated Dielectric Spheroid; 5.1 Geometry of the Problem; 5.2 Incident, Transmitted and Scattered Fields; 5.3 Relationship between Incident and Scattered Fields; 5.3.1 Boundary Conditions; 5.3.2 TE Polarization for Nonaxial Incidence; 5.3.3 TM Polarization for Nonaxial Incidence; 5.3.4 Fields at Axial Incidence; 5.4 Numerical Computation and Mathematica Source Code; 5.5 Results and Discussion
6 Spheroidal Antennas

Sommario/riassunto

The flagship monograph addressing the spheroidal wave function and its pertinence to computational electromagnetics Spheroidal Wave Functions in Electromagnetic Theory presents in detail the theory of spheroidal wave functions, its applications to the analysis of electromagnetic fields in various spheroidal structures, and provides comprehensive programming codes for those computations. The topics covered in this monograph include: Spheroidal coordinates and wave functions Dyadic Green's functions in spheroidal systems EM scattering by a conducting spheroid
