1. Record Nr. UNINA9910825420403321 Autore Franceschetti Giorgio Titolo Scattering, natural surfaces, and fractals // Giorgio Franceschetti and Daniele Riccio Pubbl/distr/stampa Amsterdam; ; Boston, : Elsevier Academic Press, c2006 **ISBN** 1-280-75144-4 9786610751440 0-08-046901-9 Edizione [1st ed.] Descrizione fisica 1 online resource (307 p.) Altri autori (Persone) RiccioDaniele Disciplina 530.14/1 Soggetti Electromagnetic waves - Scattering - Mathematical models Surfaces (Physics) - Mathematical models 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 and index. Nota di contenuto Front cover; Scattering, Natural Surfaces and Fractals; Copyright page; Table of contents; Preface; Chapter 1. The Scattering Problem; 1.1. Introduction and Chapter Outline; 1.2. The Scattering-Problem Definition; 1.3. Motivations; 1.4. Surface Models and Electromagnetic Methods; 1.5. Deterministic versus Stochastic Models for the Natural Surfaces: 1.6. Deterministic versus Stochastic Evaluation for the Scattered Field; 1.7. Analytic versus Numerical Evaluation of the Scattered Field: 1.8. Closed-Form Evaluation of the Electromagnetic Field Scattered from a Natural Surface: 1.9. Book Outline 1.10. References and Further ReadingsChapter 2. Surface Classical Models; 2.1. Introduction and Chapter Outline; 2.2. Fundamentals of Stochastic Processes: 2.3. Spectral Characterization of Stochastic Processes; 2.4. Isotropic Surfaces; 2.5. Classical Models for Natural Surfaces: First-Order Stochastic Characterization; 2.6. Classical Models for Natural Surfaces: Second-Order Stochastic Characterization; 2.7. Physical Counterpart of Natural-Surfaces Classical Parameters; 2.8.

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## Sommario/riassunto

This book provides a comprehensive overview of electromagnetic scattering from natural surfaces, ranging from the classical to the more recent (fractal) approach. As remote sensing applications become increasingly important, this text provides readers with a solid background in interpretation, classification and thematization of microwave images. The "scattering problem? is discussed in detail with emphasis on its application to electromagnetic wave propagation, remote sensing, radar detection, and electromagnetic diagnostics. Natural surface and fractals complete this treatise focusing on how