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Nota di contenuto	Light scattering by submicron spherical particles on semiconductor surfaces -- to Light Scattering from Microstructures -- Theory -- Heaviside Operational Calculus and Electromagnetic Image Theory -- Mathematical Methods for Data Inversion -- Mueller Matrices -- Scattering by Particles on Substrates. Numerical Methods -- Light Scattering from a Sphere Near a Plane Interface -- Electromagnetic Scattering by Cylindrical Objects on Generic Planar Substrates: Cylindrical-Wave Approach -- T-Matrix Method for Light Scattering from a Particle on or Near an Infinite Surface -- Scattering of Polarized Light -- Properties of a Polarized Light-Beam Multiply Scattered by a Rayleigh Medium -- Polarization and Depolarization of Light -- Statistics of the Scattered Light -- Polarisation Fluctuations in Light

Scattered by Small Particles -- Intensity Statistics of the Light Scattered by Particles on Surfaces -- Applications -- Microstructures in Rough Metal Surfaces: Electromagnetic Mechanism in Surface-Enhanced Raman Spectroscopy -- Light Scattering by Particles and Defects on Surfaces: Semiconductor Wafer Inspection -- From Scattering to Waveguiding: Photonic Crystal Fibres -- The Angular Distribution of Light Emitted by Sonoluminescent Bubbles -- Light Scattering by Regular Particles on Flat Substrates.

Sommario/riassunto

With a tutorial approach, this book covers the most impor- tant aspects of the scattering of electromagnetic radiation from structures (isolated or on a substrate) whose size is comparable to the incident wavelength. Special emphasis is placed on the electromagnetic problem of microstructures lo- cated close to an interface by reviewing the most important numerical methods for calculating the scattered field. The polarization propagation and the statistics of scattered in- tensity in microstructured targets are also presented from a didactic point of view. The final part of the book is dedi- cated to the most significant applications in both basic and applied research: surface enhanced Raman scattering, monito- ring and detection of surface contamination by particles, optical communications, particle sizing and others.