



# Absorption and Scattering of Light by Small Particles

By Craig F. Bohren, Donald R. Huffman

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**Absorption and Scattering of Light by Small Particles** By Craig F. Bohren, Donald R. Huffman

Absorption and Scattering of Light by Small Particles

Treating absorption and scattering in equal measure, this self-contained, interdisciplinary study examines and illustrates how small particles absorb and scatter light. The authors emphasize that any discussion of the optical behavior of small particles is inseparable from a full understanding of the optical behavior of the parent material-bulk matter. To divorce one concept from the other is to render any study on scattering theory seriously incomplete.

Special features and important topics covered in this book include:

- \* Classical theories of optical properties based on idealized models
- \* Measurements for three representative materials: magnesium oxide, aluminum, and water
- \* An extensive discussion of electromagnetic theory
- \* Numerous exact and approximate solutions to various scattering problems
- \* Examples and applications from physics, astrophysics, atmospheric physics, and biophysics
- \* Some 500 references emphasizing work done since Kerker's 1969 work on scattering theory
- \* Computer programs for calculating scattering by spheres, coated spheres, and infinite cylinders

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### Editorial Review

#### From the Publisher

A self-contained treatment of light scattering within the framework of classical electromagnetic theory and linear optics. Treats absorption and scattering of light on an equal basis. Examines absorption and scattering in all types of electromagnetic radiation from radio to ultraviolet wavelengths. Discusses the optical behavior of bulk matter. Balances theory and experimentation. Contains three computer programs for calculating absorption and scattering by homogeneous and coated spheres, and infinite cylinders. Covers surface plasmons and photons in small particles.

#### From the Back Cover

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#### About the Author

**Craig F. Bohren** is Distinguished Professor of Meteorology at Pennsylvania State University. He is the author of two popular scientific books, *Clouds in a Glass of Beer* (for which he received the American Meteorological Society's Louis J. Battan Author's Award) and *What Light Through Yonder Window Breaks?*, also available from Wiley.

**Donald R. Huffman** is Regents Professor of Physics at the University of Arizona. In 1983 he and colleague Wolfgang Kratschmer produced the first sample of C<sub>60</sub>, buckminsterfullerene. The pair was honored with the MRS medal and shared in the 1994 Hewlett-Packard Europhysics Prize.

### Users Review

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##### **Velma Stuart:**

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